



Academic Calendar 1998-99

Fall 1998			
	DAY	TIME	EVENT
DATE		0900	State of the University Address
Sept. 15	Tues.	0800	Classes begin
Sept. 23	Wed.		
Sept. 29	Tues.	until 1800	Last day to add a class
Oct. 2	Fri.	until 1700	Last day to apply for fall quarter graduation
Nov. 3	Tues.	until 1700	Last day to withdraw with a W
Nov. 11	Wed.	2200	Legal holiday—University closed
Nov. 25	Wed.	2300	Thanksgiving academic break begins
Nov. 26	Thurs.		Legal holiday—University closed
Nov. 27	Fri.	2000	Legal holiday—University closed
Nov. 30	Mon.	0800	Thanksgiving academic break ends
Dec. 7	Mon.	0800	Final examinations begin
Dec. 12	Sat.	1700	Final examinations end
Winter 1999			
Dec. 24	Thurs.		Legal holiday—University closed
Dec. 25	Fri.		Legal holiday—University closed
Jan. 1	Fri.		Legal holiday—University closed
Jan. 4	Mon.	0800	Classes begin
Jan. 9	Sat.	until 1200	
	Fri.	until 1700	Last day to annly for winter quarter graduation
Jan. 15		until 1700	Last day to apply for winter quarter graduation
Jan. 18	Mon.		Legal holiday—University closed
Feb. 13	Sat.	until 1200	Last day to withdraw with a W
Mar. 15	Mon.	0800	Final examinations begin
Mar. 20	Sat.	until 1700	Final examinations end
Mar. 27	Sat.	1000	Commencement
Spring 1999			
Mar. 29	Mon.	0800	Classes begin
Apr. 3	Sat.	until 1200	Last day to add a class
Apr. 9	Fri.	until 1700	Last day to apply for spring quarter graduation
May 8	Sat.	until 1200	Last day to withdraw with a W
May 31	Mon.	dittii 1200	Legal holiday—University closed
June 7	Mon.	0800	Final examinations begin
June 12	Sat.	until 1700	Final examinations end
June 19	Sat.	1000	
June 17	Jat.	1000	Commencement
Summer 1999	100.0		
June 14	Mon.	0800	Classes begin—entire summer quarter and first term
June 18	Fri.	until 1700	Last day to add a class—first term
June 21	Mon.	until 1800	Last day to add a class—entire summer quarter
June 25	Fri.	until 1700	Last day to apply for summer quarter graduation
July 5	Mon.		Legal holiday—University closed
July 6	Tue.	until 1700	Last day to withdraw with a W—first term
July 17	Sat.	until 1700	First term ends (final exams are given during last class period)
July 19	Mon.	0800	Second term classes begin
July 23	Fri.	until 1700	Last day to add a class—second term
July 26	Mon.	until 1800	Last day to withdraw with a W—entire summer quarter
Aug. 9	Mon.	until 1800	Last day to withdraw with a W—second term
Aug. 20	Fri.	2200	Second term and entire summer quarter end (final exams
9			are given during last class session)
Aug. 21	Sat.	1000	Commencement

YOUNGSTOWN STATE UNIVERSITY

UNDERGRADUATE BULLETIN 1998-99

> EFFECTIVE JUNE, 1998 Youngstown, Ohio 44555

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The information in this catalog should be regarded as informational only. Although current at the time of publication, it is subject to change without notice. The University reserves the right to change requirements, fees, course offerings, or other policies at any time. Please check with the department or dean's office for the most current information.

Youngstown State University is committed to a campus environment that values all individuals and groups, and to non-discrimination and equal opportunity for all persons without regard to sex, race, religion, color, age, national origin, sexual orientation, handicap/disability, or identification as a disabled and/or Vietnam Era veteran. The University is also committed to the principles of affirmative action and acts in accordance with state and federal laws.

Inquiries should be directed to Youngstown State University's Director of Affirmative Action, who is responsible for coordinating the University's programs for compliance with Section 504 of the Rehabilitation Act of 1973 and Title IX of the Education Amendments of 1972. Inquiries can be initiated in writing or by calling (330) 742-3370.

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UNDERGRADUATE CATALOG ISSUE

EFFECTIVE JUNE, 1998 YOUNGSTOWN, OHIO

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Mission

Youngstown State University strives to create a teaching and learning environment that promotes academic excellence, fosters intellectual growth and scholarship, focuses on the needs of students and the community, and reflects an awareness of cultural and global perspectives and concerns. The University is dedicated to outstanding teaching; to quality research and scholarly activity, both in the traditional sense and as they relate to classroom instruction and needs of the service region; and to responsible public service addressing the employment and economic needs of the region as a whole; providing knowledge, resources, and leadership to assist area schools, businesses, industries, agencies, and governments; and taking measures to enhance the quality of life for the constituencies it serves.

Youngstown State University aspires to provide an environment in which students can enrich their minds, their creativity, and their problem-solving abilities, so that they may become fully developed individuals; informed, conscientious, and productive citizens; and responsible and understanding partners with others in life, family, and work. The University strives to prepare students for the future, that they may play active roles in shaping it. To these ends, the University seeks to integrate the best elements of the long tradition to humanistic, liberal education in the arts and sciences with education in the most significant advancements in technology, health, engineering, education, business, and the applied arts.

The University is committed to fostering an understanding of the connections between and among teaching, scholarship, and service. The University seeks faculty who combine these elements in ways that bring excitement to the classroom, studio, clinic, and laboratory, stimulating enthusiasm and eagerness for learning in students. The University endeavors to enhance the educational experience by providing out-of-class development and support as well as co-curricular opportunities and services. The primary test of the University's effectiveness is the high quality of its graduates, the kinds of lives they lead, their accomplishments and their service to society. In this sense, teaching and learning, research and scholarship, University and public service are seen not only as interrelated but also as fundamental to endeavors both within and outside the University.

As a state-assisted metropolitan university, Youngstown State University provides a wide range of opportunities in higher education primarily, but not exclusively, to the residents of northeastern Ohio and western Pennsylvania. The University espouses the principles of equal opportunity, affirmative action, and broad access to education: academic access through open admission for all Ohio high school graduates to a wide range of programs; economic access through reasonable tuition and a comprehensive program of financial aid; and programmatic access through careful attention to the collective and individual needs of all its various constituencies: degree and nondegree students; transfer students; commuters and noncommuters; traditional and nontraditional students; associate, baccalaureate, masters, and doctoral students; as well as others encompassed by the Youngstown State University mission.

Accreditation

Youngstown State University is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools (30 North LaSalle Street, Suite 2400, Chicago, Illinois 60602-2504; Telephone: 800-621-7440).

Programs within the individual colleges are further accredited by their respective professional bodies. Those accreditations will be found in each college section.

Affirmative Action Program

Youngstown State University is committed to a campus environment that values all individuals and groups, and to non-discrimination and equal opportunity for all persons without regard to sex, race, religion, color, age, national origin, sexual orientation, handicap/disability, or identification as a disabled and/or Vietnam Era veteran. The University is also committed to the principles of affirmative action and acts in accordance with state and federal laws.

Although the ultimate responsibility for maintaining a viable and effective affirmative action program rests with the President of the University, the key role in its execution is delegated to the Director, Affirmative Action, who periodically reviews the program, discusses grievances and charges of discrimination, if any, and makes recommendations toward the program's effectiveness. An Affirmative Action Committee serves in an advisory capacity.

The University uses all normal means of communication to make known its policies of affirmative action and equal opportunity employment.

Disability Services, located within Affirmative Action, delivers basic support services to persons with disabilities. Any person affiliated with the University with a documented permanent or temporary disability may register with this office. For more information or to register, call (330) 742-3370 or come to Room 2002 in Jones Hall.

Historical Sketch

Youngstown State University had its beginning in 1908 with the establishment of the School of Law of the Youngstown Association School, an evening school sponsored by the Young Men's Christian Association. In 1920, the State of Ohio empowered the school to grant the Bachelor of Laws degree; in the same year, the school initiated a four-year course in business administration. In 1921, the school changed its name to the Youngstown Institute of Technology, and evening liberal arts courses were offered for the first time. In 1927, the College of Arts and Sciences was established and offered the first daytime classes. In 1928, the institute changed its name to Youngstown College, and in 1930, the college conferred the Bachelor of Arts degree for the first time.

In 1944, the trustees of the Young Men's Christian Association transferred control of the institution to the members of the Corporation of Youngstown College, and in 1955 the corporation was rechartered as The Youngstown University. The University joined the Ohio system of higher education in September 1967 as Youngstown State University.

Dana's Musical Institute, founded in nearby Warren in 1869, became Dana's Musical Institute of Youngstown College in 1941. In 1946, the Engineering Department, organized several years before, became the William Rayen School of Engineering; two years later, the Business Administration Department became the School of Business Administration; and in 1981 the school name was changed to the Warren P. Williamson, Jr. School of Business Administration. In 1960, the Education Department became the School of Education. The Graduate School and the College of Applied Science and Technology were created in the spring of 1968, and in 1974 the College of Fine and Performing Arts was established, comprising the Dana School of Music and the departments of Art and of Speech Communication and Theatre.

In 1972, Youngstown State University, with the University of Akron and Kent State University, formed a consortium to sponsor the Northeastern Ohio Universities College of Medicine, which enrolled its first students in 1975.

Today, Youngstown State University consists of the School of Graduate Studies and six undergraduate colleges-the College of Arts and Sciences, the Williamson College of Business Administration, the Beeghly College of Education, the Rayen College of Engineering and Technology, the College of Fine and Performing Arts, and the College of Health and Human Services. Degrees offered range from the associate, bachelor's and master's to a doctorate in educational leadership.

Academic Organization

Youngstown State University is organized in the following units:

The College of Arts and Sciences The Beeghly College of Education The Rayen College of Engineering

and Technology

The College of Fine and Performing Arts The College of Health and Human Services

The Williamson College of Business Administration

The School of Graduate Studies

The Northeastern Ohio Universities College of Medicine

Virtually all departments offer courses during daytime and evening hours, and several majors may be obtained by students who are only able to attend during the evening. To accommodate working students, classes are offered on a flexible schedule-from classes that meet five days a week to classes that meet only one day a week. To better serve the community, many general education courses are offered at Metropolitan College sites in Boardman, Niles and Austintown. The main academic year is from late September into June, in three 11-week quarters. During the summer quarter, courses are offered both for a full 10 week session and for half-sessions of five weeks each.

The School Of Graduate Studies

The School of Graduate Studies offers programs in economics, English and history leading to the Master of Arts degree; programs in biology, chemistry, criminal justice and mathematics leading to the Master of Science degree; concentration in general business, executive, finance, management and marketing of the Master of Business Administration degree; program in health and human services leading to the Master of Health and Human Services; programs in music education, performance, music theory and composition, and music history and literature leading to the Master of Music degree; a program in chronic illness care leading to the Master of Science in Nursing; programs in chemical, civil and environmental, electrical, industrial and manufacturing systems and mechanical engineering leading to the Master of Science in Engineering degree; and master teacher (elementary or secondary), educational administration, counseling and special education programs leading to the Master of Science in Education degree. The program in educational leadership offered by the Department of Educational Administration, Research, and Foundations leads to the Doctor of Education degree.

Certificate programs are available in bioethics or professional writing and editing. A Certificate in Historic Preservation is also available as part of the master's program in history. Please refer to the latest *Graduate Bulletin* for additional program and admission information, or contact the Office of Graduate Studies at (330) 742-3091.

Degrees Granted

Youngstown State University grants the degrees Doctor of Education (Ed.D.), Master of Arts (M.A.), Master of Science (M.S.), Master of Science in Education (M.S. in Ed.), Master of Science in Engineering (M.S. in Engr.), Master of Business Administration (M.B.A.), Master of Health and Human Services (M.H.H.S.), Master of Science in Nursing (M.S.N.), Master of Music (Mus.M.), Bachelor of Arts (B.A.), Bachelor of Engineering (B.E.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), Bachelor of Science (B.S.), Bachelor of Science in Applied Science (B.S. in A.S.), Bachelor of Science in Business Administration (B.S. in B.A.), Bachelor of Science in Education (B.S. in Ed.), Bachelor of Science in Nursing (B.S.N.), Bachelor of Science in Physical Therapy (B.S.P.T.), Bachelor of Science in Respiratory Care (B.S.R.C.), Associate in Arts (A.A.), Associate in Applied Science (A.A.S.), and Associate in Labor Studies (A.L.S.). All bachelor's and associate degrees may be taken as honors degrees. A combined B.S./M.D. degree is offered in conjunction with the Northeastern Ohio Universities College of Medicine.

Majors

Baccalaureate degrees may be earned in the following areas. The college in which each major resides is noted in parenthesis, with colleges coded as follows: Arts and Sciences, AS; Business Administration, WCBA; Education, ED; Engineering and Technology, WRCET; Fine and Performing Arts, FPA; Health and Human Services, HHS.

Accounting (WCBA)

Adolescent/Young Adult Education (ED)

- · Life Sciences
- · Physical Sciences
- Language Arts
- Earth Sciences
- Mathematics
- Science
- Social Studies

Advertising & Public Relations (WCBA)

Advertising Art (WCBA)

Allied Health (HHS)

American Studies (AS)

Anthropology (AS)

Art History (FPA)

Biology (AS)

Black Studies (AS)

Chemical Engineering (WRCET)

Chemistry (AS)

Civil & Environmental Engineering (WRCET)

Civil Engineering Technology (WRCET)

Combined Science (AS)

Computer Information Systems (AS)

Computer Science (AS)

Criminal Justice (HHS)

Earth Science (AS)

Economics (AS)

Electrical Engineering (WRCET)

Electrical Engineering Technology (WRCET)

Early Childhood Education (ED)

English (AS)

Environmental Studies (AS)

Exercise Science (HHS)

Family & Consumer Sciences Education (ED)

Fashion Retailing (WCBA)

Finance (WCBA)

Food & Nutrition (HHS)

French (AS)

General Administration (WCBA)

Geography (AS)

Geology (AS)

Geology (AS) German (AS)

Health Sciences (HHS)

History (AS)

Home Economics Services (HHS)

Hospitality Management (HHS)

Individualized Curriculum Program

Industrial & Systems Engineering (WRCET)

Industrial Marketing (WCBA)

Integrated Business Education (ED)

Italian (AS)

Labor Relations (AS)

Latin (AS)

Mall Management (WCBA)

Management (WCBA)

Marketing Management (WCBA)

Mathematics (AS)

Mechanical Engineering (WRCET)

Mechanical Engineering Technology (WRCET)

Medical Technology (HHS)

Merchandising: Fashion & Interiors (HHS)

Middle Childhood Education (ED)

Multi-Age Education (ED)

- · Art
- Drama/Theater
- French
- German
- Health
- Italian
- Physical Education
- Russian
- Spanish
- Latin

Music Composition (FPA)

Music Education (FPA)

Music History & Literature (FPA)

Music Performance (FPA)

Music Theory (FPA)

Nursing (HHS)

Nursing Home Administration (HHS)

Office Information Systems (AS)

Operations Management (WCBA)

Philosophy (AS)

Physical Education (HHS)

Physical Therapy (HHS)

Physics (AS)

Physics/Astronomy (AS)

Political Science (AS)

Pre-dentistry (AS)

Pre-forestry (AS)

Pre-kindergarten Education (HHS)

Pre-medicine (AS)

Pre-law (AS)

Professional Writing & Editing (AS)

Psychology (AS)

Public Administration (WCBA)

Religious Studies (AS)

Respiratory Care (HHS)

Retail Marketing (WCBA)

Russian (AS)

Social Studies (AS)

Social Work (HHS)

Sociology (AS)

Spanish (AS)

Special Education, Intervention (ED)

Speech Communication (FPA)

Studio Art (FPA)

Telecommunication Studies (FPA)

Theater (FPA)

Associate degrees may be earned in:

Accounting (WCBA)

Associate in Arts (AS, WCBA, HHS)

Civil Engineering Technology (WRCET)

Computer Information Systems (AS)

Criminal Justice-Corrections (HHS)

Criminal Justice-Police Science (HHS)

Dental Hygiene (HHS)

Dietetic Technology (HHS)

Drafting & Design (WRCET)

Electrical Engineering Technology (WRCET)

Emergency Medical Technology (HHS)

Finance (WCBA)

Histotechnology (HHS)

Hospitality Management (HHS)

Labor Studies (WCBA)

Management (WCBA)

Marketing (WCBA)

Mechanical Engineering Technology (WRCET)

Medical Assisting (HHS)

Medical Laboratory Technology (HHS)

Office Information Systems (AS)

Prekindergarten (HHS)

Social Services Technology (HHS)

Associate degrees can be applied to a related baccalaureate degree or serve as the foundation for a bachelor's degree in the same field through the Individualized Curriculum Program.

ADMISSION

Youngstown State University offers broad access to education though open admission for all Ohio high school graduates.

Undergraduate admission is handled by the Office of Undergraduate Recruitment and Admissions (OURA), located in Dana Hall at the corner of University Plaza and Bryson Street. You may contact OURA in any of the following ways:

Phone: (800) 336-9YSU • (330) 742-2000

TDD: (330) 742-1564

Fax: (330) 742-3674 E-Mail: enroll@ysu.edu Web Site: www.ysu.edu

The OURA is open Monday through Friday 8 a.m. to 5 p.m. and Saturdays by appointment. Campus tours are best scheduled a week in advance, but you are welcome to visit the YSU campus and stop in the Office any time without an appointment. If you call ahead, we can arrange free parking; otherwise, visitors can park in the M-8 (Bryson Street) lot across from Dana Hall for a \$3.00 fee that covers parking for a full day.

Applicants must apply by the following dates:

August 15 for Fall Quarter

November 15 for Winter Quarter

March 15 for Spring Quarter

May 15 for Summer Quarter (Session 1)

June 1 for Summer Quarter (Session 2)

Once your credentials have been received, you will be notified of your admission status by letter.

Admission to the University does not guarantee admission to every program. Some programs within the University have separate admission standards that must be met before a student may enroll in that particular program. Developmental courses are available to assist in satisfying scholastic deficiencies. Those students who lack high school subjects required by the various colleges within the University may be admitted with the understanding that these courses will be completed as soon as possible and not later than the end of the college sophomore year.

State Residency Status

Place of residence for tuition purposes will be determined at the time of admission or readmission by the Office of Undergraduate Recruitment and Admissions (OURA) on the basis of the residency rules stated in Appendix A and information supplied on the "Application for Admission" and "Undergraduate Application for Readmission" form.

If you have any question about the appropriate classification, you should immediately bring it to the attention of OURA for review.

Residency Status Appeal

Appeal for a change in residency classification should be made in writing to OURA, which may require the student to complete an "Application for Non-Resident Tuition Surcharge Exemption" form. A decision will be sent in writing to the student, who may then appeal the classification in a personal interview.

The student may ask OURA to arrange an appearance before the Residence Classification Board. Such appearances ordinarily occur within two weeks of the request, if possible. The residence classification board's appellate decision is final.

Please see Appendix A of this catalog for the complete text of the Ohio Board of Regents' Residency Criteria.

Academic Credentials

Academic credentials include high school and college transcripts, test scores, transient authorization forms, GED scores, and/or any other records required for admission or granting credit. Only properly certified and signed credentials received directly from the issuing institution will be accepted.

Application Requirements

All prospective students must submit their applications for admission and all required credentials to the Office of Undergraduate Recruitment and Admissions (OURA) by the following dates:

		Last Day
	Last Day	for
Quarter	to Apply	Credentials
Fall 1998	Aug. 15, 1998	Sept. 1, 1998
Winter 1998	Nov. 15, 1998	Dec. 1, 1998
Spring 1999	Feb. 15, 1999	Mar. 1, 1999
Summer 1999	May 15, 1999	June 1, 1999
*Fall 1999	Aug. 15, 1999	Sept. 1, 1999

*Priority Application Deadline — Fall 1999 applicants who apply by February 15, 1999 will be given special consideration for early summer orientation/registration appointments.

The director of OURA has discretionary authority regarding these requirements under an approved procedure.

Application Fee

A non-refundable application fee of \$25 is required unless the applicant is a former YSU student.

HIGH SCHOOL PREPARATION

Pre-College: Students graduating from high school after September 1985 * and desiring to pursue a baccalaureate degree should have completed the following college preparatory units to be considered as having unconditional admission status:

English	4
Algebra 1, 2	2
Geometry	1
Biology, Chemistry, Earth Science, or Physics	1
Other Science	1
US History	1
US Government	1/2
Other Social Sciences	1/2
Additional Science	
or Social Science	1
Foreign Language ⁺⁺	2
Fine or Performing Arts	1
Other Subjects	1
Total Units	16

In addition, the Bachelor of Engineering (B.E.) degree program suggests a unit of mechanical drawing, a half-unit of trigonometry, and in the sciences, one unit of chemistry and one unit of physics specifically. Programs such as computer information systems, physical sciences, and mathematics should also take a fourth year of mathematics. For the Bachelor of Music (B.M.) degree program,

the applicants are expected to have proficiency in one or more branches of applied music. See the Dana School of Music section.

Students who have been admitted to the University with conditional status will have their high school records evaluated by the college in which they are enrolled. Additional coursework required of conditionally admitted students will count as elective degree credit except for developmental courses in mathematics. Since such coursework may vary depending upon college and degree requirements, students changing colleges should check with advisors in the new college. Deficiencies should be completed before the beginning of the junior year (90 quarter hours).

Students wishing to pursue an associate degree must have completed a minimum of 16 units of high school credit in the courses listed below for unconditional admission status:

English	4
Algebra I	1
Algebra II or Geometry	1
Biology, Chemistry, Earth Science or Physics	1
Other Science	1
U.S. History	1
U.S. Government	1/2
Other Social Science	1/2
Other Subjects	7-8
Total Units	16

'Students who have graduated from high school before September 1985 should consult the dean of the college in which they are enrolled for the list of pre-college courses.

"Two units in one language.

ADMISSION STATUS

New Freshman Applicants

Ohio Residents

Ohio residents must have graduated from high school with a state-approved diploma or successfully completed the General Education Development (GED) Test.

Applicants are required to take the ACT or the SAT and have the results sent directly to the Office of Undergraduate Recruitment and Admissions. Those students who have been out of school for two or more years and who are not pursuing a restricted program are exempt from this requirement. Failure to take a required test will result in postponing consideration for admission to a later quarter.

The University is a testing center administering the ACT at announced dates to accommodate applicants to institutions requiring the test for entrance or advisement.

Out-of-State Residents

Out-of-state residents must have graduated from high school with a state approved diploma and be ranked in the upper two-thirds of their high school class; or have an ACT composite score of 17 or higher; or have a combined SAT score of 820 or higher.

Mercer and Lawrence Counties

By special agreement, residents of Mercer and Lawrence Counties in Pennsylvania are afforded the same admission requirements as Ohio residents.

Early Admissions Options Program

Youngstown State University offers an Early Admissions Options Program (EAOP) which provides additional academic challenges to high school students who have demonstrated above-average academic performance. Participants in this program must have completed their sophomore year but not yet graduated from high school. A recommendation for participation must come from the high school guidance counselor or principal. Ohio residents must have passed all sections of the ninth grade proficiency examinations. Financial responsibility for coursework is solely that of the student. College credit is validated and awarded after the student submits a final transcript upon graduation from high school. Interested students should contact the Office of Enrollment Services for further program details.

Post-Secondary Enrollment Options (Senate Bill 140) Program

The Ohio General Assembly has adopted a Post-Secondary Enrollment Options program (SB 140) designed to provide Ohio high school students with additional options for learning at no cost to the student. Youngstown State University welcomes the opportunity to work with high school students, their parents, and high school personnel interested in this program. The experience allows appropriately qualified students to earn college and high school graduation credits. Applications are submitted in the Spring of each year for consideration of participation in any of the three quarters beginning with the following fall quarter. Summer quarter is not included in this program. Details may be obtained from local high school guidance offices or the Office of Enrollment Services.

High School Transcripts

Applicants must arrange to have their high schools send to the Office of Undergraduate Recruitment and Admissions (OURA) a record of all work completed. Partial transcripts will be given consideration for early decisions. If the applicant's record clearly indicates satisfactory completion, notification of acceptance will be made before high school graduation.

Upon graduation, applicants must have a final high school transcript showing graduation date sent to OURA.

Non-Matriculated Admission

The option of non-matriculated admission provides an opportunity for adults out of high school two or more years to enroll in undergraduate courses without completion of the regular admission process. High school or previous collegiate transcripts are not required until the non-matriculated student completes twenty-eight credit hours or decides to seek admission to a degree program. Coursework taken in the twenty-eight credit hours as a non-matriculated student may be applied to a degree program at Youngstown State University. Non-matriculated students are able to register after current students have registered.

Non-matriculated admission is handled by the Office of University Outreach, Southwoods Commons, 100 DeBartolo Place, Youngstown. Phone (330) 742-3221, or for noncredit programs, (330) 742-3358.

TRANSFER

An applicant who has graduated from high school and was enrolled in another college or university for at least one course, is classified as a transfer applicant. This classification includes postgraduate applicants from other institutions seeking additional undergraduate course work.

The Ohio Board of Regents (OBOR), following the directive of the Ohio General Assembly, developed a statewide policy to facilitate students' ability to transfer credits from one Ohio public college or university to another in order to avoid duplication of course requirements. Since independent colleges and universities in Ohio may or may not be participating in the transfer policy, students interested in transferring to independent institutions are encouraged to check with the college or university of their choice regarding transfer agreements.

Conditions for transfer admission to the University are in line with OBOR rules and regulations. More information can be obtained through the Office of Undergraduate Recruitment and Admissions.

Transferring to YSU

Transfer from a Regionally Accredited Two-Year Institution

The University recognizes the associate degree as preliminary to the baccalaureate and admits advanced-standing students possessing the associate degree from an accredited institution. Transfer credit is granted for all work successfully completed for the associate degree.

Youngstown State University has established articulation agreements with a number of community colleges in Ohio and western Pennsylvania. Through these agreements, a maximum number of credits from the associate degree-granting institution will be applied toward a bachelor's degree program at YSU. Associate degree holders meeting that criterion will, in most cases, be admitted with junior standing at Youngstown State and entitled to all the rights and privileges of native junior students, including eligibility for financial aid and priority in registration. The institutions with which YSU has agreements are:

Belmont Technical College
Butler County Community College
Community College of Allegheny College
Community College of Beaver County
Cuyahoga Community College
Hocking College
Jefferson Community College
Kent State University—Regional Campuses
(Dual Admission)

Lakeland Community College

THE YOUNGSTOWN STATE UNIVERSITY TRANSFER MODULE

The Youngstown State University transfer module consists of 54 quarter hours distributed as follows:

English Composition		- 8
Humanities	(must include two different disciplines)	12-16
Social Studies	(must include two different disciplines)	12-16
Science	(must include one laboratory science)	12-16
Mathematics	(a course in mathematics, statistics, computer science or logic for which three years of high school college preparatory mathematics is a prerequisite)	4

An annual listing of specific courses from which the student may choose is available from academic advisors.

Lorain County Community College North Central Technical College Owens Community College Penn State—Shenango Washington State Community College

Similar agreements are pending with several other community colleges in the region.

Applicants who have not completed an associate program are considered on the same basis as other transfer applicants.

Ohio Residents

Transfer applicants who are residents of Ohio and in good standing at the last institution attended and have an aggregate cumulative point average of 2.0 or higher (on a 4.0 system) for all courses taken at other colleges or universities are admitted in good standing. Those with an aggregate cumulative point average of less than 2.0 or on probation may be considered for probationary transfer if their overall academic achievements, including high school grades and test scores, indicate potential success. Applicants suspended or dismissed from other institutions are not eligible for consideration (without appeal to the Office of Undergraduation Recruitment and Admissions) until at least two quarters have passed following the term in which the suspension occurred.

Out-of-State Residents

Applicants who are non-residents of Ohio must be in good standing at the last institution attended and have an aggregate cumulative point average of 2.0 or higher (on a 4.0 system) for all courses taken at all colleges or universities to be considered for admission.

Mercer and Lawrence Counties

By special agreement, residents of Mercer and Lawrence Counties in Pennsylvania are afforded the same admission requirements as Ohio residents.

Conditions of Transfer Admission

Admission to the University does not guarantee that a transfer student will be automatically admitted to all majors, minors, or fields of concentration. Once admitted, transfer students shall be subject to the same regulations governing applicability of catalog requirements as all other students. Furthermore, transfer students shall be accorded the same class standing and other privileges as all other students on the basis of the number of credits earned. All residency requirements must be successfully completed at the receiving institution prior to the granting of a degree.

Planning for Transfer Admission

In order to facilitate transfer with maximum applicability of transfer credit, prospective transfer

students should plan a course of study that will meet the requirements of a degree program at the receiving institution. Specifically, students should identify early in their collegiate studies an institution and major to which they desire to transfer. Furthermore, students should determine if there are language requirements or any special course requirements that can be met during the freshman or sophomore year. This will enable students to plan and pursue a course of study that will articulate with the receiving institution's major. Students are encouraged to seek further information regarding transfer from the Office of Undergraduate Recruitment and Admissions as well as from their advisor and the college or university to which they plan to transfer.

Credentials for Transfer Students— Transcripts

Pre-baccalaureate. All undergraduate transfer applicants may need to provide the Youngstown State University Office of Undergraduate Recruitment and Admissions (OURA) with an official copy of their high school transcript and must provide an official copy of all undergraduate transcripts.

With baccalaureate. Postgraduate applicants are required to submit a transcript from the institution that granted their highest degree. High school transcripts and any other undergraduate transcripts are not required unless specifically requested by OURA.

Transfer Credit

Transcripts of credits earned are evaluated by the OURA and a copy of the evaluation is issued to the applicant if she or he is accepted.

Pre-baccalaureate. Transfer credit is given for all coursework taken at a regionally accredited college or university, provided that the student has a cumulative point average equivalent to at least a 2.0 (on a 4.0 system) at that institution and that the work is creditable toward a degree at that institution. A "D" grade accepted in transfer of credit does not satisfy a prerequisite for which a higher grade is needed. A student who has a cumulative point average of less than 2.0 (on a 4.0 system) at a regionally accredited institution can transfer only courses in which a grade of "C" or higher has been earned.

Distribution of any accepted course work is determined by the appropriate school or college and/ or department in accordance with policies governing the fulfillment of degree requirements.

Transfer students should note the residency requirement under "Candidacy for a Degree."

Appeals. A student disagreeing with the award of transfer credit by the receiving institution has the right to appeal the decision and should contact the Office of Undergraduate Recruitment and Ad-

missions to begin the process. The institution will make the student aware of the entire appeal process at the time of contact.

If a transfer student's appeal is denied by the institution after all appeal levels within the institution have been exhausted, the institution shall advise the student of the availability and process of appeal to the state level Articulation and Transfer Appeals Review Committee.

The state Appeals Review Committee shall review and recommend to institutions the resolution of individual cases of appeal from transfer students who have exhausted all local appeal mechanisms concerning applicability of transfer credits at receiving institutions.

Admission with Non-Traditional Credit

You may be admitted to Youngstown State University with credits from non-traditional educational sources.

Veterans

Efforts are made to give all necessary guidance and assistance to military veterans and others eligible for VA educational benefits.

Courses taken through the United States Armed Forces Institute (USAFI) or the Defense Activity for Non-Traditional Education Support (DANTES) as well as certain formal service school courses may be considered for transfer toward the student's degree program. USAFI or DANTES courses must be evidenced by an official transcript, and service school courses by certification of in-service training on DD Form 214 (Armed Forces of the United States Report of Transfer or Discharge).

"An individual who has served or is serving in the United States Armed Forces and has completed Basic Military Training will receive up to three quarter hours of credit for the University's Health and three quarter hours for the Physical Education requirement. Credit may also be granted for Advanced Individual Training (A.I.T.) obtained while a member of U.S. Armed Forces. A copy of the applicant's DD 214 or DD 229, Application for the Evaluation of Learning Experiences During Military Service, must be supplied to the Office of Undergraduate Recruitment and Admissions in order to validate such credit. "(AARTS (Army)-CCAF (Air Force) transcripts should be provided if possible). Granting of credit for A.I.T. will be based on American Council of Education's (A.C.E.) recommendation. Credits granted may not be applicable to specific degree requirements. The University participates in the Con-Ap Program.

Credit by Examination

Credit-by-examination is available to students who satisfactorily complete the appropriate subject examination. The following standardized tests are currently available: Advanced Placement Program (APP)

College Level Examination Program (CLEP)

Proficiency Examination Program (PEP)

Subject-area credit-by-exam is offered by some departments. Contact the specific department for more information. A list of currently offered exams is available through the Office of Testing.

For further information, contact the Office of Testing.

Correspondence Courses

The University does not offer correspondence courses. The University will accept correspondence work taken in connection with an accredited college or university under the same circumstances as provided in the section titled "Transfer Credit."

Transient Applicants

A student seeking a degree at another institution may ordinarily take one quarter of course work at YSU as a transient student. The student must apply for admission to the University and obtain a transient authorization form from the Office of Undergraduate Recruitment and Admissions (OURA). This form must be partially completed by the applicant and the remainder by the registrar of the institution which the student is attending. The form is to be returned by that registrar to the OURA of Youngstown State University. Only students in good academic standing and eligible to return to their institution will be permitted to enroll as transients. Students who wish to remain as a transient student for a second consecutive quarter should contact OURA. A transient student who wishes to transfer to Youngstown State University must complete an Undergraduate Application Form, provide an official high school transcript, and submit official transcripts from all other colleges attended.

Former Student Applicants

All students who have interrupted their attendance at Youngstown State University for four or more consecutive quarters must reactivate their record in the Enrollment Center or in the Office of Records. Students who have attended any accredited college or university since last attending YSU must contact OURA.

Suspended Students

A former student who was academically suspended must be reinstated by the dean of the college from which he or she was suspended. Reinstatement procedures may vary with the college; for details consult either the Office of Records or the appropriate dean's office.

See Grade Requirements on p. 32 for rules regarding suspension and reinstatement.

Combined Bachelor of Science/Doctor of Medicine Applicants (B.S./M.D.)

Prospective students seeking admission to YSU combined B.S./M.D. degree program must submit an application for admission to Northeastern Ohio Universities College of Medicine and must take either the ACT or the SAT. Official results from either the ACT or SAT must be sent directly to the Northeastern Ohio Universities College of Medicine from the testing agency. Also, high school transcripts with grades through the junior year must be mailed directly from the high school to the Northeastern Ohio Universities College of Medicine.

It is the intent of the YSU/NEOUCOM Joint Admissions Committee for the BS/MD program to select a class each year that is culturally diverse and representative. To fulfill the mission statements of YSU and NEOUCOM, both qualitative and quantitative data are carefully reviewed by the Admissions Committee in order to promote equity.

Northeastern Ohio Universities College of Medicine is a publicly-chartered and funded institution in the state of Ohio. Therefore, its charter mandates giving admissions preference to residents of the state of Ohio as defined by the Ohio Board of Regents. Only U.S. citizens and permanent residents may be considered for admission to NEOUCOM. Upon application, you must have U.S. citizenship or permanent-resident status.

The application deadline and the official transcripts and test results deadline is December 15 preceding the summer in which the program begins.

International Student Applicants

Application for undergraduate international applicants is made directly to the Center for International Studies and Programs (CISP).

General Admission Statement

The admission information contained in the sections applicable to international students reflects minimum requirements. Meeting these requirements does not guarantee admission to the University or to specific programs. Persons who are not citizens of the United States but hold permanent resident, refugee, or political asylee status should apply based on their state of residence.

International Freshmen and Overseas Transfer Students

Applicants from overseas must submit the following information well in advance of the desired date of admission. Admissions are possible during all terms provided the deadline for application is met. Deadline for the winter term is July 15, the spring term October 15, the summer term, January 15, and the fall term, March 15. Students should plan to arrive one week prior to the beginning of the term.

- A completed application form, a \$25 non-refundable application fee (to be drawn on a U.S. bank) and a list of all educational experiences, including studies undertaken in the U.S.
- Official credentials and transcripts from all secondary schools, colleges, and universities which the student has attended, including subjects studied, grades, and key to the grading system. In addition, if credentials are not in English official translations must be provided.
- Certification of financial resources available for education and living expenses while attending the University.
- 4. Test of English as a Foreign Language (TOEFL). Minimum score of 500 is required. A student who does not achieve 500 on the TOEFL will be referred to the English Language Institute at the Center for International Studies and Programs. Australia, Belize, the British Caribbean and British West Indies, Canada (except Quebec), England, Guyana, Ireland, Liberia, New Zealand, Scotland, the United States and Wales are native English-speaking countries; therefore citizens from the above countries are exempt from the TOEFL or MELAB.
- Applicants may be required to submit additional materials.

English Requirement for Permanent Residents, Refugees, or Political Asylees

If English is not your native language, and you have been a permanent resident, refugee, or political asylee less than one year, you are required to submit scores from either the

—Test of English as a Foreign Language (TOEFL). (Minimum score of 500 is required) or

-Michigan English Language Assessment Battery (MELAB). (Minimum score of 80 is required)

Based on test results, individual applications may be reviewed on an individual basis.

These tests are recommended for any student who speaks English as a second language, even those who attended high school in the U.S. If you score below the minimum for the test, you should attempt to improve your English skills before beginning academic work at YSU. Intensive English study is available through the English Language Institute. (See Special Academic Programs for information).

Conditional Admission

Students meeting all the above admissions requirements except the specified level of English proficiency may be admitted conditionally. This admission is conditional upon successful completion of English Language study at the English Language Institute (ELI). (See Center for International Studies and Programs).

International Transfer Student (within U.S.A.)

To be considered as a transfer student, applicants must have first completed course work at a U.S. accredited college or university. Applications must be received not later than July 15 for fall quarter, November 15 for winter quarter; January 15 for spring quarter, and March 15 for summer quarter.

Transfer applicants must submit the following to be considered for admission:

- A completed application form, a \$25 non-refundable application fee (to be drawn on a U.S. bank) and a list of all educational experiences including studies undertaken in the U.S.
- 2. Official credentials and transcripts from all secondary schools, colleges and universities which the student has attended, including subjects studied, grades, and a key to the grading system. If credentials are not in English, official translations must be provided. Transfer credits may be granted for courses taken at U.S. and overseas accredited institutions. Other options include credit by examination. Evidence of academic and disciplinary good standing at the last prior institution with a minimum grade point average of 2.00 (on a 4.00 scale). Some YSU programs may have higher requirements.
- Proof of successful completion of English composition. If no English composition credit was earned from a prior institution, a TOEFL score of at least 500 or its MELAB equivalent.

- Certification of financial resources available for education and living expenses while attending the University.
- Recommendation from the international student advisor of the previous college or university.
- Applicants may be required to submit additional materials.

All advanced credit is evaluated by the International Undergraduate Admissions Office of the Center for International Studies and Programs to determine eligibility. Credits from accredited or officially recognized institutions in other countries will be evaluated upon presentation of official transcripts, official translations and course descriptions. Students holding undergraduate degrees equivalent to the bachelor's degree may be admitted to the University for post-graduate study upon recommendation of the International Undergraduate Admissions Committee and the dean of the proposed college.

Graduate Admission

Application for admission to the University for graduate study is made directly to the dean of Graduate Studies. (For details, consult the Graduate School Catalog or the School of Graduate Studies.)

Continuing Education

Individuals interested in a continuing education program or off-campus instruction should consult the director of University Outreach. This program is described under "University/Community Outreach".

STUDENT FEES AND CHARGES 1998-99

TUITION			
INSTRUCTIONAL FEE			
Undergraduate			
Part-time, 1 to 11 credits	\$	79	per credit
Full-time, 12 to 18 credits	\$	980	per quarter
Undergraduate credits in excess of "bulk" rate per quarter	\$	42	per credit
Graduate Students	\$	90	per credit
GENERAL FEE			
Students registering for 1-11 credits	\$	20	per credit
Students registering for 12 or more credits	\$	233	per quarter
NON-RESIDENT TUITION SURCHARGE			
Regional Service Area†:			
Undergraduate:			
Students registering for 1 to 11 credits	\$	49	per credit
Students registering for 12 to 18 credits	\$	588	per quarter
Students registering for excess credits		49	per credit
Graduate:	\$	54	per credit
Non-Regional Service Area:			
Undergraduate:			
Students registering for 1-11 credits		111	per credit
Students registering for 12-18 credits		1,332	per quarter
Students registering for excess credits		111	per credit
Graduate:	\$	112	per credit
MULTI-SERVICE FEE			
Students registering for 1-11 credits	\$	16	per quarter
Students registering for 12 or more credits	\$	26	per quarter
ACADEMIC COMPUTING FEE	\$	15	per quarter
HOUSING CHARGES			
Room and Board per academic year	\$	4,560	
Payable \$1,520 per quarter, except that an extra \$200			
is collected the first quarter of residency and the Spring			
is reduced by \$200. (If a resident does not stay through			
the Spring Quarter, the \$200 is forfeited.)			
Residence Hall Security Deposit (paid first quarter)	\$	100	
Single Room Surcharge	\$	300	
Residence Hall Summer Session			
Room, per five-week session		400	
Single Room Surcharge, per five week session		150	
Security Deposit (summer)		100	
University Apartments (room only, per person per academic year)			
Summer (room only-five weeks)	\$	400	
Voluntary Board Plan (Students not rooming in University housing)			
Nineteen-meal Plan - per week		655	per quarter**
Fifteen-meal Plan - per week		560	per quarter**
Ten-meal Plan - per week		450	per quarter**
Five-meal Plan - per week	Ф	225	per quarter**
SPECIAL PURPOSE FEES, SERVICE CHARGES, AND FINES			
Career Planning Program Test		30	per use
Computer Assisted Course Foo	\$	25	per course
Computer Assisted Course Fee		1	
Computer Intensive Course Fee	\$	35	per course
	\$	35 10 30	per course per credit***

Inoculation Fee:		
Hepatitis series	\$ 12	25
Measels, Mumps, Rubella	\$ 3	30
Tetanus		5
International Student Credential Evaluation Fee	\$ 4	45
Laboratory Material Fee Level 1 —	\$ 2	20 per course
Level 2 —	\$ 3	30 per course
Level 3 —	\$ 4	40 per course
Late Application for Graduation fee (after 3rd wk. of qtr.)	\$ 2	25
Late Payment Fee	\$ 2	25
Late Registration Fee	\$ 2	25
Performance Music Fee	\$ 3	35 per credit
Orientation Fee	\$ 2	25
Parking Permit: per academic quarter	\$ 3	38 per quarter
Per Day Without Permit	\$	3
Professional Practice Participation Fee	\$ 5	55 per course
Proficiency Examination	\$ 3	30 per course****
Tuition Installment Payment Plan Application Fee	\$ 2	25 per use
Tuition Installment Payment Plan Late Payment Fee	\$ 1	14
Tuition Loan late payment Fee	\$ 1	10 per month
Undergraduate Application Fee (first time applicant)		25
Former student returning	\$	0
SERVICE CHARGES		
Child Development Laboratory Charge	\$ 2	25 per quarter
Early Childhood Practicum Charge	\$ 2	25 per quarter
Elem. Educ. Reading Specialist Charge	\$ 2	25 per quarter
Health & Physical Education Activity : Set by and paid to		
independent vendor. (variable to cover cost in that course)		
Health & Physical Education Locker & Towel:		
Students registered for HPES course	\$	0
All authorized users (not enrolled for HPES course)	\$ 2	25 per quarter
Lock Replacement	\$	6
Towel Replacement	\$	6
I.D. Replacement Charge	\$ 1	15
Intramural Team Deposit	\$ 1	10
Maag Library Carrel Key (paid at Maag)	\$	0 annual charge
Returned Check or Credit Card Charge		30
Student Locker Rental		15 academic year
Thesis Binding	\$ 2	25

FINES

Library/Curriculum Center:

- 1.) Overdue book: \$.10 per day to maximum of \$11, plus cost of book replacement including a \$10 processing charge.
- Overdue reserve book: \$.55 per day to a maximum of \$11, plus cost of book replacement including a \$10 processing charge.
- Unauthorized removal of closed reserve book: \$.55 per day to a maximum of \$11, plus cost of book replacement, including a \$10 processing charge plus \$5.

Parking Violations:

Class I - All violations except those in Class II \$10

Class II -- Parking in a Handicap Zone without proper permit, \$35

Parking at a No Parking sign, Tow Away Zone, Loading Zone, Official Use Only Sign, Fire Lane or in the Campus Core area.

[†]The Youngstown State University regional service area, for non-resident tuition surcharge purposes, is defined as including the counties of Chautauqua, New York; Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Indiana, Jefferson, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland, Pennsylvania; and Brooke, Hancock, Marshall, and Ohio, West Virginia.

^{††}Voluntary Board Plan—Rate subject to change. Food service bids are being evaluated.

^{***}Credit by Examination—Credit awarded for courses based upon the successful completion of a test administered by an academic department at YSU. The course title appears on the transcript but no grade is listed.

^{****}Proficiency Examination—A course or courses may be waived based on the performance on an examination. No academic credit is given and the course is not listed on the transcript.

FEES, SERVICE CHARGES, AND FINES

Payment of Tuition and Fees

Tuition and fees for the quarter are due on or before the date published in the Schedule of Classes (see "Important Dates"). You may pay your bill in person at the payment windows on the second floor of Meshel Hall or by mail to the Office of the Bursar. You may pay by check (payable to Youngstown State University), or with Visa, MasterCard, or Discover card. Several payment plans are also available that allow you to spread your payments out over a longer period. Registration is not complete until all tuition and fees are paid.

All outstanding charges, for example, library or parking fines, must be paid before you can pay your quarterly tuition and fees. Graduation and transcripts will also be held until all University bills are paid. Any balance owed must be sent to the Office of the Bursar no later than the payment-notice due date in order for your registration process to be completed.

Your enrollment at the University creates an implied contract between you and YSU. If you choose not to attend the University, you must officially withdraw from all courses within the first week of classes or you must pay all charges in full. If no effort is made to pay the outstanding bill, collection measures will be implemented.

If you decide to withdraw from the University once you have enrolled, you must access the Complete Withdrawal Option on the Student On-Line Advisement and Registration System (SOLAR) or come to the Office of the Registrar in Meshel Hall. Withdrawal before the end of the first week of classes will cancel your obligation to the University. However, complete withdrawal from the University after the end of the first week of classes will not cancel an outstanding bill.

Fees

Approximately 50 percent of the educational and general fund revenue of Youngstown State University is received as a subsidy from the State of Ohio. The balance must be raised from the students and from other non-appropriated sources. The Board of Trustees of Youngstown State University has pledged to make every effort to keep the required fees as low as is consistent with providing quality education. It is intended that fees not be adjusted more often than annually and that fee changes be announced in the spring or early summer. The Board of Trustees does, however, reserve the right to change any fee, charge or fine without notice if conditions warrant.

The table found on the previous two pages lists all fees, charges and fines for the current academic year. An explanation of each follows.

Tuition. The sum of the instructional fee and the general fee is the tuition for the student.

Instructional Fee. This fee is assessed all students each quarter. The rate is per academic quarter hour of credit for one to 12 credits or for more than 18 credits; it is a flat rate for students registering for 12 to 18 credits during one quarter. Students registering for 19 or more credits pay the flat rate plus the per-credit rate for each credit over 18. This fee supplements the state subsidy and is a source of revenue for the University's educational and general fund.

Audited Courses. Students may audit courses (i.e., register to take a course without receiving credit). The fee for auditing a course is the same as if the course were taken for credit.

General Fee. This fee is also assessed all students each quarter; the rate depends upon the number of credits registered for. This fee is for non-instructional services such as Kilcawley Center, intercollegiate athletics, intramural sports, performing artists and lecture programs, student government, and the Career Services Office.

Multi-Service Fee. The fee is assessed all students each quarter; the rate depends upon the number of credits for which the student is registered. This fee is designed to partially offset the expenses associated with various administrative services such as: career services credentials, graduation, transcript, add/drop, diploma mailing, diploma replacement, diploma cover, I.D. validation sticker replacement, withdrawal, and other miscellaneous services.

Non-Resident Tuition Surcharge. As noted above, all students pay the instructional fee and the general fee. Those students who are not legal residents of Ohio must pay a surcharge in addition. Students who are legal residents of the regional service area pay a lesser surcharge than do students who are legal residents of other areas. The regional service area includes the counties of Chautauqua, New York; Albegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Indiana, Jefferson, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland, Pennsylvania; and Brooke, Hancock, Marshall, and Ohio, West Virginia.

Academic Computing Fee. This fee is charged to all students and will provide increased on-campus access to the Internet, establish and maintain an open lab in Maag Library, provide increased lab reliability and technical assistance, and provide infrastructure support (network services and electronics maintenance) for technology.

Performance Music Fee. This fee is charged in addition to the regular tuition. It is assessed students taking music lessons and is applied on a percredit basis at \$35 per credit.

Undergraduate Application Fee. This fee is charged every new undergraduate student applying for admission. This fee is non-refundable.

Credit by Examination Fee. A fee is charged for each course for an individual examination provided by an academic department to determine whether a student can be given academic credit for his or her knowledge of the course material. The fee must be paid before the test can be taken. This fee is charged on a pre-credit basis.

Late Payment Fee. Payment of a bill after the due date results in assessment of a late payment fee. All fees and charges billed must be paid in full. Partial payments are not accepted. This fee is also charged any student who registers after classes begin. (Also see "Change of Registration").

Late Registration Fee. A fee is charged a currently enrolled student who fails to register for the next term at the assigned time and later registers at the time assigned new or returning students.

Course Fee. The course fee is designed to partially offset expenses associated with courses that make use of supplies, equipment or personnel support beyond that associated with typical lecture courses. Examples include chemical supplies, engineering equipment, and language laboratory assistants.

Computer Fees. The \$25 "Computer Assisted Course Fee" and the \$35 "Computer Intensive Course Fee" are designed to partially offset the expenses associated with classes that require significant use of computers. Examples of these expenses include computer hardware, computer software, network wiring, and lab monitors. Courses that require students to spend between 10% and 50% of their combined class and homework time working on computers are assessed the "Assisted" fee. The "Intensive" fee is attached to courses for which inclass and out-of-class computer use exceeds 50%.

Parking Permit Fee. A permit to park in YSU parking facilities is issued to students and employees of the University upon payment of a fee. The fee is for the academic quarter. Some areas are restricted (e.g. for students only, faculty/staff only, resident hall residents only). The current Parking Regulations brochure with its enclosed parking lot map should be consulted. A daily permit may be purchased by those wishing to use parking facilities for a short period of time. Visitor short term meter parking is available in several lots. If a student completely withdraws, the permit and access card must be returned within five days of either the withdrawal date or the last date of the tuition refund period-whichever is earlier-in order to obtain a refund for this fee.

Health and Physical Education Locker and Towel Fee. Students enrolled in a class requiring use of a basket, or towel service in Beeghly Physical Education Center or the Sports Complex do not pay a fee. Other authorized persons pay a fee each academic quarter. Loss of or damage to the lock or towel will result in assessment of a replacement charge.

Proficiency Examination Fee . A fee is charged for an examination provided by an academic department to determine a student's proficiency for some reason other than assignment of academic credit. If academic credit is to be awarded, the credit by examination fee applies and not this fee.

Testing Fees. The University Office of Testing supervises a variety of special tests used for admission to college, graduate, or professional schools. The fees are established by the agencies responsible for the tests. Students are advised to contact the center for information and to make reservations. An additional fee is charged if a student is allowed to take a test without a reservation.

Tuition Installment Plan. There is an installment plan available for student tuition payments, during fall, winter and spring quarters. There is a nonrefundable fee for this option.

Service Charges

Identification Card Replacement Charge. A charge is made for replacement of an ID Card.

Physical Education Activity Charge. Certain activity courses (e.g. bowling, skiing, ice skating, scuba diving) are available only upon the payment of a charge sufficient to cover the cost of the facility or transportation. These charges are set by the operator of the facility, are paid to that operator (not to the University), and are in addition to any other applicable fee.

Housing Charges. University housing is available for the academic year and summer terms. The academic year contract includes fall, winter, and spring quarters. Charges are billed quarterly. The residence contract includes room and 19 meals per week. In addition to the charge for service, a security deposit is required. Payment and refunds are as scheduled in the housing contract. Meal tickets are also available for students who are not residents of University Housing.

Returned Check or Credit Card Charge. A charge is levied on anyone whose check or charge is returned unpaid by the bank. If any late payment results therefrom, the applicable fee is also assessed. Failure to pay billing of return check and/or charge within six days; and/or a second check/charge return will result in the University not accepting this type of payment at any of its collection points and subject the student to withdrawal for the term.

Student Locker Rental. A limited number of lockers are available in various buildings for the convenience of commuting students. Locker payments and assignments are made in the Kilcawley Center.

Thesis-Binding Charge. A charge is made for each copy of a master's thesis bound by the William F. Maag, Jr. Library.

Transcript of Credits Charge. While no charge is made for each transcript issued by the Office of Records, transcripts will not be issued for anyone with outstanding debts owed to the University.

Fines

Parking Violation Fine. Parking without a permit, parking in unauthorized areas and other offenses as identified in the Parking Regulations brochure will result in the issuance of a citation against the vehicle and its owner, or against the student responsible for the vehicle (e.g., a student driving a parent's car). Payment of a fine removes the citation. In certain cases, vehicles may be towed. See the regulations for detailed information.

Library Fines. Fines are assessed for failure to return books on time as stipulated or for the unauthorized removal of a reserved book. Willful damage or defacement of library materials or other property is a violation of state law and is punished as such.

Reduction/Refund of Fees Charges Upon Withdrawal

To withdraw from a single course, or all courses, the student must access the Change of Registration Option or Complete Withdrawal Option on the Student On-line Advisement and Registration System (SOLAR) or complete a change of registration form at the Enrollment Information Counter in Meshel Hall. Nonattendance of class or notification to the instructor or department does not constitute official changes or withdrawals.

A full reduction of the instructional, general, performance music, and laboratory materials fees, and the nonresident surcharge, will be provided for all withdrawals in conformity with the following schedule:

Course	100 Percent	No
Duration [†]	Refund*	Refund
10 weeks or more	6th day of term or earlier	7th day of term or later
5-9 weeks	5th day of term	6th day of term or earlier or later
less than 5 weeks	3rd day of term or earlier	4th day of term or later

^{*}Every day of the week is counted except Sunday.

If fees were paid by scholarship, loan or grantin-aid, the appropriate credit is issued to the fund from which the initial payment was made. Pro-rata refunds are calculated for first-time freshmen Title IV recipients who completely withdraw during the first six (6) weeks of the quarter.

No refunds or adjustments are made on student accounts until the tenth day of the term.

Any withdrawal, or reduction in academic hours after the schedule outlined above will not be entitled to a reduction of charges and/or refund unless an Application for Involuntary Withdrawal is submitted and approved. Tuition charges are based on the total number of hours as of the last date of the tuition refund period plus any hours added after the refund period. Hours dropped after the refund period outlined above do not "exchange" for hours added after the refund period.

If a student withdraws for reasons beyond his or her control (e.g., illness, military service, job transfer, or shift change imposed by the employer which creates a direct conflict with the class schedule), the fee charges may be reduced in direct proportion to the number of weeks enrolled.

An application for Involuntary Withdrawal can only be processed for courses in which the student has already received a grade of "W" (withdrawn). Applications for involuntary withdrawal will only be considered for quarters falling within the immediately preceding one-year time period (4 quarters). Appeals pertaining to quarters beyond this one-year time limit will not be accepted. All Applications for Involuntary Withdrawal must be documented, and are processed only by mail on forms provided by the Bursar. Address such correspondence to the Fees and Charges Appeals Board, c/o Bursar, Youngstown State University, One University Plaza, Youngstown, OH 44555.

FINANCIAL AID AND SCHOLARSHIPS

The University has a comprehensive program of financial assistance which includes scholarships, grants, work-study, and loans. Most of these programs are administered by the Office of Financial Aid and Scholarships.

All YSU applicants for admission or current YSU students seeking financial aid should apply not later than March 1 each year for which aid is desired. For maximum consideration, students should complete the following forms:

- Free Application for Federal Student Aid (FAFSA) or Renewal FAFSA to apply for all federal and state aid and for need-based scholarships and grants.
- Youngstown State University Institutional Aid Application to apply for certain campus-specific programs.

Funding for most student aid awards is normally exhausted by May of each year, so early application is strongly encouraged. Separate requests are required for Summer quarter assistance.

Part-time Students

Part-time aid is available for students. The amount of part-time aid and the type of aid avail-

^{**}For complete withdrawals from any term, all applicable fees, fines and penalties will be deducted from any refunds.

able varies. Be sure to file the FAFSA and YSU's Institutional Aid Application by March 1 each year for maximum consideration. Also, check with the Office of Financial Aid and Scholarships to find out how part-time attendance affects your financial aid.

Types of Financial Aid

Scholarships (Gift Aid)

Scholarships are gift aid awarded to students on the basis of superior academic performance or talent, other criteria, and/or financial need. Scholarships do not have to be repaid. Amounts may vary depending on academic ability, financial need and/ or the current state of funding or endowment support for the scholarship. Scholarship funds have been established at YSU by individuals, corporations, clubs, and religious and fraternal organizations. In addition, the Youngstown State University Foundation administers endowments which provide substantial funding for numerous scholarship programs at Youngstown State University, including the Scholarships for Excellence program described on page 23 of this catalog. See Appendix B of this Bulletin for a listing of scholarships available to YSU students.

Scholarship awards to Youngstown State University students are based upon the student's academic record, character, and/or financial need. Scholarships for entering freshmen are awarded on the basis of high school academic record, recommendation by high school administrators, scores on a standard college entrance examination, and/or class rank. Scholarship applicants are considered for all scholarships appropriate to their aims and interests.

To be considered for scholarships, students should complete all appropriate forms by March 1 of each year. Contact the Office of Financial Aid and Scholarships and/or your Dean's Office to find out what forms these are.

To be considered for scholarships that are needbased, students also should file the Free Application for Federal Student Aid (FAFSA) so the Office of Financial Aid and Scholarships can determine a student's financial need. Access to FAFSA on the Web is available in the Office of Financial Aid and Scholarships.

In addition to filling out Youngstown State University's Institutional Aid Application and the FAFSA, students also should check with their particular college or department to apply for academic specific scholarships. Students and their parents are encouraged to check with their places of employment to find out if there are any scholarships provided to students or if they provide for fee remission. Check with local community resources for scholarships such as church organizations and the library to find out about scholarship opportunities.

Another excellent resource is the World Wide Web at:

- · http://www.ysu.edu or
- · http://www.finaid.org/

Again, Web access is available for these purposes at the Office of Financial Aid and Scholarships.

Grants-In-Aid (Gift Aid)

Grants-in-aid are gift money that do not have to be repaid. The amount of grant aid awarded is determined by the recipient's financial need and/or academic record and character.

- A.) The Federal Pell Grant is a need-based federal grant provided to eligible undergraduate students pursing a first bachelor's degree or associate's degree. The Federal Pell Grant award range in 1997-98 was \$133 per quarter to \$900 per quarter depending upon the student's financial need and/or hours of enrollment. You need to file the FAFSA to be considered for this grant.
- B.) The Federal Supplemental Educational Opportunity Grant (FSEOG) is a need-based grant funded by the federal government and awarded by YSU. Students who meet the eligibility requirements for the Federal Pell Grant receive primary consideration for this grant. The FSEOG award range in 1997-98 was \$100 to \$300 per quarter depending upon financial need, hours of enrollment, and rank. You need to file the FAFSA as early as possible after January 1, but no later than March 1 each year to be considered for this campus-based aid program.
- C.) The Ohio Instructional Grant (OIG) is a grant awarded by the state of Ohio to full-time undergraduate students who are residents of Ohio and who are pursuing a first bachelor's degree or associate's degree. Eligibility is based on family income. The Ohio Instructional Grant award range in 1997-98 was \$96 to \$578 per quarter. You need to file the FAFSA by October 1 of each year to be considered for this state grant.
- D.) The Pennsylvania Higher Education Assistance Award (PHEAA) is a program, similar to the Ohio Instructional Grant, that provides grants to Pennsylvania residents who are YSU students. Students may be full-time or half-time undergraduates enrolled in an approved program of study requiring at least two years to complete. You need to file the FAFSA by the appropriate PHEAA deadline date to be considered for this grant.
- F.) The Part-time Student Instructional Grant is awarded to students enrolled less than full-time who otherwise would have been eligible for an Ohio Instructional Grant had they been full-time.
- G.) The Martin Luther King Inner-City Achievement Award is awarded to graduates of Calvary Christian Academy, Cardinal Mooney, Chaney, East, Rayen, South, Ursuline, Wilson, Youngstown Christian School, Warren Western Reserve, Warren

Harding, and John F. Kennedy who show academic promise, are making satisfactory progress at YSU (if already attending, this will mean a 2.5 cumulative grade point average and at least half-time enrollment), and who have financial need which cannot be met satisfactorily from some other scholarship, grant, or loan program. To receive maximum consideration for this campus-based aid program, file the FAFSA as soon as possible after January 1 but not later than March 1 each year.

- I.) The Youngstown State University Non-Traditional Student Grant-In-Aid is awarded to nontraditional students who are not eligible for other grant or scholarship assistance. In cases where students receive other aid, the total of the other aid and the amount of assistance awarded under this grant may not exceed the amount the student would have received from the Non-Traditional Grant alone. A non-traditional student is a person who is at least four years removed from formal education (high school or college) and at least 22 years old whose whole annual family income did not exceed \$30,000 for the previous year or a person whose family income was less than \$31,000 for the previous year, but who has experienced a drastic reduction in family income for the current year. To be considered for this grant, you need to file the FAFSA and complete YSU's Institutional Aid Application or YSU's Non-Traditional Student Grant-In-Aid Application.
- J.) The Veterans' Affairs Benefits are educational benefits available for eligible veterans and reservists of the United States Army, Navy, Air Force, Marines, Air, and Coast Guard and National Guard. Contact the Veterans' Affairs Office in the Office of Financial Aid and Scholarships.

Employment (Self-help Aid)

To help pay for educational and living costs, students may contact Career Services for on-campus student employment. Any student currently enrolled and in good standing may apply for on-campus employment. All on-campus opportunities are posted in Career Services. Students are encouraged to check regularly for open positions.

The Federal Work-Study Program is a needbased program which provides funds for eligible students. This program also helps students with educational expenses and living costs as workstudy students receive paychecks for hours worked. To receive maximum consideration for this campusbased program, file the FAFSA as soon as possible after January 1 but not later than March 1 of each year.

Loans (Self-help Aid)

Loans are a form of financial aid for many students to help meet educational expenses. Keep in mind that loans accrue interest and must be repaid.

- A.) The Federal Perkins Loan is a need-based federal loan (with a 5% fixed interest rate) awarded by Youngstown State. Undergraduate and graduate students attending at least half-time may be considered for this loan. The loan range in 1997-98 was \$250 per quarter to \$500 per quarter depending upon a student's hours of enrollment. This is a subsidized loan which means the government is responsible for the interest during the student's enrollment of at least half-time; for the grace period after the student is no longer enrolled halftime; or during deferment periods. After the grace period, the student is responsible for the interest. For priority consideration for this campus-based program, file the FAFSA as early as possible after January 1 but not later than March 1 of each year.
- B.) The Federal Subsidized Stafford Loan is a need-based federal loan awarded to students who demonstrate financial need based on the information provided on the FAFSA. Undergraduates, graduates, and professional students attending at least half-time may be considered for this loan. "Subsidized" means the government is responsible for the interest that is accruing during at least half-time enrollment; during the six months grace period after the student stops attending school at least half-time; or during periods of deferment. The student is responsible for the interest at all other times. To be considered for this loan, file the FAFSA.
- C.) The Federal Unsubsidized Stafford Loan is a non-need based loan that is available to all students regardless of income. Undergraduate, graduate, and professional students attending at least half-time may be considered for this loan. "Unsubsidized" means that the government is not responsible for the interest at any period of time. Borrowers may choose to make interest payments while in school or borrowers may defer (accumulate) the interest until repayment. To be considered, file the FAFSA.
- D.) The Federal Parent Loan for Undergraduate Students (PLUS loan) is available to the parents of dependent students. These loans are based on educational costs and cannot exceed the cost of attendance. Since these loans are not subsidized, the parent borrower must repay the amount borrowed plus the interest. Repayment of principal and interest begins no later than 60 days after the student's last disbursement. To be considered for this loan, file the FAFSA.

Financial Aid: Helpful Hints and Important Tips

—Make sure to have all applications in by their priority deadlines. Youngstown State University's priority deadline to be considered for campusbased aid, scholarships, and some grants is March 1 each year. If you miss the deadline date, you may reduce or eliminate your chances to be considered for every type of financial aid that you otherwise would have been awarded.

—If you are selected for verification/documentation, you are required to submit certain documentation to Youngstown State. Be sure to send in this requested documentation as soon as possible so that the processing of your financial aid is not delayed. If you are late in submitting this requested documentation, you might not receive every type of financial aid that you otherwise would have been awarded, even if you applied on time.

—If you missed application deadlines, you should still apply.

—Check with your department or college to find out if there are any academic-specific scholarships for which you may apply.

—Keep copies of all your tax forms and W-2 forms each year. Be sure to keep copies of all forms and documents submitted to the Office of Financial Aid and Scholarships.

—Check with the Office of Financial Aid and Scholarships to determine the status of your financial aid processing. Don't wait until you receive your bill.

—Remember to apply each year for financial aid by the March 1 deadline and by any other deadlines that other resources may have.

—If you or your family have unusual circumstances that have occurred during the academic year, such as unusual medical expenses or loss in income, check with the Office of Financial Aid and Scholarships to discuss your situation.

—Contact the Office of the Bursar at (330) 742-3133 to find out about our convenient payment plans to help pay tuition and fees.

—Contact the Office of Financial Aid and Scholarships at (330) 742-3505 if you have questions. Mailing Address: Youngstown State University, Office of Financial Aid and Scholarships, One University Plaza, Youngstown, Ohio 44555-3505. Email: finaid@ysu.edu

Some Commonly Used Financial Aid Terms

Cost of Attendance: The total cost of attending school for one academic year, including direct costs (tuition, fees, room, and board) and indirect costs (books & supplies, transportation, and miscellaneous expenses).

Expected Family Contribution (EFC): The amount that you and your family will be expected to contribute toward your educational expenses, as determined by the federal government from the information on your FAFSA. To obtain a booklet that explains the formula used to determine your EFC, call 1-800-4-FED-AID.

FAFSA (Free Application for Federal Student Aid): The form that you must complete so that the federal processor can determine your EFC and YSU can determine your financial need.

Financial Aid: All forms of financial assistance, including scholarships and grants (gift aid) and work programs and loans (self-help aid).

Financial Need: The difference between the Cost of Attendance and your Expected Family Contribution.

Gift Aid: Aid, usually in the form of scholarships and grants, that does not have to be paid back.

Grant: Gift aid awarded to a student on the basis of financial need and sometimes academic performance and character. Does not have to be paid back.

Scholarship: Gift aid awarded to a student on the basis of academic performance, talent, other criteria, and/or financial need.

Subsidized: A subsidized loan is a need-based loan in which the government pays the interest while the student is enrolled at least half-time; during the grace period after the student stops attending at least half-time; and during periods of deferment (postponement of repayment).

Verification/Documentation: The process by which Youngstown State University confirms the accuracy of the information supplied on a percentage of FAFSA's each year as required by federal regulation. If you are selected for verification/documentation, you and your family will be requested to supply the Office of Financial Aid and Scholarships with additional information and copies of documents.

Unsubsidized: An unsubsidized loan is not based on financial need. The borrower is responsible for all interest which accrues during in-school, grace, and/or any applicable deferment periods.

Satisfactory Academic Progress Policy for Federal Aid

Federal regulations require that financial aid recipients maintain satisfactory academic progress to remain eligible for federal financial assistance. Federal programs subject to these requirements include the Federal Pell Grant, the Federal Supplemental Educational Opportunity Grant, the Federal Perkins Loan, the Federal Work-Study Program, and all Federal Stafford Loan Programs.

Youngstown State University's satisfactory academic progress requirements include three components: 1.) minimum grade point average, 2.) maximum time frame to earn the degree sought, and 3.) percentage completion rates. Youngstown State University's Office of Financial Aid and Scholarships assesses compliance with these requirements at the end of each academic year. Students not in compliance with these requirements are suspended from federal financial aid eligibility.

Minimum Grade Point Average . At the time of the annual assessment, students must maintain an accumulative YSU GPA of 1.75 if fewer than 48 credit hours have been attempted, and an accumulative YSU GPA of 2.0 if 48 or more credit hours have been attempted. Attempted hours include accepted transfer hours plus all hours attempted as of the last day to drop classes with a 100% refund.

Students academically suspended cannot receive federal financial aid during the period of suspension.

Eligibility Limit. When a student's attempted hours, as defined above, reach 150% of the maximum hours needed to obtain an associate or a bachelor's degree, federal financial aid eligibility will be suspended at the time of the next annual assessment of satisfactory academic progress.

Progress Towards Degree. At the time of the annual assessment, completed hours as a percentage of attempted hours, as defined above, must meet the following minimum requirements:

Freshmen	65%
Sophomores	70%
Juniors	75%
Seniors and above	80%

Credit Hours Not Accepted. For federal financial aid satisfactory academic progress purposes, attempted hours exclude audits and withdrawals made by the last date to withdraw with a 100% refund of tuition.

Completed hours exclude the following grades: F-failed; NC-no credit; AU-audit; I-incomplete; W-withdrawal. For Incompletes, note that the credit hours apply to the term in which the student was enrolled in the course, not the term the student was completing the Incomplete.

SCHOLARSHIPS FOR EXCELLENCE

These are scholarships awarded by the University and largely funded by the YSU Foundation. The YSU Foundation, with an endowment of over \$100 million, is committed to providing this "edge of excellence" for the University, providing more than \$3 million in scholarship assistance annually for YSU students. The Scholarships for Excellence are awarded to eligible new high school graduates, transfer students, and current students. Students should apply for these scholarships before March 1. In addition, incoming freshmen should apply for admission before March 1 to be considered for these scholarships.

University Scholars Scholarships. These are fullride scholarships that include tuition, fees, and housing in the University honors residence. The scholarships are awarded as follows:

- 45 each year to incoming freshmen based on minimum criteria of an ACT of 28 or SAT of 1260, and ranking in the upper 15% of the high school class;
- 20 each year to students from accredited community or technical colleges who have a GPA of 3.8 or higher and at least 60 semester hours (or equivalent quarter hours) of credit.

Trustees' Scholarships: These are \$3,000, fouryear scholarships awarded to incoming high school valedictorians. Students must attend full-time and maintain at least a 3.5 cumulative GPA.

President's Scholarships: These are \$2,500, fouryear scholarships awarded to the upper 10% of high school class with a minimum ACT of 27 or SAT of 1220. Must attend full-time and maintain a 3.5 GPA to renew.

Deans' Scholarships: These are \$2,000, four-year scholarships awarded to the upper 15% of the high school graduating class with a minimum ACT of 25 or SAT of 1140. Must attend full-time and maintain 3.5 GPA to renew.

Leadership Scholarships: These are \$1,000 scholarships (may be renewed as a \$1,500 Department Scholarship) awarded to the upper 15% of the high school graduating class with a minimum GPA of 3.0 or ACT of at least 23 or SAT of 1070. See Department Scholarship for subsequent years.

Community College Scholarships: These are \$1,500, three-year renewable scholarships available to transfer students with a minimum GPA of 3.5 and 36 transferable hours into YSU. Must attend at least half-time and maintain 3.5 GPA to renew.

Department Scholarships: These are \$1,500, three-year scholarships awarded to continuing YSU students with minimum criteria of 36 hours completed and a cumulative GPA of 3.5. Must attend at least half-time and maintain 3.5 GPA to renew.

OTHER YSU SCHOLARSHIPS

Appendix B of this *Bulletin* contains a listing of scholarships currently available to YSU students.

ACADEMIC POLICIES AND PROCEDURES

PLACEMENT TESTS

A Composition and Reading Placement Test (CRPT) provided by the University is required of all students who must take English 550 (Basic Composition).

The mathematics placement test provided by the University is administered as described under Math Placement Exam (next page).

General and vocational-interest examinations for guidance purposes are available. Current YSU stu-

dents wishing to take such tests may make arrangements with the University's Counseling Center.

ENGLISH REQUIREMENT

Proficiency in English

Since English is the language of instruction at YSU, proficiency in English is required of all students.

Non-native speakers of English must continue to take courses in English as a second language (ESL) until they have reached the necessary level of proficiency. At that point, they will be placed into the English composition sequence.

Composition and Reading Placement Test

All students admitted to the University are required to take the Composition and Reading Placement Test (CRPT). No student is permitted to register for a second quarter of classes without having taken the test, except those students placed into English classes for non-native speakers. Scheduling for the CRPT is handled by the Writing Center.

Any student placing into Education 510, English 520, or English 540 must complete the specified course work within the first 45 hours. Otherwise, the student will be limited to enrolling for those courses alone until they are successfully completed.

Please Note: If you are directed to enroll in English 520 or 540 and/or R&SK 510A or 510B, you must do so. You may not withdraw from the abovenamed courses unless you are making a complete withdrawal from the University.

None of the above-named, mandatory courses may be taken more than twice. Should you not successfully complete any of these courses or you withdraw from them twice, you will be disenrolled from the University.

English Composition Requirement

A student must complete the regular English composition requirement for graduation within the first 90 hours of coursework. A student who does not complete the English requirement within the first 90 hours of course work will be prohibited from registering for any additional upper-division courses until the English requirement has been met. Transfer students having completed 90 hours or more are exempt from this policy for their first 16 hours of enrollment at Youngstown State University.

MATH PLACEMENT EXAM

All incoming students will be tested by the Department of Mathematics and Statistics to assess their competency in mathematics. Students who will be taking math courses as electives or requirements will be placed in appropriate courses based on the Math Placement Exam. Students who are not

required or do not elect to take math courses will not be required to take math courses, regardless of their test results.

REGISTRATION

Students register through the SOLAR (Student On-line Advisement and Registration) system. Appointment times are mailed to all students by the Office of the Registrar. Appointment times for current students are also published in the *Schedule of Classes*. Students are able to access the SOLAR system by using a patron and personal identification umber (PIN). If a student does not know these numbers, he or she will be required to come to the Enrollment Center in Meshel Hall with photo identification to obtain this information.

Registration is not completed until all tuition and fees are paid. Registration must be concluded no later than the date published for the late and final registration for the particular quarter. All significant dates are published in the *Undergraduate Bulletin* and in the *Schedule of Classes* for each quarter.

Advisement

The Office of the Registrar provides instructions for advisement and registration prior to registration.

All students are urged to consult with advisors in their major area. Each department or college has a procedure for either assigning an advisor to a student or for the student to select an advisor. Advisement is required for the following students:

- 1. Freshmen (with fewer than 48 hours of credit).
- Post-secondary enrollment option/Early Admission Options Program.
- 3. Students on warning.
- 4. Students with high school deficiencies.
- 5. First-quarter transfer students.
- All former students returning to the University.
- 7. Athletes

The responsibility for fulfilling all requirements rests ultimately upon the student; the advisors provide assistance in that process.

You should use the Schedule of Classes to determine the specific classes offered in a particular quarter. The Schedule of Classes is published for each quarter by the Office of the Registrar. For information about future offerings or when a particular course will be offered again, you should consult the appropriate department chair.

Change of Registration

Registered students may change their registration through SOLAR during scheduled times for change of registration. (Also see "Reduction/Refund of Fees" section.) Students should consult their advisors prior to changing their schedules. In general, each student who needs an advisor's approval for registration must also have an advisor's approval for add/drop (change of registration). However, advisors' approval is not required for (1) withdrawing from a course after the first week of classes, (2) changing sections of a course, (3) changing physical activity courses, or (4) withdrawing from all courses before the first day of classes.

A registered student may enter an additional course through the change-of-registration procedure until the seventh calendar day of the quarter or until the fifth calendar day of a summer term.

Withdrawal from a course must be accomplished through the change-of-registration procedure. If a student withdraws from one or more courses during the first two weeks of classes, no entry will be made on the student's permanent record for the course(s) dropped.

Administrative change(s) of registration may occur if a student registers for more hours than prescribed by the student's academic dean.

Students who wish to completely withdraw from the University should consult the appropriate section in this bulletin.

Cancellation of Registration

A student's registration may be cancelled for any of the following reasons:

- Academic suspension for the previous quarter.
- 2. Disciplinary action against the student.
- 3. Insufficient class enrollment.
- Failure to meet admission or prerequisite requirements.
- Failure to respond to the quarterly advisor's hold.

Photo Identification Card

The Office of the Registrar issues a photo identification card to every student enrolled at the University. The student must carry the card while on campus. The use of this card is restricted to the student to whom it was issued and should be used for identification purposes only. The student must report the loss or theft of his or her card to the Office of Campus Police. The student is responsible for any charges incurred prior to reporting the loss or theft of the card. Lost or stolen cards must be replaced at the student's expense (see "Student Fees and Charges" for amount). To replace the card, the student must present proper identification (i.e. driver's license) to the Office of Bursar and pay the applicable replacement fee. The photo identification card is the property of the University and must be surrendered by the student upon request by University officials.

CREDIT HOURS/CLASS STANDING/ MAJORS

The class hour is a weekly 50-minute class period and is the basic unit of instruction. The term "quarter hour" (q.h.) signifies one class hour a week carried for one 11-week quarter (or the equivalent in a summer term). A quarter hour of credit is the amount of credit given for one quarter hour successfully completed. Each quarter hour of credit represents an average of three hours of study and instruction every week through the quarter.

Extra Hour of Credit

Credit for more than the stated number of credit hours may be obtained for extra work in a course, with the following stipulations:

- 1. Permission is limited to seniors.
- Extra credit may not exceed one hour per quarter.
- 3. A brief description of the extra work must be given by the instructor.
- Such extra work may be done only under the supervision of a full-time instructor.
- 5. An application form must include signatures showing approval by the instructor of the course, the chair of the department in which it is taught, and the dean of the college in which the course is taught.
- 6. The department must enter an on-line permit for the extra credit prior to registration.

Minimum Credit-Hour Value

Registration is not permitted for less than the approved credit hour value of any course as listed in the catalog.

Variable Credit Hours

Certain courses have variable credit hours. A student wishing to register for such a course may do so only after consulting with the department offering the course to determine the number of hours for which to register. Some variable-credit-hour courses may require an on-line permit from the department offering the course.

The Student Load

The quarter hours of credit a student carries per quarter depend on the degree sought and on the curriculum being followed. A minimum of 186 quarter hours must be satisfactorily completed to earn a baccalaureate degree; 90 quarter hours for an associate degree. Students expecting to complete a bachelor's degree in four years or an associate degree in two years should average 16 credits per quarter. Students interested in taking 26 credit hours or more per quarter must seek approval from the dean of their college.

Full-time Status

A full-time undergraduate student is one carrying 12 or more quarter hours for credit per quarter.

Academic Classification

All students working for any undergraduate degree conferred by this University are ranked in classes, by quarter hours completed, as follows:

For purposes of satisfying course prerequisites, the term "senior standing" may be defined by reference to the specified curricula of a given school or college, if it provides detailed programs leading to the attainment of a degree.

Majors

Declaring or Changing a Major

You may enter the University as an undetermined major and remain as such until you have earned 90 quarter hours. At that point, you may declare a major if you did not declare one when you applied.

In order to change or declare a major, you must fill out a form from the department of your desired major. The form will be forwarded to the Office and Records, and you will be notified of the department's decision.

If you need help selecting a major, you should contact an academic advisor, the academic department, or the Office of Career Services for assistance with academic and career planning.

Additional Majors and Degrees

A student interested in pursuing more than one major at a time should contact the departments offering majors to be assigned an advisor for each program. Double majors or degrees may be awarded concurrently. Multiple majors/single degree : A degree-e.g. Bachelor of Science, Bachelor of Artsmay be awarded only once. However, more than one major for the degree may be posted on the transcript when completion of the requirements is certified by the appropriate department chairpersons. The student should indicate each major when filing an Intent to Graduate in the appropriate college. When the student completes more than one major in a given degree, one diploma is awarded. Multiple majors/multiple degrees: If a student wishes to complete the requirements for majors which are awarded under different degrees, the student must fulfill all requirements for each major and each degree. Completion of the requirements for each major and degree must then be certified by the appropriate chairpersons and deans. The student must file Intent to Graduate and Graduation Application forms for each major and each degree in the appropriate colleges.

Any student who has received a degree from another institution and desires a second degree from YSU must complete a minimum of 30 quarter hours for an associate degree and 45 quarter hours for a baccalaureate degree, meet all requirements for the second degree, and complete the requirements for a new major.

Credit From Professional Schools

Students at YSU wishing to enter professional schools with the option of completing their baccalaureate degree in absentia may do so with the completion of at least 141 quarter hours of coursework, which must include the following:

- 1. All general University requirements
- 2. Completion of major
- 3. Completion of minor (if required)
- 72 q.h. of upper-division coursework (700-800-Level)

The University will accept the completion of not more than 45 quarter hours from any professional school granting any of the degrees listed below and approved by the accrediting agency of that profession, provided that the student has been accepted for further study at the professional school. The student may thus secure the baccalaureate degree after three to three-and-a-half years in the University followed by approximately a year in the professional school. The relevant professional degrees are: Doctor of Dental Surgery or equivalent; Doctor of Medicine, Doctor of Osteopathy, Doctor of Podiatry, Doctor of Veterinary Medicine, Doctor of Jurisprudence or equivalent; Doctor of Ministry or equivalent; Bachelor of Divinity or equivalent.

The policy above does not apply to students admitted in the BS/MD Integrated Program of Youngstown State University and the Northeastern Ohio Universities College of Medicine (NEOUCOM). However, credit of up to 20 Q.H. may be granted toward the completion of the B.S. degree to those students who have participated in the 6th year *Human Values in Medicine* Programs of NEOUCOM.

Undergraduate Preparation for Post-Baccalaureate Degrees

Medical schools have specific requirements for pre-medical study and many law, theological, technological and graduate schools have curriculum requirements for those seeking admission. Anyone wishing to enter a professional, technological, or graduate school of any kind should consult advisors in the appropriate undergraduate college of this University as early as possible. Such special needs can usually be met within the degree requirements of Youngstown State University, but the proper selection of courses may have to begin in the first year.

Requirements for Enrolled International Students

All University requirements apply to international students as well as to other students. In particular, the following rules should be noted:

Tuition and other fees must be paid in full each quarter. For students' convenience, the University allows payment by VISA, MasterCard or Discover and also provides a tuition payment plan.

During orientation, results of any required placement tests in math or English language are coordinated with testing and academic areas to assist students who may need to further improve proficiencies for academic success.

The University offers very limited scholarship assistance for nonimmigrant undergraduate international students. This fact and employment restrictions mentioned below make it necessary for international students to supply their own financial needs during their entire educational stay in the U.S.

International students holding F-1 or J-1 immigration status are required to enroll full-time and make academic progress throughout the academic year. Grades of incomplete, audit or failure do not count toward the required credit. These students must carry acceptable medical insurance for hospital and surgical care. Such insurance is available at the Center for International Studies and Programs for those who do not already have it.

F-1 and J-1 students are not permitted to be employed off-campus during their first year of this status. All employment, on or off-campus, must be approved by the Center for International Studies and Programs. Certain types of off-campus employment must also be approved by the U.S. Immigration and Naturalization Service.

COURSES

Prerequisites

No student may receive credit for a course that is a prerequisite for a more advanced course which the student has already successfully completed, unless an exception to this policy is recommended by the appropriate chair and approved in writing by the student's academic dean.

Repetition of Courses

A student may repeat a course once, unless otherwise stipulated in the course description or unless an additional repetition is authorized by the student's academic dean. If the course is a prerequisite to another course, the repetition must be successfully completed before the other course is taken. If the student has received credit for a more advanced course in the same subject, a repetition is treated merely as another course, along with the first, in calculating the point average, unless the student secures an approved repetition form for recal-

culation of point average from the dean of the college in which the student is enrolled. (See Recalculation of Point Average.) A course repeated, however, may be counted only once as credit toward a student's total academic hours for graduation.

Closed Classes

Departments set limits to the number of students that can be accommodated in each section. During the registration period or the period for adding courses, many classes become filled. These classes are called "closed," which means that no more students will be admitted to them. Only the chair of the department offering the course can admit a student to a closed class or reopen a closed class.

Audited Courses

A student may audit any course. The student pays the full tuition, as well as any other applicable fee, for the course(s) audited. Audited courses are carried in a student's load only for fee purposes. A student receiving financial aid should confer with the Office of Financial Aid and Scholarships before electing to audit a course.

A student may not change registration from audit to credit status or from credit to audit status after the last day to add a class.

Conference Courses

Conference work is available only in exceptional cases and if the academic advisor considers conference work essential. The student must complete a Conference Course Form and obtain the required approval.

If you are adding a conference course to your schedule, you must process a Change of Registration in addition to completing the conference course form and having the course placed on your registration file. Conference courses have the following restrictions:

- Permission is limited to seniors with a 3.00 average. Exceptions must be approved by the dean of the college in which the student is enrolled.
- The course must be given by a full-time faculty member.
- A brief description of the plan of procedure must be given by the full-time faculty member.
- The course must have approval from the appropriate department and the dean of the college in which it is offered.
- The department must enter an on-line conference course permit prior to registration.

Graduate Courses for Undergraduates

An undergraduate student who has senior standing and a cumulative grade point average of 2.70 or above, and who does not require a full sched-

ule to complete the baccalaureate degree requirements at Youngstown State University, may enroll in 900-level and 1000-level courses for graduate credit, provided such enrollment does not cause the total schedule for the quarter to exceed 16 quarter hours. Before registering for the course(s), the student must have the approval of the advisor, the instructor of each course in which the student wishes to enroll, and the dean of the School of Graduate Studies. The credit earned cannot be counted toward fulfillment of the requirements for a baccalaureate degree, and may not be used for graduate credit at Youngstown State University until the student is admitted to the graduate school and the credit is accepted by the department in which the student continues graduate work. The amount of such credit that is acceptable at Youngstown State University is 15 quarter hours.

Permission will be granted for undergraduate students with proven exceptional academic ability to enroll in graduate courses for undergraduate credit. Permission will be based on a petition prepared by the student's major department. The petition must contain a statement of the criteria used to justify "exceptional" and must be approved by the department offering the course and the dean of the School of Graduate Studies.

TRANSIENT STUDENT AUTHORIZATION

YSU students desiring to attend another institution as transient students must complete and submit the Transient Student Authorization form, available from the dean of the college in which they are enrolled. Instructions are on the back of the form.

Credit will be granted for approved course work in which a grade of "C" or better is received. It is the student's responsibility to have an official transcript sent from the other institution to the YSU Office of Records.

COMPLETE WITHDRAWAL FROM THE UNIVERSITY

Procedure: The student who wishes to withdraw from all courses in a particular quarter must access the Complete Withdrawal Option on the Student On-line Advisement and Registration System (SO-LAR) or come to the Office of the Registrar. A complete withdrawal may be executed before classes or after the quarter starts. The student should consult the quarterly Schedule of Classes for deadlines, and the Reduction/Refund of Fees section of this Bulletin for the refund policy.

Eligibility for future registrations:

 A new applicant who withdraws from all courses prior to the first day of the quarter will not receive notice for future registrations unless the person requests that the Office of Un-

- dergraduate Recruitment and Admissions (OURA) defer the entering quarter and year to a future quarter.
- A former YSU student who withdraws from all courses prior to the first day of the quarter will not receive notice for future registrations unless the person requests that the Office of Records defer the entering quarter and year to a future quarter.
- A current student withdrawing on or after the first day or prior to the fourteenth day of the quarter will receive notice of future registrations for four subsequent quarters.

Academic Record: If a student withdraws from all courses during the first two weeks of the quarter, the academic record will contain the statement "Student Completely Withdrew During the First Two Weeks of the Quarter." For information regarding how withdrawal after the first two weeks of classes affects a student's academic record, see the paragraph on the W grade under the section entitled "Grading System."

HONORABLE WITHDRAWAL

On occasion, a student voluntarily withdrawing from the University may need a letter stating the conditions of her or his withdrawal.

If a statement of honorable dismissal is needed, the dean of the appropriate college or other appropriate offices (i.e., University Discipline Officer) will furnish one, provided the student is of good character, has a satisfactory record of conduct, has no financial obligations to the University, and is withdrawing voluntarily for acceptable reasons; and provided that the student, if withdrawing during a term, follows the official procedure for a change of registration.

GRADING SYSTEM

Teachers assign grades on the basis of achievement in the subject matter of the course and in accordance with accepted professional standards for that subject. The grade earned by a student thus represents the quality of work and is not based merely on competition within the class.

The grade of A represents exceptional work in which the student shows that he or she has firmly grasped and achieved objectives of the course.

The grade of B indicates very good work and considerable grasp of the essentials of the course.

The grade of C indicates good work and a usable grasp of the essentials of the course.

The grade of **D** indicates a definite, but not necessarily coherent, knowledge of the course.

The grade of F indicates that the student has not achieved even a minimum grasp of the essentials of the course. This grade can also result from failure to withdraw officially from a course (See Change of Registration and Refund of Fees Upon Withdrawal).

An incomplete grade of I may be given to a student who has been doing satisfactory work in a course but, for reasons beyond the control of the student and deemed justifiable by the instructor, had not completed all requirements for a course when grades were submitted. A written explanation of the reason for the I and a date (which must be within one year) by which all course requirements will be completed must be forwarded by the instructor to the Office of Records for inclusion in the student's permanent record, with copies to the student and department chairperson.

The instructor will initiate a grade change upon completion of the course requirements. If no formal grade change occurs within one year, the I automatically converts to an F. If graduation occurs within one-year time period, the Incomplete grade will be converted to an F before graduation.

Department chairs are granted authority to convert grades of I into final grades in cases where instructors may have severed connections with the University or have been otherwise unable to convert the grades.

A progress grade, PR, is given in certain approved courses to indicate that work is still in progress on a project that occupies more than one quarter. This grade is changed to a final letter grade at the end of the quarter in which the work is completed.

The PR grade may also be given at the end of the quarter in courses specifically identified as competency-based to indicate that the student needs more time to demonstrate a mastery of the subject matter. In such instances, the PR grade will be converted to a letter grade by the instructor no later than the end of the subsequent quarter, excluding the summer quarter. A PR grade not changed by this time is automatically converted to an F grade.

W represents a withdrawal properly processed at any time from the beginning of the third week through the end of the sixth week of any quarter (or from the fifth calendar day through the third week of any 5-week summer term). Withdrawal thereafter (or improperly done, at any time) is recorded as F. If the grade resulted from circumstances over which the student had no control, the student may petition the appropriate dean to change the grade to W.

When withdrawals change a student's status (full-time to part-time), the student immediately forfeits any privileges contingent upon full-time status, and all interested parties which legally require it will be notified.

The distribution of achievement levels, and therefore of grades, in a large unselected group of students generally follows the normal frequency curve, in which 5% to 10% are A'S, 20% to 25% B's, 40% C's, 20% to 25% D's, and 5% to 10% F's. However, since it is likely that substantial variation from the normal will occur in individual classes, the instructor does not use the "curve" as a standard to be imposed, but only as a model against which the instructor may compare each particular class, using his or her own judgment on the basis of professional standards.

Instructors may use plus and minus modifications of the grades, but they are not recorded or used in calculating the point average.

The Point Average and Scholastic Standing

The student's scholastic standing is indicated by the quality point average (Also called "grade point average," "grade average," or "point average").

For determining this, every grade has a quality point value for each quarter hour it represents, as follows: A, four quality points; B, three points; C, two points; D, one point; F, zero points. For example, an A in a three-hour course is worth 12 quality points; a D in a four-hour course, four points; and an F in any course, zero points. To find the point average, the total number of quality points earned is divided by the total number of quarter hours attempted. Thus a student who attempts 16 quarter hours and earns 40 quality points has a point index of 2.50. Only grades of A, B, C, D, and F are included in the calculation of the point average.

Grading Options

Traditional Grade (A,B,C) /No Credit

To receive credit for courses offered on a traditional grade/no credit basis, a student must earn a grade of C or better. If the student fails to do so, an NC is entered on his or her transcript.

An NC does not fulfill the requirements for satisfactory completion of the course; it does not affect the grade point average.

Audit (AU)

The AU grade indicates a student has registered for a course on an audit basis and has met the audit attendance requirement established by the instructor. Failure to meet the attendance requirement results in a grade of AU(W).

Students must indicate their election of the audit grading option at the time of registration or within the time limits established for adding a class. The audit option will not be changed to the standard grading option beyond the last day to add a class.

Credit/No-Credit (CR/NC)

Credit/no-credit grades are given in some specific courses as approved by the Academic Senate. Such courses are identified in the course descriptions.

[†]The definition of competency-based instruction is to be provided by the instructor responsible for the course. Competencybased courses are so designated in the quarterly *Schedule of Classes*.

Credit/No-Credit (CR/NC) (Student Option)

To encourage students to experiment with courses outside their major field of concentration, a credit/no-credit policy exists within the following guidelines.

Youngstown State University students who have completed at least 16 quarter hours of credit and have a grade point average of 2.00 or better, or transfer students admitted unconditionally who have at least 16 quarter hours of transfer credit, may elect to take a course for credit/no-credit.

This means that the grade recorded for the student is not a letter grade but either **CR** (credit) or **NC** (no-credit).

Students opting the CR/NC basis are not so identified on the class roster. The instructor assigns grades as usual. If a CR/NC student gets an A, B, or C, the grade officially assigned is CR; otherwise it is NC. In either case, the grade point average is not affected.

This option may be elected for a maximum of twenty (20) quarter hours for the baccalaureate degree or ten (10) quarter hours for the associate degree. Courses offered only under the CR/NC option (by department designation) DO NOT count as a student-elected credit/no credit class. Students are restricted to taking one CR/NC course in the fall, winter and spring quarters. However, it affords students flexibility in the summer quarter where we have two five-week sessions and three 3 1/3 week sessions with the foreign language. Students may elect to take one course in each session of summer term (one the first five weeks and one the second five weeks or for courses offered in 3 1/3 week sessions to take all courses in those sequences using the CR/NC grading option).

Courses taken under the CR/NC option may not be counted toward a student's major or minor. Students should confer with their advisors prior to electing the CR/NC option.

Students must indicate their election of the CR/NC option at the time of registration or within the time limits established for adding classes. The CR/NC option will not be changed to the standard grading option beyond the last day to add a class.

Changing of Grading Options

You may petition for a change in your grading option until the end of the first week of classes.

Excluding Older Grades

An undergraduate student currently enrolled may petition the dean of his or her college to exclude from the calculation of the grade point average grades earned five or more calendar years before. If the petition is approved, all grades (not merely grades of D and F) earned during the specified quarter or semester and all previous grades (not merely grades of D and F) will then be removed

from the calculation. However, all grades remain on the permanent record.

Excluded course credit (including transfer credit) will not count toward the total hours required for graduation. However, courses passed may fulfill basic curriculum requirements and may satisfy prerequisites for higher courses where applicable. Courses excluded from the calculation may be taken again and repeated once without infringing upon repeat privileges specified in catalog course descriptions. Courses excluded are not subject to credit by examination. A student whose petition has been approved is ineligible for graduation honors. Only one petition from each student may be approved.

Grade Reports

A report of the student's grades is sent to every student by the Office of Records as soon as possible after the close of a quarter.

Grade Changes

A request for a grade change must be made to the course instructor. Applications for grade changes must be signed by the instructor, department chair, and dean. All grade changes must be submitted by the dean or the instructor to the Office of Records by the dean or instructor; they will not be accepted from the student. After a degree has been conferred, in no case may a grade change be made for a course or courses taken while pursuing that degree.

A students' academic record contains a complete history of his or her academic performance while earning a degree. Therefore, the academic record of a student who graduates may not be revised using Repetition Form, Petition for Change of Grade from F to W, or Statute of Limitations. In the case of a student who has completed a two-year associate degree, the above policy may, on occasion, be waived, but only if the student is currently pursuing a baccalaureate degree. However, changes cannot be made in a student's record which would affect the status of the awarded associate degree. Waivers must be approved by the appropriate dean.

You may petition for a change in your grading option until the end of the first week of classes.

Credit by Examination — Departmental

A current student who can demonstrate ability and knowledge in a particular subject area may establish credit in certain courses without enrolling in them, by taking a special examination (through the appropriate department). An examination fee is assessed for each examination. The only grade possible is "CR", and there is no effect on the student's grade point average. For the examination fee, see "Fees and Expenses". Information on courses for which credit by examination is possible may be obtained from the student's academic dean or the Office of Testing.

Recalculation of Point Average

A current undergraduate student may wish to improve his or her cumulative point average by repeating a course in which a grade of 'D' or 'F' was earned. In order to recalculate the cumulative point average, the repetition must be consistent with the policy on repetition of courses and the student must initiate the recalculation process with the approval of his or her advisor (or the dean, if it is a second repetition). Although courses are not deleted from the permanent record, the record is adjusted to reflect the inclusion of only the last grade in the computation of the point average. The hours credited toward degree hours completed are those earned with the last grade. Once a repetition form has been processed for any course with an F grade, an F to W Petition may not be processed for that same course. Only undergraduate students currently attending in the University may request this recalculation privilege. A post-baccalaureate student is not eligible to petition for a recalculation unless both the course and the repetition are completed subsequent to the conferring of the degree. A student holding the two-year associate degree may petition after receiving the associate degree only if currently pursuing a baccalaureate degree. (All YSU grades including those deducted from accumulative totals as a result of an approved Repetition Form, will be counted in determining honors for graduation.)

Proficiency in English and Grading

The student's ability to express himself or herself in English is not the concern of the Department of English alone, but of every member of the University faculty. Inadequate competence in this respect is to be regarded as a reason for lowering a student's grade in any course in the University.

Absence from Classes and Examinations

The problem of excessive class absence concerns instructor and student, and consequently requires their mutual effort. All students must realize that for their own welfare they are expected to attend all class meetings of courses in which they are enrolled.

The instructor, however, has the prerogative of determining the relationship between class attendance, achievement, and course grades, and the responsibility for communicating the relationship to the students at the beginning of each quarter.

A student must have the instructor's consent in order to take any examination at a time other than that scheduled.

TRANSCRIPTS

The official transcript is a record of all coursework taken at Youngstown State University. Transcripts may be ordered only by the student. Transcripts may be ordered in person at the Enroll-

ment Center, by mail, or by fax. Mail and fax requests should be sent to the Office of Records and should include the student's name, any former name(s), social security number, dates of attendance, day-time phone number and written signature. Students are advised that most graduate and professional schools and many employers accept transcripts only if sent directly by the University. (For transcript fee see "Student Fees and Charges.") Photo identification is required when ordering or picking up the transcript in person.

A transcript indicates the academic status of a student. Disciplinary action is not shown on a student's academic record.

ACADEMIC HONORS

The Dean's List

The Dean's List (for each quarter except summer) includes those full-time undergraduate students who have earned a 3.4 average for not less than 12 quarter hours' credit for the quarter just ended.

Included in the listing for the spring quarter are those part-time students who have maintained a 3.4 average for the fall, winter and spring quarters, and who have accumulated a minimum of 12 quarter hours of credit for the three quarters.

Class Honors

To be eligible for undergraduate class honors a freshman must have completed at YSU at least 18 quarter-hours; a sophomore 36 quarter-hours; a junior 54 quarter-hours; and a senior 72 quarter-hours. Honors are based on the accumulative point average at YSU only; no transfer work is included. Both full-time and part-time students are eligible provided they 1) have a minimum cumulative point average of 3.00; 2) have earned at least 12 credits in traditionally graded courses taken during the four quarters (including summer) preceding the quarter in which honors are awarded; and 3) be enrolled during the current quarter. Non-matriculated, transient students, post-graduate transfer students, and YSU students who have received a baccalaureate degree prior to spring quarter in the academic year in which the honors convocation is held are not eligible. A student can receive class honors only once as a member of a particular class (freshman, sophomore, etc.). The number of honor recipients approximates the top one percent of the total fall enrollment of every class in each undergraduate unit of the University, but it may slightly exceed this figure because of ties.

Class honors certificates are awarded annually at the Honors Convocation.

Honors Convocation

The Honors Convocation recognizes those students who have distinguished themselves academically. Class honors certificates are given on this occasion, and some of the awards listed under Awards and Prizes are announced and presented.

Graduation Honors

Students graduating with a baccalaureate degree who rank high scholastically are awarded special honors at the commencement exercise, as follows:

Those who attain a quality point average of 3.8 or higher are granted their degrees Summa Cum Laude.

Those who attain a quality point average of less than 3.8 but not less than 3.6 are granted their degrees *Magna Cum Laude*.

Those who attain a quality point average of less than 3.6 but not less than 3.4 are granted their degrees *Cum Laude*.

Students graduating with any associate degree who rank high scholastically are awarded special honors at the commencement exercise, as follows:

Those who attain a quality point average of 3.7 or higher are granted their degrees With High Honors.

Those who attain a quality point average of less than 3.7 but not less than 3.4 are granted their degrees With Honors.

A student who has processed an approved statute of limitation is ineligible for graduation honors. All YSU grades (including those deducted from accumulative totals as a result of an approved Repetition Form) will be counted in determining honors for graduation.

Transfer students who are baccalaureate degree candidates must have at least 90 quarter hours of credit at Youngstown State University, or those who are associate degree candidates must have at least 60 quarter hours of credit at Youngstown State University to be eligible for graduation honors. However, no transferred credit — work taken at any time at an institution other than Youngstown State University — is included in the calculation of the point average.

ATHLETIC ELIGIBILITY

The Office of Enrollment Services is responsible for the athletic eligibility certification for Youngstown State University with respect to academic "standards of progress" for current student athletes and incoming students in compliance with (NCAA) National Collegiate Athletic Association's regulations.

GRADE REQUIREMENTS

Three categories of academic standing are established: Good Standing, Warning, and Suspension. These are intended to signify a student's progress toward graduation or to provide an opportunity for making improvements and achieving academic success.

"Warning" indicates that grade standards consistent with graduation requirements are not being met. An advisor's approval of course load is mandatory and required prior to continuing studies at the University.

"Suspension" means that a student is separated from the University for a period of time.

The minimum cumulative Grade Point Average (GPA) required for **good standing** is 2.00. A student whose cumulative GPA falls below 2.00 is placed on **warning** and this status continues until a 2.00 cumulative GPA is achieved. A student on **warning** is restricted to no more than 16 quarter hours per term, although the student's college may set a lower limit. A student on **warning** may participate in university activities. When a student reaches **warning** status, registration for the succeeding term will be put "on hold" immediately and not be reactivated until an advisor's approval for course selection is acquired.

A student who fails to achieve a cumulative GPA of at least 2.00 after two consecutive terms on warning will be suspended for one academic term before reinstatement on warning. Students with less than 48 quarter hours will not be suspended and will continue on warning if their cumulative GPA is at least 1.75.

A second **suspension** will have a duration of at least one full year before reinstatement on **warning**. Students should not expect to be reinstated **after** two suspensions unless the dean agrees that extraordinary conditions or circumstances have occurred. Additional suspensions will have durations of at least two years.

Reinstatement after any suspension is determined by the dean of the college from which the student was suspended. Exceptions to the suspension policy may be granted by the dean.

Any student receiving a quarterly GPA of less than 1.0 is required to have mandatory advising for the succeeding quarter. Registration for the succeeding term will be put "on hold" immediately and not be reactivated until an advisor's approval for course selection is acquired.

Transfer students are to be admitted in **good** standing or on warning according to their status at the university from which they are transferring.

ACADEMIC DISCIPLINE

Academic Honesty

Academic honesty and personal integrity are the foundation upon which a quality education is built. To maintain high scholastic standards and to ensure each student the right to obtain a quality edu-

cation, the University cannot tolerate academic dishonesty, e.g. cheating or plagiarism.

Though instructors are responsible for taking all reasonable precautions to prevent cheating and plagiarizing, students share a joint responsibility and should report any act of academic dishonesty to the instructor.

An instructor may give a failing grade and/or refer for disciplinary action any student who participates in acts of academic dishonesty. The failing grade may be either for the test or assignment on which the cheating or plagiarism occurred, or for the entire course. The circumstances of the incident should be discussed with the student prior to giving the failing grade or referral.

The student may appeal any actions affecting the grade. The Student Academic Grievance Subcommittee will handle such appeals.

A report of any action will be filed in the Office of Vice President for Student Affairs. Repeated incidents of academic dishonesty or flagrant, single offenses may warrant action beyond a failing grade in the course.

Offenses which may warrant additional disciplinary action including disciplinary probation, suspension, or expulsion, include the following:

- A.Cheating, plagiarism or other forms of academic dishonesty, including the acquisition and or use, without permission, of tests or other academic material belonging to a member of the University faculty or staff. A student enrolled at Youngstown State University who secures the services of an individual or enterprise engaged in the selling of term papers or similar academic materials, and who submits these as the student's own work, is committing plagiarism.
- B. Furnishing false information to the University with intent to deceive.
- C.Forgery, alteration or misuse of University documents, records or identification cards.
 - It should be observed that under the Ohio Revised Code, forgery is a felony and is punishable as such.
- D.Unlawful and/or vandalistic appropriation of University property (e.g. books, magazines or parts thereof) with the result that others are deprived of its use and benefits.
- E. Misuse of computer privileges, including unauthorized use of an account number, password, program, files, or file definition.

Procedures for reporting, investigating, and considering disciplinary action are found in *The Code*. A copy of this publication may be obtained from the Center for Student Progress, the Office of the Vice President for Student Affairs or Bytes 'n Pieces in Kilcawley Center.

Academic Grievances

Student complaints concerning instruction should be discussed first with the student's instructor. If not resolved at that level, the complaint may then be brought to the chair of the department. An appeal may be made to the dean of the college, should the student not feel the matter has been handled fairly. The Student Academic Grievance Subcommittee was established by the Academic Senate to further hear student complaints concerning instruction not resolved at the college level. Students wishing to file a complaint should contact the Office of Student Life, in Room 2099, Kilcawley Center. Further information may be found in The Code which may be obtained from the Center for Student Progress, the Office of the Vice President for Student Affairs, or Bytes 'n Pieces in Kilcawley Center.

STUDENT RECORDS

Notification of Rights under FERPA

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. They are:

(1) The right to inspect and review the student's education records within 45 days of the day the University receives a request for access.

A student should submit to the registrar, dean, head of the academic department, or other appropriate official, a written request that identifies the record(s) he/she wishes to inspect. The University official will make arrangements for access and notify the student of the time when and the place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, such official shall advise the student of the correct official to whom the request should be addressed.

(2) The right to request the amendment of the student's education records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights.

A student should write the University official responsible for the record in question, clearly identifying the part of the record he/she wants changed, and specifying why it is inaccurate, misleading, or otherwise in violation of his/her privacy rights.

If the University decides not to amend the record as requested by the student, the University will notify the student of the decision in writing and advise the student of his/her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

(3) The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

Personally identifiable information is information that, if disclosed, would make a student's identity easily traceable, e.g., name, address or social security number. One exception which permits disclosure without consent is disclosure to University officials with legitimate educational interests. A University official is a person employed by Youngstown State University in an administrative, supervisory, academic, research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student or volunteer serving on an official committee, or assisting a University official in performing his/her tasks.

A University official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility for Youngstown State University.

Upon request by another school in which a student seeks or intends to enroll, Youngstown State University also discloses education records without a student's consent to officials of such school.

(4) The right to prevent the University from disclosing any or all of the information about the student the University has designated as directory information.

Any student wishing to exercise her or his right to block disclosure must inform the executive director of Enrollment Management in writing within the first seven (7) calendar days of any academic quarter of the information not to be designated as directory information with respect to that student. If no such written notification is submitted, the University will assume that a student does not object to the release of the directory information. A student's request for such non-disclosure will remain in effect until the student notifies, in writing, the executive director of Enrollment Management otherwise.

FERPA permits the disclosure of directory information without the consent of the student. Directory information is information contained in a student education record which would not generally be considered harmful or an invasion of privacy if disclosed. Youngstown State University has designated the following types of information as directory information:

- a. name
- b. address (campus and home);
- c. telephone listing (campus and home);
- d. e-mail address (campus and home);
- e. date and place of birth;
- f. field of study;
- g. weight and height of members of athletic teams;

- h. dates of attendance;
- i. degrees and awards received;
- j. the most recent previous educational institution attended; and
- k. photographic, video or electronic images of student.
- (5) The right to file a complaint with the U.S. Department of Education concerning alleged failures by Youngstown State University to comply with the requirements of FERPA.

The name and address of the office that administers FERPA is:

Family Policy Compliance Office U.S. Department of Education 400 Maryland Avenue, S.W. Washington, D.C. 20202-4605

Any questions about this notification should be directed to the executive director of Enrollment Management.

GRADUATION REQUIREMENTS

Catalog of Entry

Each undergraduate student entering Youngstown State University is entitled to a copy of the Undergraduate Bulletin. This catalog or any one subsequent catalog will be the guide to graduation requirements, provided the student is in continuous attendance and does not change majors. When a student changes majors, the guide to graduation requirements will be the catalog in effect at the time of change or any one subsequent catalog. Readmitted students will use the catalog in effect at their last readmission or any one subsequent catalog as the guide to graduation requirements. Any exceptions to requirements must be approved by the student's department chair and/or college dean. The University reserves the right to change course offerings and academic requirements. Certain general requirements apply to all degrees earned at Youngstown State University, while other requirements apply only to particular degrees.

Candidacy for a Degree

To be eligible for candidacy for any degree, the following three requirements must be fulfilled:

Application. The student should file the Notice of Intention to Apply for Graduation form with the dean of the college after the completion of 60 quarter hours for an associate degree and 150 quarter hours for a baccalaureate degree. The student will then be advised regarding remaining graduation requirements.

A formal application for graduation must be filed at the Office of the Bursar by the published deadline. The application form is available at the office

Degree Requirements

MINIMUM TOTAL CREDIT			1000	200 - 200	1 - 1					
Other Courses 10	110-112	126-138	122	12014-138	112	113	136	132-159	_6	
FOR THE DEGREE Foreign Lang.	8-208	4-168	Made.					9	_6	
Science/Mathematics	16	12	12-22	12-38	18	46	12-22	12-22	5 6	12-16 ³ 4 ⁴
Social Studies	20	20	16-227	16-24	20	12	16-22	16-22	56	12-16 ²
AREA COURSES: Humanities	16	16	8-18	8-18	8	12	8-18	8-18	_ 6	12-16 ²
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Health/Phys.Ed.	6	6	6	6 13	6	6	6	6	35	
English Comp.	8	8	8	8	8	8	8	8	8	8
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			B.S.	B.S. in	B.S.				A.A.	

Notes

¹Transfer Module students planning on transferring to another Ohio state assisted institution should complete the Transfer Module (TM). This module is recognized state-wide as being the core for general education requirements at all state assisted institutions of higher education. With proper planning, this module can be a subset of the General Requirements (GR) at YSU (i.e., with the exception of an extra humanities credit for some degrees, students can fulfill the TM with the same courses they use to fulfill the GR). Please contact your Dean's office for a detailed list of requirements. Total quarter hours for TM must equal or exceed 54. Contact the Records Office for validation of completion of the Transfer Module.

²At least two disciplines must be included within both the humanities area and the social studies area.

³Must include at least one lab science course.

*A course in mathematics, statistics, computer science or logic for which three years of high school college preparatory mathematics is a prerequisite.

⁵Health 590 is waived for dental hygiene, and emergency medical technology, students.

"Refer to associate degree curricula in the appropriate college.

Requirements peculiar to a particular degree are explained more fully in the section of this catalog primarily concerned with that degree.

*The eight-hour requirement for the B.A. degree and the four-hour for the B.S. degree assume the continued study of the same language in which two units of high school credit were earned. If a different language is studied, or if the student has more than two units of high school credit, the requirement is different. See Proficiency in a Foreign Language for details.

"For voice majors 24 hours are required. Part of this requirement may be met by two units of high school study in one of the following languages: French, Italian, or German. In this case 16 hours are required (eight hours in each of the two languages not previously studied).

¹⁰These include all courses necessary for the major, minor(s), teaching licensure (if needed), and any other special purposes. For many fields, all the courses required or suggested are listed in the curricula in the pertinent sections of this catalog.

¹²The exact number of hours varies for the various programs, as shown in the specific curricula.

For B.S. in P.T., Health 590 is waived and B.S.N.

*B.S. in P.T. requires 93 prerequisite courses to apply for the professional phase of the program; a total of 205 hours are required. of the dean of the appropriate college, the Records Office or the Enrollment Center. If the student does not graduate at the commencement exercise for which the application has been filed, the application must be reactivated with the appropriate dean. It is the student's responsibility to make certain all degree requirements are complete. The student must fulfill the: 1) University-wide, 2) college, and 3) departmental requirements as well as the minimum credit hours.

Residency. The last 30 quarter hours leading to an associate degree and the last 45 quarter hours leading to a baccalaureate degree must be completed at Youngstown State University. (In the preforestry, pre-law, and pre-medical curriculums, however, which allow the student to earn final credit hours in absentia, the last 45 quarter hours prior to the period of absence must be spent at Youngstown State University.) A minimum of 24 quarter hours in the concentration area for the associate degree, and a minimum of 24 quarter hours of credits comprising the major in the baccalaureate degree must be earned in residence. A minimum of 32 quarter hours of upper-division credit for the baccalaureate degree must be earned in residence. Exceptions must be approved by the Office of the Provost. Additional requirements may be specified by individual colleges.

Grades. The point average must be at least 2.00 (See The Point Average and Scholastic Standing) at the time candidacy is approved and at the time the degree is granted.

For additional requirements peculiar to the associate or baccalaureate degree, further details follow.

Baccalaureate Degree

In addition to requirements stated under Candidacy for a Degree, the following requirements must also be fulfilled for a baccalaureate degree:

Pre-College Requirements . It is the student's responsibility to fulfill any high school unit deficiency(ies) for the desired degree. The preparatory units are not the same for all degrees; they are listed in the Courses Required for Graduation Section and should be read carefully, together with the explanatory notes accompanying them. This is especially important if the student changes the degree for which he or she is studying, as his or her high school preparation, even though satisfactory for the original objective, may not be satisfactory for the new one. A student admitted to the University to study for one degree does not mean that he or she is equally qualified to become a candidate for all other degrees offered by the University.

Course Levels. At least 90 quarter hours must be completed in courses numbered 600 or higher; at least 72 of these 90 hours must be in courses numbered 700 or higher. Majors and Minors. Each student must complete a major. Each must also complete a minor, unless a combined major is elected or enrollment occurs in a college offering approved professional or technical curricula which do not require a delineated minor.

A department major consists of at least 45 quarter hours in one department with grades of "C" or better. A combined major, in which courses are given by more than one department, consists of at least 70 quarter hours with grades of "C" or better. A minor consists of at least 21 quarter hours with grades of "C" or better in a department other than that of the major, unless the department includes more than one discipline. If the department includes more than one discipline, the minor may be in the same department in a discipline other than that of the major. Certain approved inter-disciplinary programs are exceptions to the above definitions. In approved interdisciplinary minors, courses from a discipline can be counted in the minor provided that the same courses are not counted toward the major in the same discipline.

Each department determines the course requirements for its own major or majors. A department may also establish a pattern of courses to be recommended for students seeking a minor in that department. However, responsibility for certifying that a student has completed a major and minor rests with the chairperson of the major department in which the student completes the major. The student may be required to do more than the minimum stated in the preceding paragraph.

As soon as a student has decided on a major, he or she should consult with the department chair of the major department. While no student is compelled to declare a major before completing an Intent to Graduate form, early consultation with the department chair is strongly recommended, since in some departments the student must begin course work related to the major during the freshman year or risk a delay in graduation.

General Education Requirements

The YSU Academic Senate adopted the goals of General Education for the University on May 26, 1994. The purpose of the general education requirements is to foster:

- qualities such as curiosity, intellectual honesty, fairness, civility, and an openness to ideas and the sharing of knowledge;
- thinking that is critical, independent and objective:
- integration of knowledge across disciplines;
- the ability to function effectively in a technological society;
- understanding of the importance of studying the past and present;

- appreciation of literature and the arts as expressions of human culture;
- recognition of the importance of acting as informed, responsible, democratically—minded citizens of the world;
- and an attitude that learning is a personal and a collaborative process exercised over a lifetime.

Upon completing the General Education Requirements and all other degree requirements, the student should be able to:

- · Write and speak effectively.
- Acquire, process, and present quantitative and qualitative information using the most appropriate technologies, including computers.
- Reason critically, both individually and collaboratively, draw sound conclusions from information, ideas, and interpretations gathered from various sources and disciplines, and apply those conclusions to one's life and society.
- Understand the personal and social importance of ethical reflection and moral reasoning.
- Comprehend mathematical concepts and reason mathematically in both abstract and applied contexts.
- Understand the scientific method; forming and testing hypotheses as well as evaluating results.
- Realize the evolving interrelationships among science, technology and society.
- Grasp and appreciate artistic expression in multiple forms and contexts.
- Understand the relationships between physical, mental, and emotional well-being and the quality of life of the individual, the family and the community.
- Understand the development of cultures and organizations of human societies throughout the world and their changing interrelationships with Western society.
- Evaluate the impact of theories, events and institutions on the social, economic, legal and political aspects of society.
- Comprehend and appreciate the development of diversity in America in all its forms.
- Understand and appreciate the natural environment and the processes that shape it.

Course Requirements-General Basic

English. The candidate must show satisfactory proficiency in the use of written English. This requirement is normally met by taking English 550, 551, totaling eight quarter hours. Students must be tested by the Department of English to assess their skills in written composition before registration into English Composition courses. Placement into precourses (English 520 and/or English 540), into

English 550, or English 550H (Honors Composition) is made on the basis of the Composition and Reading Placement Test. Students who demonstrate superior proficiency may be exempted from English 550. Information on the policy and procedure for testing and exemption is available from the Department of English. A student who has had part or all of some other "Freshman English" sequence, either at this institution or elsewhere, should consult the chair of the Department of English or the coordinator of Composition before registering for composition courses at Youngstown State University.

Health Education and Physical Education. Each candidate must normally have six quarter hours of credit in Health Education and Physical Education. Usually this consists of three hours of Health Education, (HSC 590) and three one-quarter-hour physical activity courses. The candidate who completed the two year course in military science needs only three quarter hours of HSC 590 (See Modifications for ROTC students, under Military Science). Other substitutions of academic courses or of training received in active Military Service to meet the physical activity requirement must have the approval of the chair of the Department of Human Performance and Exercise Science, in conformity with guidelines established by the faculty and administered by the director of Undergraduate Recruitment and Admissions. Veterans should submit their DD214 to the Office of Undergraduate Recruitment and Admissions for evaluation.

Course Requirements—General Area

The candidate must complete at least 46 quarter hours in the areas of humanities, social studies, and science/mathematics. The following are the general requirements in these areas of study:

Humanities. The candidate must have completed at least eight quarter hours, and may apply no more than 18 quarter hours in satisfaction of this requirement. Applicable courses include the following: literature courses in the English or Foreign Language Departments (600-level or above); courses in philosophy and/or religious studies; history and/or appreciation courses in the Department of Art, the Department of Communication and Theater or the Dana School of Music; Black Studies 601 (Introduction to Black Studies II) or HPES 698 (Survey of Dance). Candidates for Ohio Adolescence to Young Adult License must have at least one course in any two of the following areas: fine arts, philosophy, religion, black studies and literature.

Social Studies. The candidate must have completed at least 16 quarter hours, and may apply no more than 22 quarter hours in satisfaction of this requirement. Courses must be selected from at least two of the following disciplines: black studies (only Black Studies 600—Introduction to Black Studies I may be used), economics, geography, history, political science, psychology, social science, sociology, and anthropology.

Science/Mathematics. The candidate must have completed at least 12 quarter hours, and may apply no more than 22 quarter hours in satisfaction of this requirement. At least eight quarter hours of science must be taken from among the following disciplines: astronomy, biology, chemistry, physical geography, geology, physics, and anthropology. No more than 10 quarter hours of mathematics may be applied toward this requirement.

Additional Course Requirements

A degree requirement is one which applies to all (or, in a few cases, to most) of the students seeking a particular degree, but is not necessarily a requirement for other degrees. Degree requirements will be found as follows:

Those for the degree of Bachelor of Arts (B.A.) are stated in the College of Arts and Sciences section, and in the College of Fine and Performing Arts section, and in the College of Health and Human Services section.

Those for the degree of Bachelor of Science (B.S.) are stated in the College of Arts and Sciences section and in the College of Health and Human Services section.

Those for the degree of Bachelor of Science in Applied Science (B.S. in A.S.) are stated in the College of Arts and Sciences section, the College of Engineering and Technology section, and the College of Health and Human Services section.

Those for the degree Bachelor of Science in Nursing, Bachelor of Science in Physical Therapy, and Bachelor of Science in Respiratory Care, are stated in the College of Health and Human Services section.

Those for the Bachelor of Science in Education (B.S. in Ed.) degree are stated in the College of Education section.

Those for the degree of Bachelor of Science in Business Administration (B.S. in B.A.) are in the Williamson College of Business Administration sec-

Those for the degree of Bachelor of Engineering (B.E.) are in the College of Engineering and Technology section.

Those for the degrees of Bachelor of Fine Arts (B.F.A.) and Bachelor of Music (B.M.) are listed in the College of Fine and Performing Arts Section.

Associate Degree Requirements

Requirements for each associate degree are listed in the appropriate college section. All associate degrees require completion of at least 90 quarter hours of credit including 21 hours of general education. English 550 and 551 and Health Sciences 590 are required for associate degree students. For dental hygiene and emergency medical technology students, HSC 590 is waived.

Applying for Graduation

You must file a Notice of Intention to Apply for Graduation form with the dean of your college after the completion of 60 quarter hours for the associate and 150 quarter hours for the baccalaureate degree.

An Application for Graduation form must be filed with the Office of the Bursar by the deadline indicated in the University Academic Calendar published on the inside front cover of this *Bulletin*. The application form is available at the dean's office in your college or from the Records Office.

See the section entitled "Candidacy for a Degree" on p. 34 for more detailed information.

Commencement

There are three graduation ceremonies each year: Winter Commencement (March), at the end of the second quarter of the academic year; Spring Commencement (June), at the end of the third quarter of the academic year; and Summer Commencement, at the end of the summer session.

There is no graduation ceremony at the end of the fall quarter. Diplomas and transcripts for students who have completed the requirements for a degree at the end of the fall quarter and who have applied for candidacy for December graduation bear a December graduation date. However, diplomas for fall graduates are not distributed until the winter commencement ceremony in March.

STUDENT SERVICES

Center for Student Progress

The Center for Student Progress is designed to intervene actively in the lives of students to help them achieve academic and social success in college. Its primary purpose is to help students successfully complete their university experience. It offers a help desk that can make connections to campus resources and "work the system" for students. It also offers an intervention process that can assist students with setting and attaining their educational goals.

In addition, the Center houses the following services: Adult Learner Services, First Year Student Services, Student Tutorial Services, and Multicultural Student Services. For more information about the Center for Student Progress, please call (330) 742-3538, or stop in. The Center for Student Progress is located in Kilcawley West below the Bookstore.

Adult Learner Services

Adult Learner Services is an educational support office that focuses on the needs of students age 25 and older. It provides direct assistance to students

while supplementing and complementing the work of other units and departments within the University.

Adult Learner Services provides programming, individual assistance, and information for adult students in order to promote and improve student success and integration in the campus community.

Adult Learner Services sponsors the quarterly orientation program, Saturday College. These are one-time readiness classes offered at no charge and taught by volunteer faculty to new and prospective adult students. This program helps those about to start college and also offers adult residents of surrounding communities an opportunity to come on campus, see what college is about, and learn what it will take to enroll and succeed.

Workshops in reading and study skills, goal setting, and decision making are also offered to support adult learners as they move through the University. Adult Learner Services also functions as a referral to and from other support and service offices on campus; sponsors an Adult Learner's Advisory Council; sponsors the University's open forum, Issues and Answers; and assists in forming and promoting adult learner math classes for older students who may have anxieties regarding math. Adult Learner Services assists individuals and campus departments in relating more effectively to this population.

Adult Learner Services is located in the Center for Student Progress, in Kilcawley West directly underneath the YSU Bookstore. For more information regarding these programs or for any assistance regarding college, call (330) 742-3538. Individual and/or after-hours appointments are easily made.

First-Year Student Services

The First-Year Student Services (FYSS) reflects the cooperative effort of Youngstown State University administrators, faculty and students to assist all first-year students in adjusting to YSU.

FYSS's primary purpose is to aid students in their transition to college, help them build self-confidence, identify opportunities for growth, develop a sense of direction, and achieve their educational goals.

Students participating in FYSS prepare an educational plan to guide them through their first year of college. This involves setting realistic academic, career and personal goals based on the student's interests and abilities. Participants are assisted in this activity by FYSS staff who meet with them individually or in groups on a regular basis to offer guidance, support and referrals.

Peer Assistants, specially trained student employees, serve as helpers and friends of new students during their first year of college study or their first year at YSU. They review academic progress and guide students in developing a plan for improvement.

Mentoring service is available to any first-year student who wants support and encouragement from a volunteer faculty or staff member. The relationship focuses on career issues, educational success, as well as advice on requirements and procedures.

FYSS is located in the Center for Student Progress in Kilcawley Center West below the YSU Bookstore. First-year students are encouraged to drop in, call and make an appointment, or call for information at (330) 742-3746.

Multicultural Student Services

Multicultural Student Services has general responsibility for assessing the needs of multicultural students and recommending appropriate programs and services. Emphasis is placed on serving the following student populations: American Indian or Alaskan Native, Asian or Pacific Islander, African American and Hispanic Americans.

The office provides a variety of services including personal counseling, information, referral and assistance in resolving educationally related difficulties.

In cooperation with other administrative offices, MSS offers workshops in study skills, leadership development, college survival skills, race relations, and community information. In addition, annual events such as Native American Expo and Hispanic Awareness Week are sponsored by this office.

Students seeking further information and/or assistance are encouraged to visit the Multicultural Student Services Office, located in the Center for Student Progress in Kilcawley Center West, or telephone (330) 742-7175.

Student Tutorial Services

Student Tutorial Services has as its primary goal the provision of supplementary academic help through tutoring in the 500- and 600-level courses. This tutoring assistance for lower-division courses—exclusive of those served by the Writing Center, the Math Lab, Reading and Study Skills, and the Foreign Language Laboratory—is available to students referred by faculty or academic advisors, or to students applying as self-referrals.

Student Tutorial Services also offers regularly scheduled group sessions, independent study materials, computer-assisted instruction, and review sessions for exams. For more information about Student Tutorial Services, please phone (330) 742-7253 or stop in. Student Tutorial Services is located in the Center for Student Progress in Kilcawley West. These services are free to all students currently enrolled at YSU.

Career Services

The University maintains a comprehensive Career Center to provide professional assistance to students and alumni in career exploration/planning

and employment placement. Students are encouraged to make use of the office early in their college life for aid in career planning and decision making. Individual career counseling is available, as well as computerized interactive career planning and job search guidance systems.

The office is a member of the National College Placement Council, and both national and local employers come to the campus to interview students and alumni seeking employment. Resumes of registered students and alumni are also provided to employers. Students are assisted in finding employment on campus or off while enrolled in the University. The location of the University makes it possible for many students to earn all or part of their expenses by working in nearby stores and industries during the school year.

Additional career information, current announcements and on-campus student employment opportunities are also provided on the Career Services homepage at www.cc.ysu.edu/career-services.

The Career Information Center in the office has career and organization information from over 1,600 employers, plus many other career-related resources. Mock interview sessions as well as over 360 video-taped presentations on career and employer information are available. Job fairs and career days are presented throughout the year, as are seminars on job-search techniques, resume writing and interviewing techniques.

The Office of Career Services is located in Jones Hall and may be reached by phone at (330) 742-3515.

University Counseling Center

The University Counseling Center (UCC) is staffed by psychologists, counselors, and trainees. We offer a warm, relaxed (and confidential) place to talk things out. Admittedly, there are few simple answers to problems, but often a counselor can offer new ways of looking at your situation as well as suggestions for change. Often, just talking with someone who asks the right questions is all it takes to get going on a fresh start.

Counseling is available at no cost to YSU students, faculty, and staff. The Counseling Center staff addresses such issues as test anxiety, loss and grief, eating disorders, alcohol and drug problems, career indecision, sexuality, and self-esteem and relationship problems.

The University Counseling Center does not release information to University administrators or faculty, to parents, family members, or to outside agencies without the client's written authorization. Exceptions to confidentiality include: as required by Ohio law, when the counselor determines that a person is at risk for a child or elder abuse/neglect, suicide, or homicide. Class presentations, workshops, and training programs are offered to the campus and community on a variety of psychological/self-help topics. Please call the director at 742-3057 in advance to arrange a presentation.

The UCC also has a resource library providing information on mental health, wellness, and alcohol/drug issues. Books, tapes, and literature are available to the campus community for research purposes, class projects, or personal use.

You may arrange appointments by telephone at (330) 742-3056, or in person at the University Counseling Center, third floor Beeghly Hall (College of Education). Visit our website at http://www.cc.ysu.edu/~rrando/UCCindex.html.

The University Counseling Center (UCC) is a unit of the Department of Counseling in the College of Education.

Disability Services

Disability Services in the Office of Affirmative Action provides students, faculty, and staff with assistance and information regarding accommodations for people with disabilities. Compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 involves providing reasonable accommodations to qualified individuals with disabilities. These accommodations are provided in order to ensure equal access to people with disabilities regarding educational opportunities, programs, and activities.

Common accommodations include providing extra time to take exams in a quiet location; scribing for exams; tape recording class lectures; arranging sign-language interpreters, special seating and early registration; and providing note takers, readers, and adaptive computers. Equipment loans of tape recorders and a personal amplification device are also available. A resource library provides information on various disability issues. Books, tapes, and literature are available for use by the campus community.

To inquire about receiving disability services, please contact the office at (330) 742-3370 (voice), (330) 742-1564 (TDD), or (330) 742-3108 (fax). A confidential appointment will be set up to discuss your accommodation needs. The Office of Affirmative Action and Disability Services is located in Jones Hall, Room 2002.

Student Health Clinic

The Student Health Clinic is located in Beeghly Center, Room 200. The Health Clinic, staffed by licensed physicians and registered nurses, provides first aid and both sick and well care. Sick care includes diagnosis and treatment of illness or injury. Well care encompasses preventive medical care such as health maintenance screenings, which include physical exams for sports or programs such

as nursing or respiratory therapy; gynecological exams; consultations; and referrals to appropriate outside services or physicians. Required immunizations are administered here. Information is available about student health insurance.

Physicians are available 20 hours per week when classes are in session and four hours weekly during break periods and the summer. Students are seen on an appointment basis and can make arrangements by phoning (330) 742-3489. Nurses are available daily, year-round.

All services provided for students are strictly confidential.

The YSU Women's Center

The Youngstown State University Women's Center offers a wide range of services and programs designed to educate and assist women students. The Women's Center creates a positive and supportive environment for women students within the University community by enriching their educational experience. Through its programs and services, the Women's Center fosters an understanding of women's issues, promotes the exchange of ideas and mutual support, encourages retention and academic success for women students, and addresses the inequities women encounter. Programs and activities of the Women's Center are designed to serve four primary functions: support, education, advocacy, and referral services.

The support function is essential to the Women's Center's mission because it allows women to get the help and support they need to deal with the myriad of issues they face. Several support groups are currently in place which address issues ranging from adjusting to college, surviving the breakup of a relationship, to eating disorders. Some of the women we will reach through support groups are sexual assault and rape survivors, non-traditional/ adult learners, women of color, lesbians, single mothers, and women with disabilities. In addition to the support groups, the staff of the Center fosters and promotes a supportive environment that is open and welcoming to all women on campus, regardless of their race or ethnicity, sexual orientation, age, or political philosophy.

The Women's Center has a strong outreach function in order to educate the YSU community on a variety of issues which impact the lives of women. The Women's Center sponsors lectures, films, visual displays, and performance art designed to educate and enlighten students. We also sponsor awareness weeks throughout the year that feature a number of related programs. Some issues that have been addressed this past year are eating disorders, rape prevention, sexual harassment, self-esteem, parenting skills, safer sex, and fitness and nutrition.

The Women's Center also provides advocacy and referral services. We have an extensive list of local and campus agencies which provide services ranging from legal assistance to mental health counseling to shelter for battered women and children. Finally, the Women's Center houses a resource library that students can use as they research issues related to women for papers and speeches.

All of the programs sponsored by the Women's Center are free and open to the public and all of our services are confidential.

For more information about the YSU Women's Center, please call, (330) 742-2311, or stop at the Center, located on the upper level of Kilcawley Center, next to the bookstore.

ACADEMIC RESOURCES

The Writing Center

The Writing Center is operated by the Department of English to provide individualized and group instruction in writing skills for all YSU students. The Writing Center staff includes members of the English faculty, undergraduate tutors, and a full-time coordinator. Services include evaluation of writing strengths and weaknesses, tutoring, writing workshops for specific course needs, assistance with the World Wide Web, on-line tutorial assistance, and consultation for writing projects in all disciplines. The Writing Center also maintains a computer lab component for English 520.

Writing Center services are free of charge to all registered YSU students. Located in Coffelt Hall, the center is open from 9 a.m. to 3 p.m. weekdays and from 4:30 to 7:30 on Monday and Thursday evenings. Drop-in hours are also on Mondays and Thursdays, from 3 p.m. to 4 p.m. For further information, contact the Writing Center, telephone (330) 742-3055.

Mathematics Assistance Center

The Mathematics Assistance Center is an academic support service which is integrated with the Department of Mathematics and Statistics. Its mission is to assist YSU students in the strengthening of the fundamental mathematics skills which are necessary for success in the study of mathematics and to provide resource materials for independent study.

The Center, located in Cushwa Hall, Room 3090, operates on a walk-in basis. Tutoring is provided for courses ranging from Elementary Algebra through Calculus 2.

Among the other services offered by the Mathematics Assistance Center to any student of the University are computer-assisted instruction, video-assisted instruction and hand-outs on selected mathematics topics. Workshops are offered as needed and as resources permit.

The staff of the Mathematics Assistance Center consists of a Coordinator, program assistant, graduate assistants, undergraduate tutors, and student receptionists. The Center maintains business hours as follows: Monday through Thursday from 9:00 a.m. to 8:00 p.m., and Friday from 9:00 a.m. to 1:00 p.m. (Call for hours for summer quarter.) For additional information, contact the Mathematics Assistance Center at (330) 742-3274.

Reading and Study Skills Program

The Reading and Study Skills Program is operated by the Department of Counseling in the College of Education to provide individualized and group instruction in improving reading rate and comprehension as well as study strategies. The Reading and Study Skills Lab is staffed by members of the Reading and Study Skills Program faculty, graduate and undergraduate tutors, and a fulltime coordinator. Services include individual tutoring, reading and study skills workshops and assistance with preparation for standardized tests such as NTE, MCAT and MAT. The Reading and Study Skills Lab also maintains a laboratory component for R&SK 510A and 510B-courses mandated for students based on the Composition and Reading Placement Test (formerly known as the English Placement Test). A more advanced course in critical thinking and study strategies is available through R&SK 570.

The services offered by the Reading and Study Skills Program are free of charge to all registered YSU students. The Reading and Study Skills Laboratory is located in Beeghly Hall in the College of Education and is open from 8:00 a.m. to 5:30 p.m., Monday through Thursday and 8:00 a.m. to 3:00 p.m., on Friday. For further information contact the Reading and Study Skills Laboratory, telephone (330) 742-3099.

Maag Library

The library's online public access catalog (Innovative Interfaces, Inc.) with over 45 terminals throughout the building, provides remote access from other campus locations, from personal computers via phone modems or the World Wide Web, and through the computer center network (www.cis.ysu.edu/~library/).

The Maag Library is a member of OhioLINK, a statewide library and information network linking 50 university, college and community college libraries as well as the State Library of Ohio.

OhioLINK provides straightforward, easy access to a combined online catalog of close to 7 million records. The network also provides a number of databases that can be searched for journal articles, newspaper articles and business information. Other features of OhioLINK include patron-initiated borrowing, book and document delivery, and Internet access.

The library includes instructional and research materials in books, phono records, audio tapes, compact discs, videotapes, periodicals and microforms. These holdings number 680,615 volumes, 819,054 microforms, and 578,056 government documents. Microreaders are on the lower level, as are coin-operated copy machines. On the main level are user services and the library offices. The book collection is on the third through sixth floors in open stacks, with split-level design between stacks and reading levels. There are study rooms and carrels on each floor.

Maag Library and its facilities provide opportunities for group study and discussion, as well as individual development.

The Computer Center

The Computer Center is a centralized computational facility housing the Computer Services and Network Services Departments, along with Customer Support Services personnel. The facility, which provides decentralized access to faculty, staff and students, occupies the fourth floor of Meshel Hall, an 87,000 square-foot advanced technology center. Serving both academic and administrative needs, the Computer Center operates an IBM 9672 Model R42 CMOS processor with one gigabyte (over one billion characters) of main memory (RAM). The IBM 9672 supports two state-of-theart production environments via the OS/390 and VM/ESA operating systems. These environments provide online access to a high-performance RAID-5 disk array, providing a data storage capacity in excess of 158 gigabytes. Application development utilizes the MODEL204 relational database and VSAM files accessed through CICS/ESA. A UNIX environment is accessible to students, faculty and staff via IBM's AIX operating system executing on a network-attached RS/6000 workstation. More than 1500 online devices, including terminals, personal computers, printers, and projection systems are located on-campus. Telephone lines are provided for remote access off-campus.

An Ethernet backbone runs through campus and connects workstations, personal computers, Maag Library's computer system and the IBM 9672 to the Internet. Intra- and internet access to the IBM 9672 is provided through a high-speed Open Systems Adapter. Network access is also available in Cafaro House, the newest on-campus student residence facility. This network is currently being expanded to allow network connections to all dorm rooms, classrooms, labs, offices, etc. throughout the campus.

Personal computers are available on campus for instruction and research. The personal computers in Meshel Hall are also connected to the campus Ethernet network. Networked personal computers

allow access to local software, as well as to other facilities on-campus, such as Maag Library and Youngstown Free-Net, and to Internet sites worldwide. Implementation of the Electronic Campus computing plan is currently underway to establish network connections throughout the entire campus. The Electronic Campus will provide faculty, staff and students the opportunity to use global and local computer networks and current generation computer hardware and software.

Laboratories

Biology, chemistry, and physics laboratories are housed in Ward Beecher Hall; language, English, psychology and anthropology/archaeology laboratories are in DeBartolo Hall and are described below. The geology laboratory is in the Engineering Science Building. The engineering laboratories are described in the College of Engineering and Technology section. The laboratories in Cushwa Hall are also described below. See the previous section on the Computer Center for a description of computing facilities in Meshel Hall.

The Foreign Language Laboratory is designed for both classroom use and individual study. The classroom section has 31 student stations equipped with individual cassette recorders coordinated with a multi-channel console through which audio programs are transmitted to the students, as well as a film projector with auxiliary feed into the console to provide individual listening to the movie soundtrack. The individual-study section has 44 carrels, in which all types of audio-visual equipment can be used. Special oversized carrels house video equipment. Audio-visual programs are available for audio/oral practice and for study of foreign cultures.

In the psychology laboratories, located in the basement of DeBartolo Hall, students can learn basic techniques of experimental psychology, child psychology, social psychology and survey research. Equipment includes an electromagnetically isolated room for recording neural activity, a surgery room for investigating brain-behavior interactions, animal housing areas, a child observation room with mirropane glass, equipment for the control of animal behavior, and a complete audio-visual system to record the different behaviors possible in the laboratory setting.

The physical anthropology and archaeology laboratory has a wide range of special equipment including research microscopes, analytical balances, and spectrophotometers. The Department of English has six computer labs in DeBartolo primarily for the use of students enrolled in English composition classes.

Williamson Hall houses two student computer laboratories with a total of 43 workstations and direct Internet access and a teaching laboratory with 32 workstations.

In Cushwa Hall, laboratories are provided for radio broadcasting, physical therapy, dental technology, allied health, microbiology, nursing, criminal justice, geography, medical technology, respiratory care, food and nutrition, clothing and textiles, medical assisting, paramedical science, and mathematics.

The Bookstore

The Youngstown State University Bookstore is located at the west end of the Kilcawley Center complex. The bookstore is a full-service operation that carries required textbooks and supplies as well as a wide array of emblematic apparel, software, gifts, stationery, specialty items, and an extensive trade and general book area. A 24-hour film developing service is available.

Testing Office

The Jesting Office in the Enrollment Center in Meshel supervises and administers national admission, certification and credit-by-exam tests. These include The American College Test, the College Level Examination Program, the Graduate Record Exam, the Miller Analogies Test, the Law School Admissions Test, the Medical College Admissions Test, the Regents College exam, and the Praxis Exam.

Center for International Studies and Programs

The Center for International Studies and Programs (CISP), as the University's clearinghouse for international activities, is responsible for supporting the internationalization of the YSU campus through continued support to faculty for incorporating international perspectives into their classes. The Center supports international faculty development and coordination of international studies. The Center is also responsible for the institution's studyabroad activities and interinstitutional exchange agreements; international student affairs; immigration services for international students, international faculty and staff members; community outreach for matters international; and for the English Language Institute (ELI); for international undergraduate admissions; and for international recruitment.

The International Resource Library

The International Resource Library provides a collection of references and advising overseas study, work, internship and volunteer opportunities. Youngstown State University is a member of the Institute of International Education (IIE), and has access to the programs offered by the Council on International Education Exchange (CIEE). YSU is also a member of the Ohio International Consortium, which is formed by membership from the

Ohio state institutions; the College Consortium for International Studies (CCIS). In addition the Center continues to develop study abroad programs sponsored by YSU. All of these memberships provide YSU students with the opportunity to study in more than seventy countries throughout the world on a short-term or academic-year basis. The Center also coordinates advising for the Fulbright, National Security Education (NSP, Rhodes Scholars Scholars, and the American Institute for Foreign Study (AIFS). The Center also issues the CIEE International Identity Cards for faculty and students.

In addition to study abroad information the library also contains country specific information, Fulbright videocassettes, information on the Test of English as a Foreign Language (TOEFL), International directories, information for international students, and other topics relevant to the international area.

Community Outreach

One of the Center's active committees is the Community Outreach committee. This committee's membership consists of faculty, staff, students, and community individuals and organizations.

This committee's main charge is to become the primary vehicle from the Center to draw community peoples into closer relationships with the many faculty and students who are international or who have strong international interests.

International Students and Scholars Programs

The Office of International Students & Scholars Programs (ISSO) of the Center for International Studies and Programs provides a wide variety of services to international students, faculty, and staff at YSU. This program provides assistance with cultural adjustment for new students as well as special programs regarding cross-cultural interactions for both international and U.S. students. This office offers immigration and general educational advising and also greets students on arrival and conducts orientation. Immigration services for international faculty and staff members needing assistance with immigration concerns are the responsibility of ISSO, as are relationships with federal, governmental, and private sponsoring agencies.

International Student Association (ISA)

The purpose of the International Student Association is to provide a forum for international students to gather and meet each other and other students at the University.

International Undergraduate Admissions

Students applying for international undergraduate admissions and the English Language Institute

(ELI) apply directly to the Center for International Studies and Programs (CISP). For more information see International Undergraduate Applicants.

International Recruitment

All international recruitment activities are coordinated through the Center for International Studies and Programs.

HOUSING SERVICES

University Housing

YSU owns and operates five housing facilities for students: Kilcawley House, located on Spring Street; Lyden House and Cafaro House, the newly built residential honors facility, on Madison Avenue; and the Wick and Weller Houses on Wick Avenue. On-campus options for students range from traditional residence hall-type facilities to apartment-style housing.

On-campus living provides students many advantages and opportunities. University housing facilities are structured environments. Each is a small community, and as such, has procedures and regulations addressing such things as noise, safety, guests and security. University Houses have fulltime professional and part-time student staff that oversee the operation of the Houses and assist students with the problems of daily college life. Each facility has state-of-the-art building security systems. On-campus living is a good place to get to know many students in a short period of time. Sharing bathrooms, lounge space, and corridors with a group means you can't help but make friends quickly. Being on campus also means that classes, the library, the student center and the computer center are never very far away.

Kilcawley House

Kilcawley House was constructed in 1965. All areas of this facility have been refurbished recently. Public areas, bathrooms and student rooms are attractive and modern. This traditional type, sevenstory housing facility can accommodate 238 students. Kilcawley residents live in double occupancy rooms, complete with bunk beds, wall to wall carpeting, built-in desks, telephones and plenty of closet and drawer space. Lounges are available on each floor, with two formal study lounges located on the ground level. The basement contains a game room equipped with big screen TV, ping-pong, pool and foosball tables. Its residents have the advantage of being located in the heart of the YSU campus, and can use all of Kilcawley Center's facilities, including National City Bank, computer center, and copying service, without going outdoors.

Lyden House

When Lyden House opened in the fall of 1990, a new era began for on-campus housing at Youngs-

town State. The impressive five-story structure reflects a traditional collegiate gothic style with clean, contemporary lines.

Lyden House located just north of campus along Madison Avenue houses 300 students. A typical student room is approximately 12' x 17', and houses two students. In addition to a bunk bed, which can be stacked or separated, each student has a desk and chair, a dresser, a shelving unit and an armoire wardrobe unit. The furniture is uniquely designed to interchange to suit the individual student's tastes in personal decor.

Rooms also feature individually room controlled heating as well as air conditioning units, decorator vertical window blinds, overhead lighting and tiled floors. All rooms in Lyden are designed to be handicapped accessible.

Each wing of this beautifully designed residence hall includes convenient shower and restrooms, quiet study rooms, and comfortable conversation lounges. Students have full access to a kitchenette/vending area, fitness room and laundry facilities in the lower level of Lyden. A convenient parking area is also available adjacent to Lyden House.

Cafaro House Honors Residence

Cafaro House, our new residential honors facility, is coed, housing 274 students. The facility, which opened fall 1995, houses participants in the University Scholars Program, B.S.M.D. program, and Honors Program.

Enclosed suites rather than traditional rooms accommodate 6-18 residents, with individual rooms branching off each suite area which house 2-3 residents.

In addition to providing a variety of lounge and recreational spaces similar to Kilcawley and Lyden, this facility also has academic spaces such as a seminar room, computer lab, and music practice rooms.

Weller House Wick House

Both Wick and Weller Houses are located along Wick Avenue next to the Arms Family Museum of Local History and near the Butler Institute of American Art. Both of these houses were purchased by the University, and were then completely renovated. Weller House accommodates 38 upperclass, junior, senior and graduate tenants. Wick House accommodates 36 women. Complete renovations of these houses included all new energy-efficient windows, heating and air conditioning units, carpeting, and lighting. Furnishings provided for each student are similar to those previously listed for Lyden House residents.

Weller House opened in fall 1991, offering apartment-style on-campus living, each unit having a full bathroom with tub and/or shower, and a kitchen

furnished with modern cabinets, telephone, an electric range, refrigerator/freezer, garbage disposal and a dining table. Apartments vary in size and are designed to accommodate two to five students.

Weller also offers students a comfortable, group lounge with convenient laundry facilities on the lower level.

Wick House, constructed in 1906, offers the traditional architecture style of the turn of the century. This four-story former mansion features an impressive, historically preserved dual staircase. It offers women students a wide variety of housing options, ranging from single-occupant rooms to rooms accommodating four students. Rooms vary in size and share showers and restroom facilities.

Wick House residents enjoy security monitoring, a conversation lounge, and laundry facilities.

Christman Dining Commons

The Christman Dining Commons opened for fall quarter 1991, and serves any student with an oncampus resident meal card or on a per-meal cash basis. The Commons is located adjacent to both Lyden House and Cafaro House and is easily accessible from Elm Street, Madison Avenue, and Custer Street.

This gracious single-floor dining facility architecturally compliments Lyden and Cafaro Houses, seats 300 and will serve over 600 per meal.

The Commons offers a wide variety of menu options to campus residents, from self-serve cold foods, beverages, and snack selections to staffserved grille specialties and hot entrees.

Various meal plans are also available to those current students not living in University-owned facilities.

Application for Housing

Applications are available from the Housing Services Office. You can request an application by mail, by phone or in person. If you indicate an interest in housing on your application for admission, an application will be sent to you.

In order to be accepted for University housing a student must first be admitted to the University. Space is allocated on a first-come first-served basis. If you have not yet applied to the University, contact the Office of Undergraduate Recruitment and Admissions (OURA) at (330) 742-2000.

Private Housing

Buechner Hall, a privately owned and operated women's residence hall, is located near the center of campus. Although this facility is not operated by the Housing Services, cooperation and regular communication ensures that the women residents are integrated into campus life.

Buechner Hall, designed and built expressly for women, is operated by the Buechner Foundation, a private, not-for-profit corporation, and is maintained by funds from the original bequest. The Foundation partially underwrites every resident's cost. Located on the YSU campus, Buechner Hall houses 75 women in single and double rooms. The air-conditioned rooms are completely furnished, including linens and telephones, and are cleaned weekly by the housekeeping staff. The dining room provides 15 home-cooked meals a week, and weekend cooking facilities are also available. The building has an elevator and sprinkler system, and laundry facilities on each floor. Staff and security guards provide maximum 24-hour security service. A beautiful and immaculately maintained building, Buechner Hall is conducive to a quiet study environment. 620 Bryson Street, Youngstown, OH 44502 (330) 744-5361.

Independent Living

Off-campus housing is an attractive option for many students. In the greater Youngstown area, there is a wide variety of apartments, houses, and rooms for rent at surprisingly reasonable rates. Much of this housing is within walking distance to campus, so students without their own transportation are able to take advantage of it. Many students with transportation opt to live further from campus.

Whatever kind of housing you are interested in, please contact the Housing Services Office at (330) 742-3547 for more information.

Lockers

A full-time student may rent a locker on campus for \$15. All items stored must be removed at the end of each academic year. The University assumes no responsibility for property stored in a locker. Information about these lockers is available in the Kilcawley Center Bytes 'n Pieces.

CAMPUS SAFETY

University Police Department

A well-trained and well-equipped campus police force is maintained by Youngstown State University. The department is located in the YSU Police Department Building on University Plaza, just west of Wick Avenue.

The staff consists of 23 sworn police officers, 6 support employees, and an intermittent staff of 130 sworn officers. The department is a personal-service, technology-efficient law enforcement unit. The staff is supported by a sophisticated communication system, closed circuit television, well-equipped cruiser/patrol vehicles, and computer-based record keeping.

The training of departmental personnel is ongoing, and crime prevention is a departmental priority. Some officers are members of the Mahoning County Violent Crimes Task Force. This participation results in the availability of additional police resources for the University community.

The University Police Department is open 24 hours a day. The general business telephone number is 742-3527. The emergency service number is extension 911. Campus emergency telephones are located throughout campus that will connect you directly to the YSU Police Department in the event of an emergency.

Campus Safety Statistics

Youngstown State University has an outstanding record of safety on campus. For a detailed description of campus safety measures and FBI Uniform Crime Report statistics, see the University's Campus Safety brochure. Crime statistics are also published each quarter in the Schedule of Classes.

YSU Escort Service (YES)

YES is a free service provided by specially trained YSU student employees who will accompany students, faculty, and staff safely anywhere on campus. During the hours of operation, you can be escorted to the near north side if an officer is also available to assist with the escort. Escorts are available Monday through Thursday from 7:00 a.m. to 11:00 p.m. and on Friday from 7:00 a.m. to 7:00 p.m., every day school is in session. The exception is summer quarter, when escorts are available with advance notification. Those with disabilities who need assistance are encouraged to make special arrangements to be safely escorted to any location on campus, day or night. Call (330) 742-1515 for more information or to schedule an escort. After hours, on holidays and weekends, call the YSU Police Department at (330) 742-3527 if you need an escort.

PARKING

Parking for students, faculty, and staff is available close to all major campus buildings. You must secure a parking permit on either a quarterly or a daily basis to be able to park in these lots.

Some short-term metered parking is available on the streets surrounding campus and in the parking lot adjacent to the University Police building.

Parking areas are designated as follows:

S - Student Parking

R - Resident Parking

F - Faculty/Staff Parking

M — Mixed Parking (faculty, staff, and students)

Parking facilities for students include two parking decks and specified surface lots. Although some lots are designated for faculty/staff parking during the day, after 4:30 p.m. daily, all parking areas (except spaces posted as No Parking, Handicap, etc.) are available for use by anyone with a current permit.

The current parking regulations brochure contains additional information about University-controlled parking. The brochure is available from Parking Services in B101 Tod Hall. For information on registration of vehicles and applicable fees, see the Fees and Expenses section of this catalog.

Motorists' Assistance Program

Parking Services offers on-campus help with starts, jump starts, and lockouts. The MAP will also lend out lug wrenches, jack stands, and gas cans.

STUDENT ACTIVITIES

Youngstown State University offers numerous opportunities to interested individuals who want to become involved in student activities. Areas of involvement include Student Government, Campus Activities Board, Student Leadership Board, honor societies, service organizations, religious groups, academic, political and professional organizations, and social fraternities and sororities. There are more than 130 student organizations and groups in which to be involved. In addition, a varied social and cultural program, including concerts and musical groups, performers, lecturers, and dramatic groups, is provided to students.

The University believes that involvement and participation in extracurricular activities can make a significant difference in the quality of a student's college experience. Involvement offers students the opportunity to explore and pursue a wide range of interests outside the formal classroom setting. Other benefits of involvement include the development of leadership skills, self-confidence and social poise, and expanded friendships.

In order to facilitate involvement in student activities, the University has provided the Student Activities Office—with a full-time staff to assist students in finding areas of involvement to meet their interests and needs. The office, located on the second floor of Kilcawley Center, is responsible for the development and coordination of student organization programs and other student-oriented cultural, wellness, and educational events to ensure a well-balanced and responsive activities program.

Kilcawley Center

Kilcawley Center is the community center of the University, for all the members of the University family—students, faculty, staff and alumni. It is not just a building; it is also an organization and a program. Together they represent a well-considered plan for the community life of the University.

As the "living room" or the "hearthstone" of the University, the Center provides the services, conveniences, and amenities the members of the University family need in their daily life on campus and for getting to know and understand one another through informal association outside the classroom.

Through its various committees and staff, it provides a cultural, social, and recreational program aimed at making free-time activity an integral part of a YSU education.

The Center contains several study lounges, 15 conference and multipurpose rooms for the use of the University community, a commercial bank and ATM machine, copy services, a travel agency, fax service, U. S. mail drop and stamp vending machines, catering offices, and the Center's staff offices.

In addition, Kilcawley Center offers a computer room equipped with PC and Macintosh machines. Use of the computers is free, and a small output fee is charged for laser output. The Graphic Center employs a full-time professional and student graphic designers to produce flyers, banners, and other graphics for students and campus organizations at reasonable cost. Disc-Go-Round, a privately owned music store, sells new and used CDs of all kinds. Student Government offices, student organization mailboxes, the Women's Center, and student publications are all housed in Kilcawley. The Student Progress Center and the YSU Bookstore are both located in the Center's west wing.

Kilcawley Center strives to meet the diversified needs of the University community in its food-service program. Arby's, which contracts space in the Center, is located on the lower level of Kilcawley and offers a variety of fast foods. Breakfast is served beginning at 7:00 am with a varied menu available for both day and evening students. The Polar Penguin located in Arby's main dining room offers espresso and cappucino from their coffee shop menu and frozen treats including cones, sundaes, and milkshakes. The University Dining's Kilcawley Center Pub is located on the lower lever of Kilcawley which provides students with a wide variety of pizza choices, snack foods, hot sandwiches, salads, refreshments, and fruity yogurt "smoothie" drinks. The Pub's stage and large screen TV make eating and entertainment a popular form of relaxation.

A marketplace atmosphere is offered by University Dining's Terrace Food Court. Inside the food court there are various stations which feature an antipasto salad bar with homemade soups and Youngstown's best chili daily, comfort food with rotisserie chicken, cold and hot subs, hamburgers and hot sandwiches and breakfast meals. Taco Bell Express with a menu of Mexican favorites is also located inside.

Noodles Restaurant, located on the upper level of Kilcawley, features an Italian menu with homemade sauces, soups, pasta dishes and antipasto bar with a variety of marinated salads. Located inside Noodles is their wood-fired brick oven where Noodles specialty pizzas are cooked. Crayons and butcher paper are on the tables for a fun and creative lunch break.

On the lower level of Kilcawley is The Bagel Stop, Youngstown's New York-style bagel shop. It features a menu of fresh bagels with homemade flavored cream cheeses and Starbucks coffee for the mornings and delicious bagel sandwiches, cookies, snacks and beverages for the afternoon.

Students who are not residents may sign up for the Penguin Card, which is a cash debit card used in all of University Dining's operations. All University Dining operations are open Monday through Friday with the exception of Christman Dining Commons, located adjacent to Lyden and Cafaro housing. Christman offers a variety of menu selections and is open for breakfast, lunch, and dinner Monday through Sunday for resident students.

University Dining Service and catering offices are located on the upper level of Kilcawley near the University Plaza lobby entrance. A full catering guide menu is available for small group functions to large dinner buffets for up to 450 persons.

Information about Kilcawley Center events and services is available at the Bytes 'n Pieces counter, upper level Kilcawley, or by calling (330) 742-3516.

Student Government

The student body of Youngstown State University is represented by Student Government, which operates under constitutional powers granted by the University. The legislative branch of Student Government is composed of representatives from the six undergraduate units, the College of Arts and Sciences, the College of Business Administration, the College of Education, the College of Engineering and Technology, the College of Fine and Performing Arts, the College of Health and Human Services, and the School of Graduate Studies, in proportion to the enrollment of each. All meetings of student government representatives are open to the student body.

Student Government exercises the power to conduct student elections, to recommend students to serve as members of joint faculty-student committees, and to supervise programs financed from its operating budget.

Student Government selects nominees for the two student positions of the University Board of Trustees.

Student Organizations

Students at YSU have formed over 130 student organizations around various interests and commitments. The organizations listed below were registered for the 1997–98 school year. Contact the Office of Student Activities in Kilcawley Center at

(330) 742-3575 for a current list of student organizations or information about starting a student organization or group.

Student Publications

The University supports several student publications which provide an avenue for students to express their literary and artistic talents. Policies and procedures concerning student publications are prepared, reviewed, and applied by the Student Publications Committee.

The Jambar, a newspaper published twice a week, and The Penguin Review, a literary annual, are recognized student publications on campus.

Debate And Other Forensic Activities

The forensic program at the University is divided into two areas individual events and audience-oriented debating.

The individual events team participates in many tournaments including those at Marshall University, Ohio University and the University of Toledo, competing in such categories as oratory, extemporaneous speaking and oral interpretation.

The University Debate Team engages in audience-centered debate with teams from other area colleges and universities. The team also presents topical debates to clubs and other organizations, offering a view of forensics in action as well as information on topics of current national interest.

Participation in the University forensics program is open to all students. Membership in the University Chapter of Pi Kappa Delta, the national honorary forensics fraternity, is open to YSU students who qualify.

Theater

All students in the University are invited to participate in theater production. As a cultural offering of the Department of Communication and Theater in the College of Fine and Performing Arts, the University Theater presents five major productions and three second-stage productions during each academic year, plus a dance recital and numerous student-directed one-act plays. Each summer, a dinner theater production is also presented in conjunction with Kilcawley Center or other regional theater groups.

The co-curricular production program is designed to support the theater training mission of the Department. As such, its staged performances reflect a wide range of dramatic expression, from historical masterpieces to representative works from the contemporary theater. Major productions are so selected that during a four-year span at YSU, a theater student will have the opportunity to work

on a balanced blend of modern and classical plays and musicals. Recent productions have included The Tempest, Evita, Lysistrata, Big River, An Enemy of the People, and Fool for Love.

Membership in the Eta Phi cast of Alpha Psi Omega, the country's largest and most active honorary dramatics fraternity, is open to YSU students who distinguish themselves in theater and scholarship.

Major University Theater productions are presented in Bliss Hall, the performing arts complex which contains Ford Theater, a 410-seat standard proscenium theater, and the Spotlight Arena Theater, which affords a variety of production formats including arena and thrust staging. Besides accommodating some of the major productions, the Spotlight Theater serves as a laboratory for student-directed plays, acting and oral interpretation recitals, and various workshop activities.

With an emphasis on "learning by doing," YSU theater students apply classroom-learned theories and techniques in numerous campus productions. In recent years YSU students have also been able to meet with theater professionals such as makeup artist Irene Corey, Edward Albee, Robert E. Lee (who attended the opening performance of his Inherit the Wind), Fred Voelpel (who taught an advanced seminar in design and designed costumes, scenery, and lighting for YSU'S production of Tartuffe), stage combat master David Boushey, Richard Raether, Earl Hyman (who played the title role in YSU'S production of Othello), playwright Barry Stavis, and Christopher Martin (who directed Stavis' Harpers Ferry). Marni Nixon, (who did a workshop on vocal crossover techniques from opera to musical comedy), Barb Anderson (taught workshop on costume design) well-known lighting designer, David Segal, (conducted workshops and design for production of Ring Round the Moon), dialect coach, David Stern, and Neil Vipond who played Prospero in The Tempest.

YSU is an institutional member of the National Association of Schools of Theater (NAST). As such, the theater degree programs offered by the Department of Communication and Theater are fully accredited.

Musical Organizations

Many campus musical organizations are open to all students of the University. For these, see the Dana School of Music in the College of Fine and Performing Arts section of this *Bulletin*.

Art Exhibits

Student and faculty exhibits, including two annual senior exhibits for graduating studio majors, are periodically held in the John J. McDonough Museum of Art. The McDonough Museum also exhibits works of nationally and regionally known

artists. The Butler Institute of American Art sponsors three annual competitive exhibits such as the area annual and the national mid-year which are available to the students.

The Student Art Association has for many years sponsored an annual exhibition of the work of Youngstown State University students. The work is displayed at the McDonough Museum of Art during the month of May, with awards given from various donors.

Intercollegiate Athletics

Intercollegiate athletics are conducted at Youngstown State University to meet the needs and interests of the entire student body as spectators or participants in healthful amateur sports. Participation is open to any student who qualifies under the Youngstown State University, NCAA, and conference eligibility regulations. Men's teams compete in intercollegiate baseball, basketball, cross country, football, golf, tennis and track and field. Women's inter-collegiate teams compete in basketball, cross country, golf, soccer, softball, swimming and diving, tennis, track and field and volleyball.

The University's intercollegiate athletic programs are governed by the National Collegiate Athletic Association (NCAA).

Students are encouraged to participate as athletes, cheerleaders, trainers, managers or scorekeepers in any of the varsity sports. Students who want to try out should contact the Athletics Offices in the Stambaugh All-Sports Complex.

Campus Recreation/Intramural Sports

A program of recreation and intramural sports provides YSU students, faculty, and staff an opportunity to spend their leisure time in physical activity which encourages one component of a healthy lifestyle. Campus Recreation consists of organized intramural sports leagues and tournaments, "dropin" organized fitness programs, organized club sports, and a comprehensive open recreation schedule, using the shared facilities of the outdoor activity complexes, the Beeghly Physical Education Center, and the Stambaugh All-Sports Complex. Your active participation will enhance your campus life experience and offer you the opportunity to develop many new friendships.

Intramural Sports

The Department of Campus Recreation and Intramural Sports exists primarily to provide YSU students, faculty, and staff an opportunity to spend their leisure time in organized sports and recreational activities. The program now offers over 85 different activities designed to help meet the physical, social and recreational needs of the University community. This is accomplished by fitness, coordination, and endurance.

"Drop-in" Fitness for Life Program

The programs and activities are fun and easy to join. Your currently validated YSU ID card and a completed Par-Q questionnaire are your pass to unlimited choice and attendance to all "drop-in" aerobic and fitness sessions offered by the Department of Campus Recreation and Intramural Sports. The Fitness for Life program features a wide variety of aerobic offerings, from beginning to advanced sessions, which combine different aerobic techniques. The Fitness for Life Program also offers high intensity, high energy, low impact aquatic fitness sessions for those who dare to venture off land. So take advantage of the fitness opportunities and get in shape for life.

The Campus Recreation Department issues program schedules on a quarterly basis.

Informal "Open" Recreation

The Beeghly Physical Education Center and the Stambaugh All-Sports Complex have racquetball courts, basketball courts, an outdoor tennis complex, volleyball courts, activity fields, outdoor track complex, free weight room, fitness center, and natatorium, in addition to activities, such as wallyball, badminton, and floor hockey are available to students, faculty, and staff. Participants must have a validated YSU ID card to use the facilities, equipment, and services of the program.

Club Sports

Club Sports have been established to promote and develop the interests and skills of members in a particular sport activity.

The most important concept is that a club sport is a student organization. Traditionally, club sports have been composed of all men, all women, both men and women, students only, or a combination of students and staff. Normally, only those individuals possessing very high interest and/or skill in a particular sports activity are members.

Club Sports are organized for the primary purpose of providing extramural/intercollegiate competition. The competition experiences provided are with representative teams from other clubs, schools, colleges, or universities. There are some club sports, which have been organized solely for recreational or instructional objectives.

The YSU Campus Recreation/Intramural Sports Department is located in Room 103 of the Beeghly Physical Education Center, (330) 742-3488.

Honorary Organizations

Established to recognize outstanding academic achievement by University students, Youngstown State University provides several honorary organizations related to academic fields and departments. Many of these honorary organizations are local chapters of national honor societies, which provide national recognition and local scholarships.

For more information on honorary organizations in your area of academic concentration, contact the faculty department chairperson of that area, or the Student Activities Office, second floor, Kilcawley Center.

Alpha Epsilon Delta—Honorary Premedical Society

Alpha Epsilon Lambda—Honor Society of Graduate and Professional School Students

Alpha Epsilon Rho—Broadcasting Society

Alpha Phi Sigma—Criminal Justice Honor Society

Alpha Psi Omega—Honorary Dramatic Fraternity

Alpha Tau Gamma—Honorary Accounting Fraternity

Centurians Freshman Honorary

Chi Sigma Iota—Counseling Honorary

Delta Mu Delta—Business Honor Society

Delta Phi Alpha—National German Honor Society

Eta Sigma Gamma—Health Education Honorary

Golden Key—National Honor Society for achievement in all undergraduate fields of study

German Language Honorary—Romance Language Honorary

Gould Society-Liberal Arts Honor Society

Jazz Society—Jazz Education Society

Kappa Delta Pi-Education Honor Society

Kappa Kappa Psi—Honorary Band Fraternity

Lambda Tau—Medical Technicians Honor Society

Omega Delta Epsilon-Economics Honorary

Omicron Delta Epsilon—Economics Honor Society

Omicron Delta Kappa—Leadership Honor Society

Omicron Lambda—Honorary Biology Fraternity

Phi Alpha Theta—History Honorary

Phi Kappa Phi—National Honor Society for Achievement in All Fields

Pi Kappa Delta—National Honorary Forensics Fraternity

Pi Mu Epsilon-Mathematics Honorary

Psi Chi-Honorary Psychology

Sigma Delta Pi-Spanish Honor Society

Sigma Pi Sigma-Physics Honor Society

Sigma Tau Delta—International English Honor Society

Sigma Theta Tau—International Nursing Honor Society

Sigma Xi-Scientific Honor Society

Tau Beta Pi-Engineering Honor Society

Zeta Phi Alpha-Social Work Honor Society

YSU Annual Awards

The University has established a series of awards to recognize excellence and to encourage participation in campus life. The awards are presented annually at the Student Activities Awards Banquet in May. Staff, faculty, and students are encouraged to nominate worthy recipients. Details regarding this program and the different awards listed below may be obtained from the Student Activities Office.

The YSU Pin—Outstanding Graduating Seniors

Instituted more than 40 years ago, the YSU Pin rewards students for their academic achievement, leadership, innovation, and creativity in University and community activities. This award is open to all students who are graduating this year.

Arby's Leadership Scholarship— Outstanding Undergraduate Leaders

Scholarships will be presented to recognize outstanding participation in student activities, particularly during the last year. Candidates must have been full-time undergraduate students during the current year and must be planning to attend school next year. Candidates will be judged on the basis such as involvement, leadership and scholarship. Recipients will receive a voucher to be used toward tuition and fees. Nominated students will be mailed an application for the scholarship. Each year students, faculty, and staff are invited to nominate outstanding individuals for the Arby's Leadership Scholarship.

The Orion Award—Outstanding Student Organizations

Organizations which have had exemplary success in one or more of the following award are eligible for the Orion Award:

- —Service to the University and Community
- -Programs/Events
- -Leadership Development
- -Membership Recruitment and Orientation
- -Members' Scholarship

The Libra Award—Outstanding Advisor

Groups will nominate a faculty or staff member who has had extraordinary impact on the organization they advise and on its members. An application will be given to the organization after nomination of the advisor.

The Constellation Award—Outstanding University-Wide Programs

Each year, organizations sponsor programs or events that use creative approaches to publicity and promotion and generate excitement within the University community and beyond. Awards will be given to organizations that sponsor events. These programs must be University-wide, student-generated and -run, and responsive to student needs and desires. Nominated organizations will be asked to apply for the award.

The Nova Award—Most Promising New Organization

Any newly registered organization that has made significant progress during its first year is eligible for the Nova Award.

Basis for selection will be success in one or more of the following areas:

- -Service to the University and Community
- -Leadership Development
- -Membership Recruitment and Orientation
- -Programs/Events
- —Members' Scholarships
- -Fellowship/Social Activities

Applications will be given upon nomination. Each year students, faculty, and staff are invited to nominate outstanding individuals and organizations for these prestigious awards. Selections will be made by a committee composed of students, faculty and staff.

Student Services Gillespie-Painter Award

Awards to recognize outstanding achievement in serving, motivation, and supporting the students of YSU. All faculty, staff, and members of the YSU community are eligible for the awards. Nominations will be reviewed, and recipients will be selected by the Student Services Awards Task Force.

Edna K. McDonald—Cultural Awareness Award

Award to recognize an outstanding individual who has made a lasting contribution to encourage and increase awareness of cultural diversity at Youngstown State University. All faculty, staff, students, and members of the extended YSU community are eligible for the award.

OTHER AWARDS AND PRIZES

The Vindicator Awards

Four cash awards are made annually as follows:

- —To the best all-around student, on the basis of academic achievement and extracurricular activity through four years of college: \$200
- —To the student ranking first in the humanities, on the basis of four years of study: \$100
- —To the student ranking first in English, on the basis of four years of study: \$100
- —To the student ranking first in the social science sequence courses: \$100

The Interfraternity Council Awards for Scholarship

Given annually to the fraternity chapter with the highest aggregate point index and to the member of a fraternity with the highest individual point index, based on the academic work of the previous three quarters. The awards are presented during the spring quarter at the Greek Sing.

Who's Who Among Students in American Universities and Colleges

A list of upperclass students and graduate students achieving outstanding academic and curricular records.

ALUMNI ASSOCIATION

Serving a constituency of over 60,000 alumni, the YSU Alumni Association continues the tradition of excellence and pride among YSU graduates and serves as a life-long connection to the University. The Association provides services to members, sponsors a variety of special events and publishes a quarterly newsletter for all YSU Alumni.

The YSU Alumni Association is housed in the oldest building on campus, originally the home of the Myron Israel Arms Family. It is located on the corner of Wick Avenue and University Plaza.

CAMPUS FACILITIES

Campus Development

During its earlier years the institution had a number of homes. Starting in the old Central YMCA building, it occupied various sites on Wick Avenue until the completion of Jones Hall in 1931. Additional buildings have been constructed and nearby properties converted to University use, so that today the campus extends through most of an area five blocks long and four blocks wide, covering 150 acres. The University also has 16.3 acres in Liberty Township and 118.4 acres in Hartford Township.

Jones Hall

One of the oldest buildings on the present campus is Howard W. Jones Hall, a limestone structure of conventional tudor style on the northwest corner of Wick and Lincoln avenues. Built in 1931 and long the institution's "main building," it was renamed in 1967 to honor the man whose energy and acumen, during his 36 years as president, brought an embryonic college to membership in the state university system.

The structure was enlarged in 1949 by the addition of the C.J. Strouss Memorial Auditorium, named for the then president of the Strouss-Hirshberg Company, a devoted friend and trustee of the University. In 1978 the interior was completely remodeled to accommodate administrative offices. Jones Hall currently houses the Offices of Career Services, Payroll, Accounting, Human Resources, Budget, Internal Audit, Enrollment Management, Records, and Affirmative Action and Disability Services.

Tod Hall

The University's main administrative offices are in Tod Hall, a former library building built in 1952 and thoroughly renovated in 1978. These offices include those of the President, Provost, Executive Vice President, Vice President for Student Affairs, Vice President of Development and Community Affairs, Graduate School, Grants and Contracts, MAC Tech Prep, English Journal, University Relations, Support Services (which includes Janitorial Services, Telephone Services and Parking) the YSU Credit Union; and the Board of Trustees' meeting room.

P.S.I. Building

A medical building purchased in 1992 at 318 Fifth Avenue currently houses the Youngstown Employment and Training Corporation (YETC).

William F. Maag, Jr. Library

The University's six-story William F. Maag, Jr., Library, completed in 1976, provides an attractive and comfortable environment for study and research. A member of the Online Computer Library Center (OCLC), Maag Library provides reference and interlibrary loan services, CD-ROM as well as online database searching, access to government documents, and other services necessary to the needs of the University community.

Harry Meshel Hall

Meshel Hall, dedicated January 1986, houses expanded facilities for academic and administrative computer use that broaden Youngstown State University's educational programs. The state-of-the-art center is for instruction, research and application in advanced computer technology that serves the entire University community.

The four-story steel, concrete, stone and glass structure contains 90,100 square feet of space and is located to the west of the Wick Avenue Parking Deck with its main access and entry by the pedestrian walkway over Wick Avenue. The building contains 7 classrooms, 12 specialized computerized laboratories, 26 faculty offices, and a large atrium for student study. The Bursar's Office, the Office of Financial Aid and Scholarships, the Enrollment Center, and the Testing Office are located on the second floor. The Department of Computer and Information Systems is located on the third floor. The fourth floor houses the University's main computer facilities and Computer Center staff.

Ward Beecher Hall

This building houses the departments of Biology, Chemistry, and Physics and Astronomy. The five-story original unit was constructed in 1958, a major addition was built in 1967, and a small addition comprising chemical storerooms was completed in 1979. It was built with funds contributed by Mahoning Valley Industries and area industrialist Ward Beecher. Presently the building contains 81 laboratories, including a planetarium and a greenhouse, 12 classrooms, 54 academic offices, 10 faculty-research rooms, and a conference-seminar room.

Wick Pollock Inn (Pollock House)

Pollock House, built in 1900, was given to the University in 1950 by its former owners, Mr. and Mrs. William B. Pollock II. The Inn has 15 historical and 65 traditional rooms, banquet rooms and dining area. The Inn is operated by Pollock Inn Restoration Associates.

Historical Buildings

Listed in the National Register of Historic Places in recognition of their representing important eras in Youngstown's development, these three buildings are in the Wick Avenue Historical District. Renovation efforts were dedicated to maintaining the visual, architectural and physical character of these structures while recognizing, identifying and preserving their heritage.

ALUMNI HOUSE The three-story stucco Alumni House on the corner of Wick Avenue and University Plaza, originally constructed in 1865 and renovated in 1910 and 1982, was remodeled and restored to house the Youngstown State University Alumni Association and the Youngstown State University Foundation. The Alumni House is the oldest building on campus.

UNIVERSITY POLICE BUILDING This twostory stucco building was constructed in 1865 and renovated in 1985 to house the YSU Police Department.

COFFELT HALL This two-story brick building, which houses the Writing Center, is located on

the north side of University Plaza, was constructed in 1933, remodeled in 1978 and renovated in 1986.

Fedor Hall

Fedor Hall, is located on the west side of Elm Street. It was constructed in 1951 and purchased from the Youngstown Board of Education in September 1965. A \$1,100,000 renovation project included the replacement of existing windows with a new energy efficient window system, new brick veneer and various minor interior renovations was completed in 1992.

Kilcawley Center

Kilcawley Center is the community center of the University. The Center's facilities and services include numerous dining rooms with a variety of diversified food service programs, lounges, 15 conference and multi-purpose rooms, bank, ATM machine, graphic services, candy counter, copy services, stage and entertainment areas, and a billiards recreation area, as well as a travel agency, FAX service, campus locker rentals, the University's lost and found, and the Center's reservations and conference services office. Kilcawley Center also includes the YSU Bookstore, a computer/word processing access center, U.S. mail drop, stamp machines, campus information center, catering offices, and the Center's staff offices. Student organization mailboxes, and offices for Student Life, Student Government, student publications, and student organizations are located in Kilcawley, as are the Women's Center and the Center for Student Progress.

Beeghly Hall

The new four-story, \$14,000,000, 92,500 square foot Beeghly Hall opens in the fall of 1998 to serve as the new College of Education building.

Located between Rayen Avenue on the South and Lincoln Avenue on the North, Beeghly Hall will ultimately be linked with the rest of campus with pedestrian-oriented access, all consistent with the proposed closing of Lincoln Avenue.

The First Floor/Main Floor will have the main North/South entrance and access, Dean's suite, Curriculum Center, Child Study Center and a 400 seat multi-purpose and multi-media Intensive Auditorium.

The new College of Education building includes:

- · an interactive distance-learning classroom
- · a classroom of the future
- · the Center for Teaching and Learning
- Macintosh- and Windows-based computer labs
- · the Curriculum Resource Center
- · a counseling clinic
- · a child-study center

Engineering Science Building

The Engineering Science Building, a five-level structure completed in 1967, houses the Rayen College of Engineering and Technology and the Department of Geology. In addition to 62 laboratories, 9 classrooms, 10 research and development rooms, 10 conference rooms, and 77 offices, it contains the 197-seat state-of-the-art Schwebel Auditorium. A \$6,873,000 renovation project began in spring 1995 and was completed in fall 1996.

Williamson Hall

Williamson Hall houses the three departments of the College of Business Administration. Williamson Hall, built in 1970, has 26 classrooms, computer labs, and 82 faculty and staff offices. The Cafaro Suite on the fifth floor offers a well-appointed meeting and classroom space with a business ambience.

Bliss Hall

Housing the College of Fine and Performing Arts, Bliss Hall, completed in 1977, was named in memory of William E. Bliss, a prominent area industrialist. Its facilities include the 410-seat Ford Theater, named for the Ford family; the 248-seat Bliss Recital Hall; an experimental theatre with flexible seating for up to 250; 80 music practice rooms, equipped with studio or grand pianos; a Schlicker performance organ and two Flentrop practice organs; 30 faculty office-studios which can be used for music instruction; a band/orchestra room with a library; a photography studio with 32 enlargers; a metals studio; fully equipped drawing, printmaking, sculpture, and painting studios; a MIDI/graphics computer lab; a video editing suite; a Mac-based graphic design laboratory with dye-sublimation printer; ceramics studios with gas, electric, raku, and salt kilns; a complete shop with heavy equipment for working in three-dimensional design; art faculty office-studios; a student lounge/art gallery; and conference and seminar rooms.

John J. McDonough Museum of Art

The John J. McDonough Museum of Art, located on Wick Avenue between Bliss Hall and Meshel Hall, opened for the fall quarter of 1991. The 14,000 sq. ft. multi-level building exhibits faculty and student art work, which in the past has been displayed in the Bliss Art Gallery and the Kilcawley Center Art Gallery. It also exhibits works by artists from other universities as well as local and regional artists, and serves the academic program of the Art Department with shows and competitive exhibits. The museum has the following spaces and functions: installation gallery, traditional galleries, art lecture hall, work/preparation area, storage (vault area), public lobby and restrooms, offices, loading dock and receiving area, and the necessary mechanical and electrical equipment spaces.

Dana Hall

Dana Hall, a classic one-story building located at the corner of Bryson Street and University Plaza, was constructed in 1908. The building houses the Office of Undergraduate Recruitment and Admissions.

Beeghly Physical Education Center

In this building, first occupied in 1972, is the Department of Human Performance and Exercise Science and the varsity basketball athletics offices and facilities. In addition to a gymnasium with seating for over 7,000 spectators and an Olympic-size swimming pool, it contains faculty offices; 10 classrooms including laboratories for research and kinesiology; separate gymnasiums for wrestling, weight-lifting, gymnastics, and physical education for handicapped; racquetball and squash courts, dance studio, a rifle range, and a fitness center.

All-Sports Complex

Located on an 18-acre site adjacent to Beeghly Physical Education Center, the All-Sports Complex includes Arnold D. Stambaugh Stadium and Beede Field, an artificial-turf sports field for football and soccer, with seating for more than 16,000 spectators; officials' dressing rooms; varsity athletic offices; classrooms, racquetball courts, gymnasiums, weight rooms and facilities for various other health and physical education activities.

Atop the stadium and overlooking the city of Youngstown is the DeBartolo Stadium Club. The club provides meeting and dinner/party seating for 200 people and is available to campus and community organizations or individuals. For reservation information, please call the Office of Events Preparation at (330) 742-1585.

The complex also includes an all-weather 400-meter track with 1500 bleacher seats; facilities for all other track and field events; outdoor courts for basketball, handball and volleyball; an outdoor classroom area; and 10 hard-surfaced and lighted tennis courts.

Other Sports Facilities

Currently, in addition to Beeghly Center and the All-Sports Complex, the physical education, athletic and intramural programs use the athletic fields and well-equipped sports centers in Mill Creek Park; Evans Field, Pemberton Park, and Cene Park for baseball; Harrison Field in Smokey Hollow for softball; and for other activities, the McGuffey Bowling Lanes on North Garland Avenue and the Avalon South golf course.

Cushwa Hall

Opened in 1976, this structure houses the College of Health and Human Services, as well as Media Services, WYSU-FM, the Department of Geography, and the Department of Mathematics. One of the largest buildings on campus, it contains 31 classrooms, 49

laboratories, 194 offices, and two lecture halls. Many of the classrooms have been renovated as part of a campus-wide classroom improvement project.

DeBartolo Hall

First occupied in 1978, DeBartolo Hall houses the departments of Economics, English, Foreign Languages, History, Philosophy and Religious Studies, Political Science and Social Science, Psychology, Sociology and Anthropology, and the Black Studies Program Office. Also housed in DeBartolo Hall is the Women's Studies Center, the Ethics Center and the Center for Peace and Conflict studies. In this six-story structure are over 164 offices for faculty and staff, 5 student lounge and study areas, 17 classrooms, 28 laboratories, a computer terminal room, a 200-seat lecture hall with stage, and special varied laboratories for the Department of Psychology.

Phelps Building

The Phelps Building, located on the corner of Lincoln Avenue and Phelps Street on campus houses the Center for International Studies and Programs, including the English Language Institute; the Center for International Business; and the Public Service Institute, including the Center for Urban Studies and the Center for Human Resources Development.

Service Buildings

The buildings at various locations on campus that house specific services include:

SALATA FACILITIES COMPLEX, located on Rayen and Wood Streets, houses university planning and construction, maintenance personnel, administration staff, grounds department staff, personnel and equipment, central receiving, key control, motor pool, central stores and various repair shops.

CENTRAL UTILITY PLANT, is located south of a 400 meter track on the north side of campus. The plant has the capability of producing steam and chilled water for University needs and is distributed through a system of underground tunnels and direct burial utility lines.

CENTRAL SERVICES BUILDING is located on University Plaza north of Tod Hall and houses University printing services and campus mail services.

MATERIAL MANAGEMENT BUILDING, located on the corner of Fifth and Rayen, houses the University Purchasing and Material Inventory activities.

127 LINCOLN, this two story building houses the Center for Engineering Research and Technology Transfer.

UNIVERSITY/ COMMUNITY OUTREACH

The Public Service Institute

The Public Service Institute was created by the University Board of Trustees in 1985 to coordinate, promote and stimulate public service programs and activities offered by the University to the community.

At present, the Institute consists of the Center for Urban Studies, the Cushwa Center for Small Business Development, the Center for Human Services Development, the Center for Engineering Services, the Center for Labor-Management Relations, and the Public Health Testing Laboratory.

The Institute works with community organizations, as well as with University departments, to facilitate the extension of University resources into the community where they might be needed. In order to accomplish this, the Institute's Director is responsible for identifying public service needs in the community not now being met by University programs; assisting in developing public service programs to meet community needs; helping coordinate public services delivered to the community when two or more University departments are involved; and promoting the Institute as a clearing-house for disseminating information about University public service programs.

Center for Urban Studies

The Center for Urban Studies is a research and technical assistance unit established by the Youngstown State University Board of Trustees in 1967 in recognition of the University's obligation to contribute to the economy, the social well-being, and the environmental quality of the region.

The Center's primary mission is to integrate professional staff, faculty, students, and other University resources to focus on issues and problems of urban and regional development through an ongoing program of applied research, technical assistance and training for local government, social service organizations, and business.

Organizational development and staff capabilities are directed towards the seven programmatic areas around which the Center for Urban Studies is structured: reduction in poverty, local government assistance, economic development, urban and environmental planning, urban data services, human services development, and crime reduction.

Within the Center for Urban Studies are three subcenters: the Youngstown Crime Prevention Resource Center, a program carried out jointly with the City of Youngstown, which works with neighborhood groups, schools, and the local police; the Prevention Training Resource Center, which has cre-

ated a library of reference material and a data base; and the AmeriCorps program, designed to provide community development activities.

The Center for Urban Studies is a federal depository for U.S. Census data. The Urban Data Services Office provides population, economic, and social data to academic users, government, business, and to the public. In addition, the Data Services Office conducts spatial market research and public opinion surveys.

The Center for Urban Studies has developed an extensive geographic information system (GIS) capability, which provides statistically-generated maps that can be merged from independent data files. Such products have been used for demographic analysis, urban planning, market research and other uses which, in addition to being employed in traditional academic research, have served the banking industry, business, and local government.

YSU, through the Center for Urban Studies, is one of eight universities that participates in the Ohio Board of Regents' Urban University Program (UUP). The UUP has supported individual research projects for the Center, and it has served as the impetus for establishing research networks that address various urban problems in the state of Ohio. The YSU Center for Urban Studies participates in four such networks: Urban Development Research Network, Neighborhood Development Research Network, Environmental Research Network, and Criminal Justice Research Network. The output from these research networks has resulted in local, statewide, and national policy recommendations, and national presentations and publications.

The Center is located in the Phelps Building and can be reached by phone at (330) 742-3355.

Cushwa Small Business Development Center

The Cushwa Center for Entrepreneurship was created in 1978 with matching endowments from Mrs. Charles B. Cushwa, Jr., wife of the late president and chairman of Commercial Intertech of Youngstown, and from the Commercial Intertech Foundation. The Center is located in the Youngstown Business Incubator at 241 Federal Plaza West in downtown Youngstown. The telephone number is (330) 746-3350.

The center works to promote the creation of jobs by encouraging new business ventures and by assisting established firms to improve their capabilities. It operates programs which: 1) help local industry to identify, develop and market their products and services effectively; 2) guide the exploration and development of new enterprises that can provide business and industry with basic goods and services; 3) provide local industry with access to the supportive technical and educational resources of the University.

Located within the Cushwa Center is the Youngstown-Warren Small Business Development Center (SBDC). The SBDC is part of the Ohio and nationwide program established in partnership with the U.S. Small Business Administration and the Ohio Department of Development. It helps entrepreneurs realize their goals of business ownership and assists existing businesses in developing and retaining their competitive advantage. By providing counseling, training and research assistance in the start-up, operation and expansion of small businesses, and by facilitating export and technology development and transfer, SBDCs strengthen businesses and enhance economic development. The partnership of the Cushwa Center and Youngstown-Warren SBDC, along with Youngstown State University and area organizations including the Youngstown-Warren Regional Chamber of Commerce, provide tremendous leverage in the delivery of these services to the small-business commu-

Collectively, the Centers serve businesses in Mahoning, Trumbull, Ashtabula, Columbiana, Lawrence and Mercer counties. The Centers utilize staff, faculty, and facilities of the University to provide enterprise counseling, manufacturing consulting, market development and product development services to individuals and businesses. Emphasis is placed on the use of strategic business planning, effective marketing techniques, and basic principles of enterprise development. Client identity and all information discussed with the Cushwa Center and Youngstown-Warren SBDC and ITAC are treated confidentially, and a close relationship is maintained with clients for a period sufficient to achieve tangible results.

Center for Human Services Development

In 1985, the University Board of Trustees established the Human Services Development Center to serve as a community resource for health and human service organizations, community leaders and the general public. Staff at the Center work with a community-wide spectrum of people to identify community problems and needs, develop solutions, and evaluate activities in the health and human services field.

The Center offers a variety of services, including: 1) establishing and maintaining networks or linkages among service providers and the broader community; 2) offering technical assistance for social service program evaluation; 3) providing training for agency directors, boards and staff members; 4) conducting community-wide needs assessments and sharing information; 5) assisting organizations developing strategic plans and marketing strategies; 6) identifying and obtaining grants for community organizations who are working collaboratively to address community needs.

The Center is housed in the Phelps Building; the phone number is (330) 742-3113.

Center for Labor-Management Relations

The Center for Labor-Management Relations was formed to serve labor organizations and businesses in the region in an objective manner to improve labor-management relations and contribute to developing a competitive workforce through ongoing seminars, trainings, consultations, technical assistance, and research. The Center is located in the Phelps Building; the phone number is (330) 742-4722.

Center for Engineering Services

The Engineering Services Center provides convenient access to the significant technical and engineering expertise of the faculty and staff of the College of Engineering and Technology. The services offered to organizations outside the University do not duplicate those provided by engineering consultants in the area. Both development and testing services are available. The Center is located in Room 2200 Engineering Science Building.

The Public Health Testing Laboratory

The Public Health Testing Laboratory, operated by YSU's Department of Environmental and Occupational Health and Safety, provides laboratory testing of public health significance to over 60 nonprofit state and local public agencies. The laboratory is certified by the Ohio Environmental Protection Agency and the Ohio Department of Health for the microbiological testing of public water supplies. In addition, the laboratory analyzes food products for microbiological contaminants and is certified by the Ohio Department of Agriculture for the analysis of dairy products. The Public Health Testing Laboratory frequently hosts seminars on topics of public health significance for local health agencies to keep them abreast of changes occurring in the field of environmental and community health. It has become a focal point for the distribution of public health information in the local area.

The laboratory is located in Room 2046 Cushwa Hall, at (330) 742-3700.

Center for Engineering Research and Technology Transfer (CERTT)

The Center for Engineering Research and Technology Transfer (CERTT) was created in 1995 to do research; to create new knowledge; to help develop applications for this new knowledge; and to apply state-of-the-art technologies to business and industry. CERTT also cooperates to provide training and workforce programs to employees of business and industry.

CERTT is located at 127 Lincoln Avenue in Youngstown. It can be reached by calling (330) 742-2742.

Office of University Outreach

The Office of University Outreach develops and administers courses and programs outside the traditional degree programs through Continuing Education, the Metropolitan College, Edutravel, Contract Training, and the Center for Creative Retirement programs. Through both credit and non-credit course offerings at a variety of convenient times and locations, it makes academic programs, along with administrative and support services, available to non-traditional students.

Through the Office of University Outreach, YSU seeks to make the lifelong process of education possible for the adult with family and work obligations.

The Office, in accordance with the Board of Trustees and Senate policy, awards the Continuing Education Unit (CEU) for programs that meet the policy requirements. The CEU is a standard unit of measure (10 hours of participation in a Continuing Education course or seminar) that has been increasingly used by employers and professional certifying agencies to evidence educational attainment in noncredit post-secondary courses.

Youngstown State University offers degree and non-degree programs courses, workshops, and seminars, all specifically designed and planned to meet the varied needs of adults. The University has the flexibility to build a schedule that is both comfortable and convenient for adults.

CONTINUING EDUCATION

The Continuing Education noncredit programs offer area residents a wide variety of adult study or lifelong-learning courses and seminars to meet the needs of a changing society for updating and upgrading professional skills, for mid-career adjustments, and for lifestyle changes.

Area residents participate annually in more than 200 noncredit programs, many of which are in the academic disciplines and professional areas, varying from half-day seminars to multi-week courses conducted in local business and government settings and other off-campus locations.

The Continuing Education function is manifested in several series of noncredit offerings described below.

Community Education Programs

—provide noncredit courses, seminars, and conferences to meet the personal development and leisure, general interest and recreation needs of the greater Youngstown area.

Health and Human Services Programs

—provide noncredit courses, seminars, and conferences developed to meet the needs of local, county, state and federal government, public and community agencies, allied health, criminal justice, family and consumer science, nursing home administration, day care centers, social work, education, mental health, food service and related areas.

Business and Management Programs

—serve this sector of the community, including courses, seminars and conferences in management, supervision, accounting, purchasing, marketing, advertising, public relations, small business, construction, production and inventory control, real estate, secretarial and office management, banking and finance, insurance, labor relations, traffic and transportation and related areas.

Engineering, Technical, and Computer Programs

—serve this sector of the community with courses, seminars, and conferences in engineering, engineering technology, computer and data processing and related areas.

Teleconferences

—link the educational resources of the world through satellite-delivered educational teleconferences in a variety of professional and academic fields to personnel at YSU and in the Mahoning and Shenango valleys.

YSU's Office of University Outreach is also responsible for the administration of:

CENTER FOR CREATIVE RETIREMENT

The College for the Over Sixty

—a state-mandated program providing for the enrollment of Ohioans 60 years of age or older who have been residents of the State for the preceding 12 months in undergraduate credit classes on a space-available basis.

The YSU-ILR

—an affiliate of the Elderhostel Institute Network, providing seniors with the opportunity to develop and conduct educational and social opportunities for the members of YSU-ILR.

The YSU Elderhostel

—an approved program site through Ohio Elderhostel and Elderhostel. Weeklong residential educational and social experiences are provided for registered participants.

Edutravel

—provides adults with the opportunity to explore cultural learning by visiting foreign countries to experience another land and culture. Travelstudy programs in this series provide on-site lectures, seminars and field experiences and also provide visits to sites and facilities often not available to the average tourist.

METROPOLITAN COLLEGE

—coordinates the off-campus delivery of credit classes throughout the service area at instructional settings including business, agency or community locations.

—provides a gateway to the educational resources of the University for students at Metro College community-based sites and for forming partnerships with regional workplaces by creating and delivering programs and services that meet when and where students need them—days, evenings, weekends, on and off campus, in a traditional classroom or out, and by using distance learning technologies to supplement other learning experiences.

Current Metropolitan College sites are:

- Metro College Service Center at Austintown Plaza, 6000 Mahoning Avenue, Youngstown (330) 270-2919;
- Metro College Service Center at Eastwood Mall, 5555 Youngstown-Warren Road, Niles, (330) 652-2828;
- Metro College Service Center at Southern Park Mall, 7401 Market Street, Youngstown, (330) 965-4711;

The main office of the Metropolitan College and the Office of University Outreach are located at Southwoods Commons, just south of the Southern Park Mall at 100 DeBartolo Place, Youngstown. For information about Metro College or any of the University Outreach programs listed above, please call (330) 965-5800. For information about non-credit continuing education programs, call (330) 965-5818.

Workforce Education

In addition to the activities of University Outreach, the University's educational resources are connected to the community through a new workforce-based education initiative. Credit and non-credit classes are offered to businesses for onsite training of employees.

Telecommunication Services

WYSU-FM, 88.5 MHz

The University owns and operates WYSU-FM, a 50,000 watt stereo radio station with a range of approximately 55 miles. The station operates at 88.5 MHz from Youngstown, at 90.1 MHz from Ashtabula, and at 97.5 MHz in New Wilmington, Pa., providing more than 4,000,000 people in northeastern Ohio, western Pennsylvania, and northern West Virginia with fine arts programs from its studios in Cushwa Hall. The primary purpose of the

station is to serve the cultural and educational needs of the area by providing an alternative listening service, emphasizing serious music and intellectually stimulating public affairs programs not provided by commercial stations in the area.

YSU's broadcast services attempt to bring to all audiences the University's and community's best energies, resources and talents, and thus to enhance the quality of the area's cultural environment.

The core of the radio operation is a full-time professional staff, but students are also employed if their qualifications meet professional broadcasting standards.

FM-SCA Programs

The University transmits special educational programs for the handicapped on a multiplex basis using a sub-carrier frequency of 67 kilohertz.

Northeastern Educational Television of Ohio, Channels 45 and 49

The University is a member of NETO (Northeastern Educational Television of Ohio), a public television consortium of the state universities at Akron, Kent and Youngstown, which operates UHF Channels 45 and 49.

Common transmitters at Salem and Akron broadcast programs acquired from the Public Broadcasting Service and the Ohio Educational Television Network as well as local programs produced at Kent, Akron, and by contract at Youngstown.

THE ACADEMIC STRUCTURE

The Colleges

Youngstown State University is organized into six major academic units and the School of Graduate Studies:

The College of Arts and Sciences

The Williamson College of Business Administration

The Beeghly College of Education

The Rayen College of Engineering and Technology

The College of Fine and Performing Arts

The College of Health and Human Services

The colleges are described, along with their major programs and curricula, in subsequent sections of this catalog.

The post-baccalaureate programs of the School of Graduate Studies are set forth in the *Graduate Bulletin*.

In addition, the University houses a number of special academic programs, which are described in the following pages.

SPECIAL ACADEMIC PROGRAMS

University Scholars

University Scholars are those students who have achieved an ACT score of at least 28 or SAT of at least 1260 and have been selected to receive a full tuition, room-and-board scholarship for one year. The University also awards full-ride scholarships to high-achieving students from accredited community and technical colleges. All University Scholars may retain full support for the next year by earning a GPA of 3.5 for the current year.

All University Scholars are honors students and will follow the requirements of the Honors Program (see page 62). In addition, Scholars are required to donate sixty hours of community service per academic year and to participate in the co-curricular aspects of the program. For more information, contact the Honors Office at (330) 742-2772.

University Honors Programs

Two types of honors programs are available:

- The honors program permits any baccalaureate program to be taken, with additional requirements, for an honors degree.
- (2) Departmental honors programs are available in selected departments.

See p. 62 for more information about the Honors Program.

Individualized Curriculum Program

The student whose needs are not met by existing conventional programs may wish to investigate and apply for the Individualized Curriculum Program (ICP). This requires a student to design the curriculum suited to his or her particular background and needs, allowing alternative paths for reaching the currently offered undergraduate degrees.

A student admitted to the program will have the help of a committee of faculty advisors selected by the student. This committee will help to develop a program that will serve a valid educational goal not attainable within the regular curricular structure of the University. To receive approval, the overall program needs to be of a scope and intensity comparable to conventional programs leading to the degree being sought.

Students wishing to develop an individualized curriculum must meet the following requirements:

Sophomore standing (for baccalaureate degree)

- 2. GPA of at least 2.50
- 3. Students pursuing a baccalaureate degree must have at least 45 q.h.'s to complete once the program has been approved. Students pursuing an associate degree must have at least 30 q.h.'s remaining upon approval.

The ICP does not provide for new or modified courses or degrees, or for changes in course prerequisites. Credit by examination may be sought, subject to approval through normal channels.

Detailed information is available from the director of the program, Room 104, DeBartolo Hall.

The Northeastern Ohio Universities College of Medicine

The Northeastern Ohio Universities College of Medicine (NEOUCOM), was established under the sponsorship of a consortium formed in 1972 by Youngstown State University, Kent State University and the University of Akron. Students admitted into the NEOUCOM BS/MD program are able to complete both their BS and MD degrees in as few as six years. Students spend two to three years of full-time study at one of the three consortium universities, complete the basic medical science coursework at the NEOUCOM Rootstown campus and beginning clinical coursework at consortium teaching hospitals, and complete two years of clinical clerkships at the consortium teaching hospitals.

The BS phase of the BS/MD program of study integrates a liberal arts education with an accelerated and enhanced science curriculum. The program is designed to foster the development of intellectual curiosity, appreciation of diverse cultures, an historical framework for interpreting the present and creating the future, written and oral communication skills, the desire for lifelong learning, and other perspectives and skills characteristic of a liberal education. Secondly, it is designed to prepare students for success within a premier medical school curriculum, and to enhance the foundation necessary for an effective career as a physician in the 21st century.

Prospective YSU students interested in the NEOUCOM program can refer to the catalog under Admissions and under Combined B.S./M.D. Program in the College of Arts and Sciences section. A detailed description of the curriculum is available from the office of the dean of the College of Arts and Sciences, the office of the dean at the College of Health and Human Services, or from the Office of Undergraduate Recruitment and Admissions.

Interdisciplinary Programs

The University offers a number of interdisciplinary programs. More information on these programs may be found in the College of Arts and Sciences section of this *Bulletin*. American Studies
Black Studies
Environmental Studies
Peace and Conflict Studies
Women's Studies

Center for International Studies and Programs

Study Abroad

Study abroad for all YSU students and faculty is coordinated through the Center as a "one-stop shop." Students initiate their study abroad experience by stopping at the Center and asking for a "study abroad packet" which will give them details on how to proceed to plan their study abroad program. Planning for study abroad must be initiated at least one academic year prior to the study abroad experience.

In addition to several YSU-sponsored programs overseas, the Center works with consortial groups to advise and place students in most countries throughout the world on a short-term or academic year basis.

International Program Development

Faculty pursuing the establishment of new inter-institutional agreements and study abroad programs are supported by the Center. These include inter-institutional agreements with overseas institutions and programs sponsored by other countries and governments are approved and directed by the Center.

The Center's Advisory Board consists of faculty members from all the colleges in the University, and administrators in the Division of Student Affairs. This advisory board has input in policy guidance and the development of international studies areas.

International Development Efforts

The Center belongs to the University's Development Council; all development efforts for the international area are coordinated through the Council and the representative of the Center in the Council.

All grants for institutional international projects are coordinated through the Center and the Office of Grants and Sponsored Programs.

Phi Beta Delta

The Beta Sigma Chapter of Phi Beta Delta International Honor Society is headquartered at the Center. Faculty, staff, and students with outstanding records of international scholarship and service are eligible for nomination.

The English Language Institute

The English Language Institute was established through the Center for International Studies and Programs and the Department of English to provide intensive study of English to speakers of other languages. It offers pre-college, non-credit courses designed to teach English and to provide an orientation to college life and culture in the United States. Students must be at least 17 years old or have completed high school. The ELI welcomes all students as well as professionals who wish to increase their English language proficiency.

Off-site Degree Program

The University offers a degree-completion program in allied health on the campus of Lorain County Community College in Lorain, Ohio. Students in this program are registered at Youngstown State University but are provided student support services through LCCC. LCCC provides a University Connections Center, where students receive assistance with any issues related to their enrollment at partnership universities. They have access to all facilities such as computer labs and the library, including OhioLINK on-line research services.

Students are advised by an academic advisor from YSU during his or her regular visits to the LCCC campus, and faculty hold office hours prior to class sessions. In addition, students communicate with their advisors and faculty via e-mail.

THE HONORS PROGRAM

Nathan P. Ritchey, Director

Mission

The Honors Program is designed to create a continuing community of intellectual excellence. Exceptional students brought together from diverse disciplines and challenged with extraordinary courses and learning experiences outside the classroom can find in the program opportunities to develop their full cultural and intellectual potential, their unique academic achievements being recognized with an Honors Degree. Intended to foster interdisciplinary interaction, self-expression, experimentation, leadership, and academic excellence, the Honors Program serves as a tangible emblem of Youngstown State University's commitment to education, teaching innovation, and cultural enrichment.

The Honors Program is operated under the jurisdiction of the Honors Subcommittee of the University Senate.

Course Credit Generation

Honors credit generation will

- · include special sections of traditional courses,
- · include seminars on special topics,
- · use contract honors courses if necessary,
- include some advanced course work in areas outside the major,
- · pursue a common theme when possible,
- lead to a capstone project or course in the senior year.

Honors courses counting toward the Honors Degree cannot be taken for credit/no credit.

The Nature of an Honors Course

When compared to a non-honors course, an honors course should:

- · cover material in greater depth
- encompass more complex concepts, stressing analysis
- place greater emphasis on communication skills
- include discussion of applicable theories in the field
- require of the students more preparation and class participation, including more ambitious papers or projects, as well as a greater share of responsibility for learning
- involve more state-of-the-art technology whenever possible and appropriate

Outcomes

Enrichment: Eligible students who desire an enriched education may take honors courses and thus participate in the Honors Program without having formally applied to the Program.

The Honors Degree: Students may apply to the Honors Program (as distinct from the more general honors program), pursuing excellence in a broad range of subjects. Successful completion of this guided course of study will be acknowledged with a special designation on the diploma.

Student Recruitment and Eligibility

- A. To enter the Honors Program.
 - All University Scholars are enrolled in the Honors Program.
 - The following students qualify for the Honors Program upon application:
 - · Presidential and Dean's Scholars,
 - Students in the top 15% of their graduating class and with a composite ACT score of 26 (or combined SAT of 1140),
 - Current YSU students having completed at least 12 quarter hours of college-level study (not to include remedial courses) with a cumulative GPA of at least 3.4,
 - Students having completed at least 24 quarter hours of college-level study accepted for credit at YSU (not to include remedial courses) with a cumulative GPA of at least 3.4.
 - First-quarter students either in the top 15% of their graduating class or with an ACT score of 26 (or combined SAT of 1140), as well as other interested students, are encouraged to apply to the Honors Program.
- B. To take honors courses:

Students enrolled in or eligible to enter the Honors Program and others approved by the instructor and director of Honors may take honors courses. All students are encouraged to enroll in honors courses.

C. To remain in good standing in the Honors Program, students must maintain a GPA of at least 3.4. Students falling below this level may take no honors courses until their GPA is restored to the 3.4 level.

Contract Honors Courses

Any course other than remedial or high school remedial courses may be taken for honors credit with the concurrence of the faculty teaching the class and the approval of the Honors subcommittee. For information, contact the director of the Honors Program.

Curriculum

Completion of the Honors Degree requires a total of 36 quarter hours of honors work, as well as a senior thesis/project. Further requirements include:

- Twelve hours of honors credit must be related by department or topic (i.e. MATH 585H, 586H, 687H, or MUSIC 710H, 711H, and Art 522H) and approved by the Honors director.
- Regardless of major, 12 hours of honors credit must be taken outside of the major. These hours should be distributed as follows, including both courses and seminars: Engineering or Science Majors: The requirement is fulfilled by taking classes in the humanities and social sciences.

Social Science Majors: The requirement is fulfilled by taking classes in the humanities and sciences.

Humanities Majors: The requirement is fulfilled by taking classes in the social sciences and sciences.

Other Majors: The requirement is fulfilled by taking any combination of classes in the social sciences, sciences, and humanities.

 At least 8 quarter hours of credit in 700- or 800- level courses must be earned outside whichever one of the four broad areas above includes the student's major.

It is also strongly recommended that:

- a. By the end of the first year, at least 16 hours of honors work be completed.
- The remaining hours be completed by the end of the junior year.
- c. Requirements 2 and 3 above be combined by completing 8 hours of honors credit at the 700- and 800- level.

Senior Year Honors

During the senior year, a capstone thesis/project in the major department is required. This is generally worth 2-4 credits depending upon the department. A faculty advisor, selected by the student and approved by the director of Honors, will oversee this project. The thesis should be bound and archived by Maag Library and stored in the new honors residence, Cafaro House. Certain projects other than theses could be presented in poster form or electromagnetically recorded and similarly archived and stored. A public defense (or exhibition or recital) is also recommended. The student will also be encouraged to make a formal presentation at a regional or national conference. Projects completed by individuals, teams, and teams of students working with community officials are all appropriate.

Further Considerations

Students may join the Honors Program in their second or third year. However, the same requirements outlined above stand.

Students with multiple majors only have to complete one thesis and 36 quarter hours of honors course work. However, requirements 2 and 3 above still need to be satisfied as follows:

A student dual majoring in the same general education area, for example psychology and political science, would have to complete 12 hours of honors credit in the humanities or science.

A student dual majoring in a different general education area, for example psychology and English, would meet the breadth requirement, #2, by completing any 12 hours of honors credit. The depth requirement, #3, would automatically be satisfied with the combined requirements of both majors.

Transfer of Honors Credit

- Honors credit from other institutions will be accepted as honors credit and can be used to partially fulfill the requirements for an Honors Degree at Youngstown State University provided that the honors credit was earned in a college level course with a grade of B or higher.
- Upon application, all students from other honors programs who were in good standing relative to their previous program will be admitted into the Youngstown State University Honors Program.
- 3. To graduate with an Honors Degree, transfer students must fulfill all of the requirements of the Youngstown State University Honors Program. In addition, at least 20 of the required 36 quarter hours of honors credit and the senior thesis/project must be completed at Youngstown State University.
- Students who transfer into the YSU Honors Program have all the rights and privileges granted to its members, i.e., honors housing, priority registration, use of honors facilities, etc.

Documentary Recognition of Success in the Honors Program:

- Grade records. A student's permanent record will be the sole official record of his or her honors courses and seminars, each of which will be designated with an "H" after the catalog number, or in some cases, with a note detailing that honors credit was earned for that particular course.
- 2. Completion of the Honors Program. When a student's record satisfies the director of the Honors Program that the student has successfully completed the requirements of the Honors Program, the following notation will be entered on the student's permanent record: "Has successfully completed the Honors Program," and upon graduation the student will be awarded a special honors diploma.

The Honors Associate Program

The pre-college requirements for the Honors Associate Program are identical to those of the fouryear Honors Program.

Students who have not completed the college preparatory subjects are admitted to the Honors Associate Program on the condition that their course of study includes at least one course prescribed for correcting a deficiency each quarter until the deficiencies have been erased. Courses taken at the college level and used to make up a deficiency will not be applied toward the Honors Associate Program.

The following students qualify, upon application, for the Honors Associate Program:

- · Presidential and Deans' Scholars
- Students in the top 15% of the graduating class and with an ACT score of 26 or a combined SAT of 1140
- Current YSU students having completed at least 12 quarter hours of college-level study (not to include remedial courses) with a cumulative GPA of at least 3.4
- Students having completed at least 24 quarter hours of college-level study accepted for credit at YSU (not to include remedial courses) with a cumulative GPA of at least 3.4

First-quarter students who have met the criteria delineated above are encouraged to apply to the Honors Associate Program. To remain in good standing, students must maintain a GPA of at least 3.4. Students falling below this level may take no honors course until their GPA is restored to the 3.4 level.

Completion of the Honors Associate Program requires a minimum of 18 quarter hours of honors work, as well as the completion of a capstone thesis/project. Further requirements include:

- Eight hours of honors credit must be related by department or topic (i.e. ENG 550H and ENG 551H or ART 522H and MUS 711H).
- At least ten hours of honors credit must be taken outside the student's major area as listed in the four-year Honors Program.
- A capstone thesis/project in the major department is required. The project should be equivalent to one or two quarter hours and be approved by both the director of the Honors Program and the major department.

For more information about the Honors Program, call (330) 742-2772.

The College of Arts and Sciences

Barbara Brothers, Dean Bruce Mattingly, Assistant to the Dean Robert A. Hogue, Assistant to the Dean Charles Singler, Assistant to the Dean



The College grants three bachelor's degrees: Bachelor of Arts (B.A.), Bachelor of Science (B.S.) and Bachelor of Science in Applied Science (B.S. in A.S.). Additionally, two associate degrees are offered: Associate in Arts (A.A.) and the Associate in Applied Science (A.A.S.).

Included in the College are:

American Studies
Department of Biological Sciences
Black Studies
Department of Chemistry
Department of Computer Science and
Information Systems
Department of Economics
Department of English
Environmental Studies
Department of Foreign Languages and Literatures
Department of Geography
Department of Geology

Department of History
Department of Mathematics and Statistics
Peace and Conflict Studies
Department of Philosophy and Religious Studies
Department of Physics and Astronomy
Department of Political Science and Social Science
Department of Psychology
Department of Sociology and Anthropology
Women's Studies
Working Class Studies

College of Arts and Sciences Mission

The mission of Youngstown State University's College of Arts and Sciences embraces interdependent aspects of education, scholarship, and service. The College seeks to meet the specialized educational needs of the students enrolled in its associate, bachelor's, and master's degree programs while providing a substantial portion of the liberal arts component in the education of all YSU students. The College seeks to provide a basis of knowledge upon which to build as it simultaneously involves students in the process of discovery and in the application of learned skills. College faculty members serve as advisors, mentors, and career counselors to students and use their expertise in the service to the University, their professions, and the community.

Youngstown State University's College of Arts and Sciences, through its general education and major requirements, seeks to prepare students for full and productive lives by helping them develop skills of critical thinking, judgement, and communication. The College strives to impart knowledge of science and culture and to produce educated citizens who value learning. It also helps students develop national and global perspectives and a better understanding of the individual and society in the past and present. The College prepares students for careers, or for further graduate or professional study, by requiring intensive study in disciplines within the liberal arts and sciences.

Major and Minor Fields

For the B.A. degree with the exception of computer science. The major may be in any of the departments listed above with each foreign language, and each discipline in a multi-discipline department, being regarded as a separate department for this purpose. It may be an interdepartmental or combined major in American studies, black studies, earth science, labor relations, professional writing and editing or social studies.

For the B.S. degree. Majors are possible in biology, chemistry, combined science, computer science, environmental studies, geology, mathematics, physics, and psychology.

Prospective Teachers. Prospective elementary or secondary teachers may work toward an B.A., B.S., or B.S. in Ed. degree. Prospective high school teachers major in the Arts and Sciences department of their principal field and are advised by that department, except for the requirements for teacher certification, for which advisement is by the College of Education.

In addition to the B.A. and B.S. degrees, there is the B.S. in A.S. degree for computer information systems and office information systems, the A.A. in selected programs, and also, the A.A.S. degree is available for computer information systems and office information systems.

The minor or minors for any of these degrees, unless determined by a prescribed curriculum, may be in any discipline or disciplines (other than that of the major) in which it is possible to take 21 quarter hours. Students should consult their advisors or the dean's office for a list of approved courses for their minors.

Students whose needs are not completely met by existing conventional programs may wish to investigate and apply for the individualized curriculum program. (See Academic Policies and Procedures.)

Requirements for Degrees

It is the student's responsibility to see that all the graduation requirements for the degree sought are satisfied. For the B.A. and B.S. degrees, these comprise:

- 1. The pre-college or preparatory courses for each degree are normally taken in high school, but any that were not may be made up before the junior year in the University. They are listed below; for further information see Courses Required For Graduation, in the Academic Policies and Procedures section, where the explanatory notes should be read carefully.
- The courses and other requirements to be completed in the University are explained in the Academic Policies and Procedures section but are recapitulated below.

The curricula leading to these degrees require a minimum of 186 quarter hours of credit and are designed to be completed in four academic years. A student willing and able to carry heavier loads successfully may finish in less time.

The B.S. in Ed. degree requirements are given in the College of Education section.

Requirement		Equivalent				
Admission	2 units of one high school language	Unit 1 (first year) = 501, 502 Unit 2 (second year) = 503				
B.A. Degree	Intermediate 2 (602)	4 units of one high school language 501, 502, 503, 601, 602 2 units + 2 units of two high school languages 501, 502, 503 + 501, 502, 503 qualifying score on CLEP exam				
B.S. Degree	Intermediate 1 (601[610])	3 units of one high school language 501, 502, 503, 601 or 505, 506, 610 2 units + 2 units of two high school languages 501, 502, 503 + 505, 506 501, 502, 503 + 501, 502, 503 qualifying score on CLEP exam				

Notes:

- 1) Study of one foreign language in the 8th grade is counted as 1 unit.
- Students may start with any course in the language sequence and receive credit for all courses, even if equivalent courses were completed in high school. However, the Department of Foreign Languages and Literatures strongly recommends that students start at only 501 (505) or 601.
- Students may inquire at the Department of Foreign Languages and Literatures about details for CLEP exams. These exams are administered through the Testing Office.
- 4) Students graduated from foreign high schools have no foreign language degree requirement.

Degree Requirements

Requirements for completion of a baccalaureate degree within the College of Arts and Sciences include all University requirements detailed in the Academic Policies and Procedures section of this *Bulletin* (i.e., requirements regarding pre-college units, total university credits, course levels, majors and minors, grade point average, residency and degree applications). Specific requirements for each major in the College of Arts and Sciences are listed by department. However, all Arts and Sciences baccalaureate degrees require completion of the following general requirements:

(For B.S.A.S. and A.A.S. and A.A. degree requirements, please refer to the chart on page 35.)

SIC COURSES (Same as under Academic Policies and Procedures)		Quarter Hours of Credit	
	B.A.	B.S.	
English 550-551, Basic Composition 1-2	8	8	
Health Sciences 590, Health Education	3	3	
Human Performance and Exercise Science Activity Courses	3	3	
AREA COURSES			
See Table of Courses under Academic Policies and Procedures for specific details.			
Courses in at least two of the following areas: courses in the department of Philosophy & Religious Studies, literature courses from the departments of English and Foreign Languages, history and/or appreciation courses in the College of Fine and Performing Arts, and Black Studies 601. Students seeking a high school teaching certificate must take at least one course in each of two of the following areas: fine arts, philosophy, and/or religious studies.	16	16	
Social Studies	20	20	
Science/Mathematics (at least 8 q.h. of Science)	16	Included in the major	

The student allots these hours, in accordance with requirements and desires, to completing a major, one or more minors, teaching fields, other special objectives, and elective courses anywhere in the University for which the student can satisfy the prerequisites and which are acceptable toward the degree. (Prospective high school teachers must allot 41 of these hours to courses required for teacher education; see *Required Courses for a High School Provisional Certificate*.

Foreign Language Requirement for the B.A. and B.S. Degrees

The student's foreign language requirement is satisfied by the successful completion of either the elementary and/or intermediate courses in the language(s) or the equivalent CLEP exam. The only languages which meet the degree requirement are those listedunder FNLG-Foreign Languages in the Courses section of this *Bulletin*. The chair of the Department of Foreign Languages and Literatures may approve other languages if the appropriate courses have been taken at an accredited American or foreign college or university.

Courses of Instruction and Curricula

In the following department sections, the course requirements for the various majors are given, but other requirements are not repeated from the list above.

Course descriptions can be found in a separate section in the back of this *Bulletin*.

AMERICAN STUDIES

Associate Professor of English Linkon (Coordinator).

American Studies offers students the opportunity to examine the central themes and issues in American life using materials and approaches from a variety of disciplines. Through an interdisciplinary core and a set of courses in associated fields representing key areas of knowledge and primary methodologies in American Studies, students gain awareness of the broad outlines of American history and culture as well as an understanding of important theories of culture and ways of studying American life. Students also complete courses in a focus area and an independent senior project designed to deepen their understanding of one aspect of American culture. Each student develops an individual plan for completion of the major, selecting

from a list of approved courses from Arts and Sciences, Business, Education, Fine and Performing Arts, and Health and Human Services.

Degree-Planning Guidelines

- The American Studies major consists of 72 hours of coursework including 16 hours of American Studies Core courses, 20 hours of courses to fulfill the Literacy goals, 8 hours to fulfill Competency goals, and 28 hours in a Focus Area (see below for descriptions of these goals and areas). Because the major is interdisciplinary, students do not need a minor.
- At least 44 hours of coursework must be taken in courses numbered 700 and above.
- Students must take a different course to fulfill each literacy or competency goal; no single course may count in more than one category for an individual student.
- Courses must be selected from at least 3 programs or departments other than American Studies, and these courses must reflect a range of historical periods.
- Before registering for AMS801, American Studies Research Seminar, a Major Proposal, listing individual goals, courses chosen, and possible topics for the senior project. The proposal must be approved by the Coordinator and the American Studies Advisory Committee.
- The Coordinator has a list of courses that have been approved for each of the learning goals below.

Required Core Courses-16 hours

- 601. American Identity
- 701. Approaches to American Studies
- 801. American Studies Research Seminar
- 810. Independent Project on American Culture

Literacy and Competency Goals—28 hours (one 4-hour course for each of seven learning goals)

The coordinator has a list of approved courses for the following areas.

Literacies:

Textual—incudes all kind of "texts," including visual arts, media, literary texts, material artifacts, maps, historical documents, and so on.

Social—includes knowledge about theories of culture and social processes, difference, and interactions between Americans as individuals and as members of groups as well as interactions between Americans/America and other countries and peoples.

Historical—emphasizes awareness of historical narratives of the U.S., both in general and within specific fields. This area would include American history courses as well as courses focusing on history within other disciplines.

Philosophical—concerned with the study of how ideas have influenced and developed out of American culture.

Cultural Pluralism—focus on the diversity of American culture, with particular attention to ethnicity, race, gender, class sexuality, language, and region. This area also includes attention to the politics of difference, concepts of identity, history of immigration, and other theoretical paradigms for thinking about difference in U.S. culture and life.

Competencies:

Quantitative—The ability to use appropriate quantitative data gathering and analysis techniques, including statistics, opinion polls, **dem**ographics, content analyses, and other methods.

Qualitative—the ability to use appropriate qualitative data gathering and analysis techniques, including interviewing, close reading of a variety of texts and artifacts, aesthetic interpretations, use of primary historical documents, and other methods.

Focus Area—28 hours

The coordinator has a list of approved courses for the following focus areas: multiculturalism, popular culture, work in America.

Students may also choose to design their own focus areas, with the approval of the American Studies Advisory Committee.

ANCIENT LANGUAGES AND LITERATURE

See Greek; Latin; Philosophy and Religious Studies.

ANTHROPOLOGY

See Sociology and Anthropology.

ASTRONOMY

See Physics and Astronomy.

A major in astronomy is not offered, but a combined major in physics and astronomy is possible. Students interested in training for planetarium operation may consult the Planetarium director.

DEPARTMENT OF BIOLOGICAL SCIENCES

Professors Fishbeck, MacLean, Peterson (Chair), Sobota, Toepfer; Associate Professors Chuey, Krontiris-Litowitz, Leipheimer; Assistant Professors Asch, Fagan, Lorimer, Walker, Willis, Womble.

Courses in the Department of Biological Sciences may be applied toward a Bachelor of Arts or Bachelor of Stience degree. The department offers specialized study areas that provide information needed by students planning to enter the fields of botany, dentistry, health-related careers, nursing, medicine, medical technology, microbiology, molecular biology, and veterinary medicine. Suggested programs suitable to these fields are available at the department office or from any of the department advisors.

For the Master of Science degree program in the biological sciences, see the *Graduate School Catalog*.

Students interested in pre-forestry should consult an advisor in the Department of Biological Sciences.

For the B.A. degree, the major in biology comprises BIOL 509, 510, 611 or 612 and at least 33 other hours of biology, of which 21 hours must be in upper-division courses. Also required is CHEM 515, 516, 517 and CSCI 520 or 530. Recommended courses in other sciences are CHEM 719, 720, 721 (organic) and a year of PHYS (501, 502, 502L, 503, 503L); a mathematics course in statistics, STAT 717, is also recommended.

For the B.S. degree, the biology major must include BIOL 509, 510, 611 or 612 and at least 41 other hours of biology, of which 30 must be in upper-division courses. Also required are CHEM 515, 516, 517 and labs and 719, 720, 721 and labs; PHYS 501, 502, 502L, 503, 503L; and MATH 550 and STAT 717 and CSCI 590.

Students seeking admission to medically-related professional schools should complete the B.S. program. Elective courses under either program may be in any disciplines, however, earth science, computer science, advanced mathematics, and psychology are particularly recommended.

The mathematics and physics courses may not be taken under the credit/no-credit option. (For general University requirements, see the Academic Policies and Procedures section of this catalog.)

Recommended core curriculum meeting science requirements of medically-related professional schools.

Biology

509 — Principles of Biology 1

510 - Principles of Biology 2

611 - Principles of Biology 3

721 - Genetics

790 - Molecular Biology of the Gene

790L — Molecular Biology of the Gene Laboratory

836 — Molecular Biology of the Cell

836L — Molecular Biology of the Cell Laboratory

702 — Microbiology

705 — Introduction to Human Gross Anatomy

713 — Vertebrate Histology

770 - Vertebrate Zoology

792 — Human Physiology 1

793 — Human Physiology 2

834 — Vertebrate Physiology 1 835 — Vertebrate Physiology 2

Chemistry

515, 516, 517 — General Chemistry 719, 720, 721 — Organic Chemistry 711, 712 — Biochemistry

Mathematics

590 — Survey of Computer Science and Information Systems

550 — Calculus for Social, Managerial, and Life Sciences I

717 - Statistical Methods

Physics

501, 502, 502L, 503, 503L — Fundamentals of Physics 1, 2, 3

For a curriculum leading to certification for high school teaching in the biological sciences, see the College of Education section of this catalog.

For curricula in the health sciences, see the College of Health and Human Services section of this catalog.

BLACK STUDIES

Professor Brown-Clark (Director).

The Black Studies Program was established in the fall of 1970, and a program for an interdisciplinary major in black studies was approved by the University Senate in the winter of 1972. The purpose of this major is to facilitate the academic investigation and analysis of the historical, literary, social, and aesthetic impact of people of African descent on American society and the world. It also provides

for the systematic study of problems confronting the modern multi-racial world. The black studies major can serve as a valuable complement to teacher education, humanistic study, and preparation for various fields of employment such as business, law or social work. A black studies minor complements majors in related areas, especially in economics, education, English, health and human services, history, philosophy, political science, religious studies and sociology. Both the major and minor programs can provide diverse opportunities for employment and for graduate and postgraduate experiences.

Black Studies Advisory Committee

Academic Advisor, Education Vivian Kerr Pearl Zehr Nursing Homer Warren Marketing John Russo Management Julian Madison History Sherri Lovelace Chemistry; PASU Advisor Bill Mullen English Foreign Languages Ndinzi Masagara Fred Blue History Victor Wan-Tatah Phil./Religious Studies Sarah Brown-Clark Black Studies/English

Student Activities

Dana School of Music

Major in Black Studies

William Blake

Melissa Tosh

The major in black studies is part of a program leading to the Bachelor of Arts degree, and students electing the major must satisfy all other requirements for that degree. The major must include a minimum of 48 hours in black studies courses and other courses approved for black studies. At least 28 hours must be in upper-division courses. A grade of C or better is required in every course counted toward either the major or a minor in black studies.

All black studies majors must complete the following courses:

I. CORE Courses (16 Quarter Hours)
Black Studies 600 4 q.h.
Introduction to Black Studies 1
Black Studies 601 4 q.h.
Introduction to Black Studies 2
Black Studies 700 Black Studies
Colloquium 1
Black Studies 701 Black Studies
Colloquium 2
History 663 African Civilization 4 q.h.
II.8-16 hours from among the following social studies courses (for course descriptions, see the Courses section of this <i>Bulletin</i>):
[†] American Studies 801, 802, 803 3+3+3 q.h. Perspectives on America
History 630
History 749

†History 801	4 q.h.
Select Problems in American	History
History 750	
History of Modern South Afric	a in the Sahara
†History 860	
Select Problems in Third Wor	ld History
Political Science 706	
Minority Group Politics	
Psychology 745	4 q.h.
The Minority Individual	
Social Work 726	4 q.h.
The Black Family	
Social Work 727	4 q.h.
The Black Community	
Sociology 700	4 q.h.
Minority Groups	
Or other social studies courses whand approved by the director of the program	

ies program.

III. 8-16 hours from among the following humanities courses (for course descriptions, see the various department listings): Art 742 3 q.h. African Art Art 744 3 q.h. African-American Art English 620 4 q.h. Introduction to African Literature English 871 4 q.h. The Black Experience in American Literature Survey of Jazz Religious Studies 708 4 q.h. African American Religion

Or other humanities courses when applicable and approved by the director of the black studies program.

IV. In addition to the minimum of 32 hours in black studies and courses directly relevant to black studies, the major may include as many as 16 hours in any other courses approved by the director of the black studies program.

Suggested Minor

A minimum of 21 hours in courses listed above including the four CORE courses.

BOTANY

See Biological Sciences.

DEPARTMENT OF CHEMISTRY

Professors Del Bene, Koknat, Mettee, Mincey (Chair), Schildcrout; Associate Professors Hunter, Mike; Assistant Professors Curtin, Falconer, Jackson, Kim, Lovelace, Norris, Serra, Smiley, Wagner.

The Bachelor of Science degree is recommended for those who plan to make a career in chemistry; a recommended program which meets the standards of the American Chemical Society is provided below after the course descriptions. The Bachelor of Arts degree is recommended for those who plan to go into a medical or dental field and for those who plan to enter business or secondary education careers related to chemistry. The required courses for a B.S. degree with a major in chemistry are listed in the B.S. curriculum. The courses required for a B.A. degree are those listed in the B.A. curriculum below. Chemistry majors may not count Chemistry 500 or 501 toward the major.

Students in pre-professional programs such as pre-pharmacy and pre-optometry may obtain appropriate curricula and advisement in the Department of Chemistry.

Credit may not be received for more than one course or sequence of the following pairs: CHEM 500/501; CHEM 591H-594H/515, 516, 517; CHEM 801/739.

The segments of all chemistry courses extending through more than one quarter must be taken in sequence unless otherwise indicated.

Eye protection and lab coats must be worn in all chemistry laboratories at all times.

Each student majoring in chemistry will be assigned a faculty advisor by the department. The advisor will discuss the overall curriculum necessary for a degree in chemistry and will assist the student in the preparation of a suitable course sequence and choice of a minor or minors.

All chemistry majors are urged to consult their advisors regularly to avoid curricular problems.

In both of the following curricula, the electives must satisfy all the general requirements for the degree sought (see Degree Requirements). German is strongly recommended for meeting the foreign language requirement in the B.S. curriculum.

Recommended Curriculum Leading to a B.S. Degree with a Major in Chemistry

FIRST YEAR

Courses	Cr. Hrs.
CHEM 515, 516, 517	12
ENGL 550, 551	8
MATH 571, 572, 673	
HSC 590	3
Electives	
	48
SECOND	YEAR
Acres de la companya	THE DAY

CHEM 719, 720, 721 12

CHEM 603, 604 10

When applicable by the director of the black studies pro-

PHYS 510, 510L, 610, 610L, 611, 611L	15
	4
and .	A
Electives	AF.
	45
THIRD YEAR	
Courses	Cr. Hrs.
	12
CHEM 739, 740, 741	account of the same of the sam
CHEM 729	3
CHEM 831	2
HPES Activities	3
Electives	28
	48
FOURTH YEAR	
Courses	Cr. Hrs.
CHEM 803, 804	7
CHEM 822 or 823	3
CHEM 829 or 830	2
Electives	33
	45

NOTE: The electives must include 6 q.h. from the following courses: CHEM 805, 807, 813, 821, 824, 825, 835, 836, 850, 864, and approved upper-division courses in mathematics, computer science, physics, biological science, and chemical and materials engineering. One elective course must be an upper-division chemistry laboratory course, which may be from the preceding list.

Recommended Curriculum Leading to the B.A. Degree with a Major in Chemistry

This curriculum provides the minimum chemical background needed for pursuing career goals in business, secondary education, and other technical medical-related fields. A listing of suggested electives for various minors is available in the Department of Chemistry office.

SECOND YEAR	
Courses	Cr. Hrs.
CHEM 719, 720, 721	12
CHEM 603, 604	
MATH 674	
PHYS 510, 510L, 610, 610L, 611, 611L	
Electives	6
	47
THIRD YEAR	
Courses	Cr Hrs

CHEM 7293

HPES Activities3

Electives	
	46
FOUR	TH YEAR
Courses	Cr. Hrs.
Electives	45

COMBINED B.S./M.S. PROGRAM IN CHEMISTRY

This is a five-year program. Prospective students seeking admission to the program may submit an application to the Department of Chemistry during their senior year in high school. Students in the program start graduate studies after three years. They will normally receive the B.S. degree after 3 years and the M.S. degree after 5 years.

COMBINED B.S./M.D. PROGRAM

This is a six- or seven-year program. Students enroll as candidates for the combined B.S./M.D. program and are so identified during their first two or three years. After nine to twelve quarters of collegelevel work they are eligible for admission to the second or medical-school phase of the program. Each student successfully completing the program will be awarded the B.S. degree from this institution and the M.D. degree from the College of Medicine. See: The Northeastern Ohio Universities College of Medicine, and Combined Science.

COMBINED SCIENCE

A combined science major leading to the Bachelor of Arts or Bachelor of Science degree is composed of a minimum of 70 q.h. of science courses distributed as follows:

- (1) At least 30 q.h. in biology, chemistry, geology, or physics. Only courses designated as applicable to the major may be used in meeting the requirement.
- (2) An additional 12 q.h. in each of two sciences listed above. These courses must also be applicable to the major.
- (3) An additional 16 q.h. in any of the sciences listed above, or in other related courses such as astronomy, mathematics, or meteorology. Students must also satisfy all other requirements for the degree sought (see Degree Requirements).

Students who elect this major are advised by the science department in which they plan to receive the largest number of quarter hours of credit.

A student completing the combined B.S./M.D. program normally receives the Bachelor of Science degree with the major in combined science. This special program satisfies all the requirements listed above but follows a prescribed curriculum.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS

Professors Chrobak, Duda, Phillips, Santos; Associate Professors Mullins, Schueller (Chair), Shih, Sullins; Assistant Professors Bodnovich, Gaydos, Hogue, Jones, Kunar.

The Department of Computer Science and Information Systems offers the Bachelor of Science degree in computer science and the Associate and Bachelor of Applied Science degrees in the areas of computer information systems and office information systems. In addition, the department also supports courses for Bachelor of Science in Education in computer science and business education. Curriculum sheets and suggested schedules for each program may be obtained from the department office in Meshel Hall. Minors: The following course sequences are recommended for students who desire a computer-related minor: Computer Science: CSIS 590, CSIS 610, CSIS 617, CSCI 620, and CSCI 701; Computer Information Systems: CSIS 590, CSIS 610, CIS 615, CIS 621, and one of CIS 613, CIS 626, CIS 635, or CIS 721; Office Information Systems: CSIS 525, CSIS 580, CSIS 590, and three of OIS 575, OIS 675, OIS 714, OIS 720, or OIS 750.

COMPUTER SCIENCE

The Computer Science program leads to the degree of Bachelor of Science or Bachelor of Science in Education. The flexibility of the program allows the student many choices upon graduation. Three major possibilities are: first, graduates will be qualified to pursue graduate work in computer science; second, all graduates will be qualified to work as operating systems analysts or systems programmers; and finally, the student may study another discipline as a minor field to become an application programmer in that discipline.

In addition to completing all general University requirements, students wishing to receive the Bachelor of Science in Computer Science must complete the following:

- 1. CSIS 590, 610, and 617.
- 2. At least 47 additional quarter hours in Computer Science of which 29 quarter hours are specified; Computer Science 620, 701, 710, 740, 805, 806, 870, and at least two quarter hours of credits in 890. Electives in Computer Science must be selected from upper-division offerings and may not include Computer Science 875, 885, or 886. Computer Information Systems courses numbered 800 and above may also be used as electives with advisor approval.
- 3. A minor in mathematics comprising 26 quarter hours, all of which are specified. They are MATH 571, 572, 673, 725, 743, and 760.
 - 4. English 743, Philosophy 619 and 625.

- 5. An additional concentration of at least 16 quarter hours in some academic program other than one in the Department of Computer Science and Information Systems. At least 4 quarter hours of this concentration must be at the 700 level or above.
 - 6. Eight hours of science outside the department.

COMPUTER INFORMATION SYSTEMS

The Computer Information Systems program leads to the two year Associate in Applied Science and the four year Bachelor of Science in Applied Science degrees.

Associate Degree Program

The Computer Information Systems associate degree program emphasizes the use of computers to solve business or science problems. The graduate will be employed in positions involving direct use of microcomputers and mainframe computers for business or science administration and decision support applications.

In addition to completing all general University requirements, students wishing to receive the Associate in Applied Science degree must complete the following:

- 1) CSIS 590, 610, and 617.
- At least 28 quarter hours of CIS courses of which 16 are specified: CIS 615, 621, 626, and 640.
 - 3) English 550 and 551.
 - 4) Math 550, 570, or 571.
- 5) Management 500 or 511 and Accounting 602 and 603.
 - 6) Economics 530 and 624.
 - 7) Four hours of science outside the department.
 - 8) Four hours of a social studies elective.
 - 9) Philosophy 619.
 - 10) HSC 590.

Bachelor's Degree Program

The Computer Information Systems professional will develop their ability to conceptualize, design, and implement high quality information systems based upon computer systems ranging from a simple single user to complex, interactive, and multiuser distributed systems.

In addition to completing all general University requirements, students wishing to receive the Bachelor of Science in Applied Science degree must complete the following:

1) CSIS 590, 610, and 617.

- 2) At least 64 quarter hours of CIS courses of which 36 are specified: CIS 615, 621, 626, 640, 714, 718, 721, 818, 822, and 840.
 - 3) English 550 and 551.
 - 4) Math 550, 570, or 571 and Math 642 or 645.
- 5) Management 500 or 511 and 725 and Accounting 602 and 603.
 - 6) Eight hours of science outside the department.
- Twenty hours of a social studies including Economics 610 and 624.
- 8) Twelve hours of humanities including Philosophy 619 and Philosophy 625.
 - 9) Speech 652.
 - 10) HSC 590.

OFFICE INFORMATION SYSTEMS

Office information systems provides systematic foundations that include methodologies and model for conceptualizing the complex dynamics of the office environment and applying them to office information systems design and implementation. It supports work processes and employee performance. It aims to improve overall effectiveness and productivity of individuals and work groups. It addresses the creation, distribution, storage, and use of information in all its formats. Office information systems encompasses office automation, enduser computing, information centers, computer-supported work, performance support, multimedia, and executive information systems. The office information systems program at Youngstown State University is designed to meet Office Systems Research Association guidelines.

Associate Degree Program

Graduates of the two-year associate degree program can pursue careers as Office Information Specialists in publishing, legal, financial, and medical fields, as well as continuing on to a four-year bachelor's degree in Office Information Systems.

Graduate of the two-year associate degree program may also complete a Bachelor of Science in Education degree in teaching with a major in OIS. Such candidates should consult the College of Education section in this catalog. All Education majors must pass subject matter proficiency exams in their teaching field(s) before being approved for student teaching.

In addition to completing all general University requirements, students wishing to receive the Associate in Applied Science degree must complete the following:

- 1) CSIS 525, 580, 590, and 610.
- 2) At least 28 quarter hours of OIS courses all of which are specified: OIS 575, 625, 699, 714, 720, 750, and 780.

- 3) CIS 621.
- 4) English 550 and 551.
- 5) Math 506 or 642.
- 6) HPES 590.
- 7) Management 551.
- 8) ECON 530.
- 9) PHIL 530.
- 10) SOC 500.

OIS

11) Fifteen to seventeen hours in one of the following concentration areas:

OFFICE INFORMATION SYSTEMS SPECIALIST (16 g.h.)

		or meritalion (to ditti)
OIS	600	Concepts of Office Information
		Systems
OIS	663	Office Management
OIS	704	Business Communications

790 Integrated Office Systems DESKTOP PUBLISHING SPECIALIST

	(16 q.h.)
672	Desktop Publishing 1
673	Desktop Publishing 2
790	Integrated Office Systems
	673

LEGAL INFORMATION PROCESSING SPECIALIST

(15 q.h.)

200	Information Processing Skills
500	Intro. to Criminal Justice
720	Legal Terminology/Research
One	of the following:
602	American Criminal Courts
621	Evidence
604	Legal Environment of Business
	500 720 One 602 621

FINANCIAL INFORMATION PROCESSING SPECIALIST

(16 q.h.)

ACCTG	602	Financial Accounting
ACCTG	603	Managerial Accounting
ACCTG	703	Intermediate Accounting 1
OIS	704	Business Communications

MEDICAL INFORMATION PROCESSING SPECIALIST

(17 g.h.)

OIS	506	Information Processing Skills
MATEC	501	Medical Terminology
MATEC	600	Medical Insurance Forms
MATEC	602	Medical Diag. and Proc. Coding
MATEC	610	Intro. to Disease Proc.

Bachelor's Degree Program

The office information systems professional will develop his or her ability to conceptualize, design, and implement high quality information systems based upon computer systems ranging from a simple single user to complex, interactive, and multiuser distributed systems.

In addition to completing all general University requirements, students wishing to receive the Bachelor of Science in Applied Science degree must complete the following:

- 1) CSIS 590, 610, and 617.
- 2) At least 57 quarter hours of OIS courses of which 44 are specified: OIS 575, 600, 625, 663, 704, 720, 775, 780, 790, 880, and 887.
- At least 24 quarter hours of additional technical courses from CIS, CSCI, and ENGL 743, of which 8 hours are specified: CIS 621 and 721.
 - 4) English 550 and 551.
 - 5) Math 506 or 642.
 - 6) Eight hours of science outside the department.
- Sixteen hours of a social studies including Sociology 500 and 742.
- 8) Twelve hours of Humanities including Philosophy 530 and 625.
- 9) A Business minor of at least 32 quarter hours, of which 20 are specified: Accounting 602 and 603, Management 604, 725, and 750. The remaining 12 hours may be chosen from the following: ACCTG 709, FIN 720, 835, 839, MGT 511, 735, 761, 804, 805, 860, 875, 880, 890, and MKT 703.

BUSINESS INFORMATION SYSTEMS

Courses listed under Business Information Systems are migrating to the office information systems program. Please consult with your advisor for more information about these classes.

EARTH SCIENCE

Professor I. Khawaja (Supervisor).

Earth science may be the major for the Bachelor of Arts degree or the Bachelor of Science in Education degree.

It is designed to meet the needs of students desiring a broad background in earth science. The major also provides the necessary background for graduate students and for a teaching field in earth science. Interested students should consult the chair of the Department of Geology.

An earth science major consists of a minimum of 70 quarter hours of science courses distributed as follows: 44 quarter hours from Specified courses, and either 28 q.h. from Electives I or 26 q.h. from Electives II.

Specified (42 q.h.)	
ASTRO 504 Descriptive Astronomy	4
ASTRO 608 Moon and Planets	4
GEOG 630 Weather	4
GEOG 737 Soils and Land Use	
GEOL 505 Physical Geology	4

GEOL 513 Physical Evolution of North
America4
GEOL 514 Life of the Geologic Past4
GEOL 602 Intro to Oceanography 4
GEOL 608 Geology Laboratory4
GEOL 615 Geology and the Environment 1 4
GEOL 815 Geology and the Environment 2 4
Electives I (26 q.h.) for Earth Science Teaching Professionals
BIOL 510 Principles of Biology 24
CHEM 515, 516 General Chemistry I, II
CSCI 500 Computer Literacy
GEOG 730 Climatology
GEOL 700 Mineralogy
GEOL 701 Geomorphology
GEOL 702 Glacial Geology
GEOL 704 Structural Geology 3
GEOL 704 Structural Geology
GEOL 706 Geol. of Economic Mineral Deposits 5
GEOL 718 Igneous and Metamorphic Petrology 4
GEOL 714 Principles of Paleontology
GEOL 714 Principles of Paleontology
Electives II (28 q.h.) for other professionals, at least
there are no forms the full medium.
GEOL 701 Geomorphology4
GEOL 701 Geomorphology
GEOL 702 Glacial Geology
GEOL 704 Structural Geology
GEOL 704L Structural Geology Laboratory 2
GEOL 718 Igneous and Metamorphic Petrology 4
GEOL 706 Geol. of Economic Mineral Deposit 5
GEOL 713 Optical Mineralogy
GEOL 714 Principles of Paleontology
GEOL 802 Stratigraphy and Sedimentation 4
GEOL 802 Stratigraphy and Sedimentation4 GEOL 806 Intro. to X-Ray Diffraction
FIELD GEOLOGY4
CHEM 515, 516, 517 General Chemistry I, II, III 12
CSCI 500 Computer Literacy
ENVI SCI 751, 752 Water Quality Analysis I, II 8
STAT 717 Statistical Methods
MATH 550 or MATH 570 or
MATH 571 Calculus

DEPARTMENT OF ECONOMICS

Professors Bee, Kermani, Koss, Liu, Mehra, Milley, Petruska, Porter (Chair), Riley; Associate Professors Morris, Usip; Assistant Professor Ruffer.

The Department of Economics offers majors in economics and in labor relations.

A major in economics comprises 48 quarter hours. Required courses are 610, 630, 632; 624, 705, 710, 712 and 880. MATH 550 or equivalent is a prerequisite for ECON 709, 710 or 712. The following courses may be applied toward a major in Economics: HIST 714 and MKTG 703.

The major is designed to prepare students for research and statistical work in business or government; and for graduate study leading to careers in law, journalism, government and international affairs, teaching, industrial relations, and business economics.

Curricula

The following are suggested curricula for students wishing to concentrate their studies in a specific area of economics.

Specialization in International Economics:

Suggested economic courses are economics courses required for the major plus ECON 701, 802, 807, 808, 811, 812. Suggested non-economics courses are MATH 550, CSCI 520 or BIS 514, ACCTG 503, MKTG 703 and 845.

Specialization in Money and Banking:

Suggested economics courses are economics courses required for the major plus ECON 701, 702, 808, 809, 810. Suggested non-economic courses are MATH 550, CSCI 520 or BIS 514, ACCTG 602, 603, FIN 720 and 730.

Specialization in Regional and Urban Economics: Suggested economics courses are economics courses required for the major plus ECON 702, 801, 820, 822, and 825. Suggested non-economics courses are MATH 550, CSCI 520 or BIS 514, GEOG 640, 726 and 830, HIST 606 and 714, POLIT 601, 721 and 722. Students may wish to consider participation in the Urban internship program under the direction of the Department of Political and Social Science.

Specialization in Quantitative Economic Methods:

Suggested economics courses are economics courses required for the major plus ECON 709, 824, 825, 850, 853, 854. Suggested non-economics courses are MATH 571, 572, 673, 674, 743, CSCI 530 or MGT 601.

LABOR RELATIONS

To graduate with a major in labor relations, a student must take all of the following required courses: ECON 530, 630, 631, 624, 705, 831; LREL 833, 835, 841, 843, 845, 849; and MGT 725, 750, 804. The student must also take either POLIT 601 and 707, or PSYCH 560 and 712, or SOCIO 500 and 706. In addition, the student must complete 12 quarter hours from the following list of courses: ACCTG 602, 603, ECON 710, 712, LSTEC 710, 720, 730, MGT 805, POLIT 720, PSYCH 716 and SOCIO 758.

The labor relations major incorporates a multidisciplinary approach to employer-employee relations. The program is designed to provide a broad perspective for practitioners in the human resource areas in organizing in the private, quasi-public and public sectors of the economy.

Curriculum

The following suggested curriculum leads to the degree of Bachelor of Arts with a major in Labor Relations.

FIRST YEAR

Courses	Cr. Hrs.
ECON 530 Principles 1	4
ECON 630 Principles 2	3
ECON 632 Principles 3	
ENGL 550 Composition 1	4
ENGL 551 Composition 2	
MATH 642 App. Finite Math	5
Humanities Requirement	
Foreign Language Requirement	0-20
Electives	8
	39-59

SECOND YEAR

Courses	Cr. Hrs.
ECON 624 Econ. & Soc. Stat. 1	4
ECON 705 Econ. & Soc. Stat. 2	
MATH 550 Calculus Soc. Managerial 1	
HSC 590 Health Education	
HPES Activity Courses	
Humanities Requirements	
Science Requirement	
Electives	
	47

THIRD YEAR

Courses	Cr. Hrs.
ECON 831 Labor Markets	4
LREL 833 Collect. Barg. & Arb	
LREL 841 Occup. Saf. & Health	
MGT 725 Fund. Management	
MGT 750 Human Behav. in Org	4
Electives	
	46

FOURTH YEAR

Courses	Cr. Hrs.
LREL 835 Labor Legislation	4
LREL 843 Equal Employ. Opport	4
LREL 845 Thy. Oper. Labor Org	4
LREL 849 Sem/Wksp Labor Rel	4
MGT 804 Human Res. Mgmt. 1	4
Electives	26
	46

DEPARTMENT OF ENGLISH

Professors Bowers, Copeland, W. Greenway, McCracken, Monseau, Nelson, Salvner, Shale, Sniderman, Stephan (Chair), Tingley; Associate Professors Attardo, Belanger, Brady, Brown-Clark, Finney, Gergits, B. Greenway, Leonard, Linkon, Mullen, Reese, Schramer; Assistant Professors Barnhouse, Brown, Harrison, Isaac, Moneyhun, Okawa, Reiff, Strom.

Beyond the freshman sequence, the English major comprises at least 48 hours, including the following distribution.

Required of all English Majors:

English 690 — Introduction to Literary Study English 890 — Seminar in Literary Study

American Literary Studies

Two courses from the following: 770, 780, 862, 864, 871.

Total hours in the area: Minimum of 8.

British Literary Studies

One course chosen from the following (literature before the Romantic period): 860, 881, 882, 883, 884, 886.

One course chosen from the following (literature from the Romantics to the present): 887, 891, 892, 895, 896.

One additional course chosen from the courses in British literary studies: 860, 881, 882, 883, 884, 886, 887, 891, 892, 895, 896.

Total hours in the area: Minimum of 12.

Other Literary Studies

One world literature course chosen from the following: 610, 620, 631, 638, 710, 738.

One course chosen from the following: world literature—610, 620, 631, 638, 710, 738; or film studies—665, 765, 865; or other literature courses 609, 617, 632, 633, 708, 709.

Total hours in the area: Minimum of 8.

Language, Writing, and Discourse

One upper-level writing course, chosen from the following: 716, 717, 740, 741, 743, 746, 747.

English 755-Principles of Linguistic Study.

One or two of the following: 716, 717, 740, 741, 743, 744, 746, 747, 750, 757, 849, 858, 859.

Total hours in the area: Minimum of 12.

English 709 and English 741 are required of all English majors planning to apply for teacher licensure. English 741 is offered each fall (and may be offered winter as needed) as part of the English education block (Education 704, Education 883, and English 741). Check with an English education advisor. English majors preparing to teach should take Education 800E, not Education 800G.

Senior Seminar in Literary Study (English 890) replaces the two senior papers previously required of English majors.

For requirements for the Professional Writing And Editing major, see next column.

Because the discipline of English involves study of the controlled use of the language, students are expected to demonstrate their writing skills in all English courses.

Literature courses count toward the general requirement in the humanities area, but courses in linguistics and composition do not.

The Department of English maintains the Writing Center for supplemental, noncredit instruction in writing. English majors may apply for student

employment as peer tutors in the Center. (See the Student Services section for details.)

PROFESSIONAL WRITING AND EDITING

Professor Bowers, Nelson, Stephan (Chair); Associate Professors Gergits, Mullen, Schramer; Assistant Professors Harrison, Reiff.

A major in professional writing and editing requires 89–90 hours, distributed as follows:

English Courses (28 hours) ENGL 690	Cr. Hrs.
ENGL 690	
LING 755	4
American Literary Studies 770, 780, 862, 864, or 871	4
British Literary Studies 860, 881, 882, 883, or 886	4
British Literary Studies 887, 891, 892, 895, or 896	4
World Literature 610, 620, 631, 638, 710, or 738	4
Literature Elective (any literature or film of 600-level or above offered by the Eng	ourse lish
department)	
Professional Communication Core Course hrs)	
ENGL 743 Technical Communication	5
ENGL 744 Proposal and Report Writing	4
ENGL 849 Prof. and Technical Editing	4
ENGL 622 Basic Journalism	4
ENGL 723 Makeup and Design	4
ENGL 899 Professional Writing Senior Project	1 + 1
Support Courses (19–20 hours) Choose 7–8 hours from: ENGL 716 Feature Writing	
Choose 7–8 hours from:	
ENGL 716 Feature Writing	4
ENGL 721L Journalism Workshop	3
ENGL 740 Advanced Writing ENGL 746 or 747 Fiction or Poetry	4
Writing Workshops	3
ENGL 898 Prof. Communication Internship	2-8
Choose 12 hours from:	
ENGL 745L Videotext Workshop	2
COMM 550 Public Speaking COMM 652 Business &	
Professional Speaking	4
COMM 756 Interviewing	
Communication 1	4
COMM 757 Organizational Communication 2	
ART 502 Design 1	4
ART 503 Design 2	4
ART 655 Graphic Design 1	4
ART 780 Photography 1STATS 601 Introductory Statistics	4
STATS 601 Introductory Statistics	
(Prereq. Math 504 or equiv.)	5
CSCI 500 Computer Literacy	4

CSCI 525 Survey of Modern Operating Systems . 4
CSCI 590 Survey of Computer Science and
Information Systems4
ART 842 Publication Design4
STATS 717 Probability and Statistics (Prereq.
high school Algebra 2 or MATH 550)
MECH 500 Drawing Fundamentals4
MECH 501 Engineering Communication
with CAD3
MKTG 703 Marketing Concepts and Practice 5
PREL 710 Basic Public Relations4
PREL 750 Public Relations Communication 4
ADVER 704 Principles of Advertising5

Professional Area (21 hours)

Students seeking a major in professional writing and editing must also take 21 hours in a professional area such as computer science, chemistry, engineering, journalism, graphics, or advertising/public relations. Courses and degrees in the College of Health and Human Services may also meet this requirement.

Students should choose a professional writing area early in their degree work since this preparation will provide the content for much of the writing in the professional communication courses or will provide ancillary professional writing expertise to be used in projects assigned. Each professional area sequence must be approved by an English department advisor working with the Professional Writing and Editing major.

Students must successfully complete an extensive writing and/or editing project, to be approved and evaluated by a professional writing and editing advisor.

JOURNALISM

Professor Stephan (Chair); Associate Professor Mullen; Assistant Professor Harrison; English Faculty.

The University offers a journalism minor; a professional writing and editing major with a concentration in journalism; an Individualized Curriculum Program major that combines journalism with non-writing skills such as graphic design, desktop publishing or photography; a 30-hour program leading to certification in journalism for secondary school teaching; or a 14-hour program that satisfies the journalism distribution for teaching certification in communications on the secondary level. All five programs include practical experience with the University's student newspaper, *The Jambar*.

LINGUISTICS

Attardo (Program Director), Barnhouse, Brown, McCracken, Okawa, English; Becerra, Corb'e, Masagara, Foreign Languages; Smith, Philosophy, Kestner, Psychology. The University offers an interdisciplinary minor in linguistics with the advice and approval of the chair of the department the student is majoring in and of an advisor from the linguistics faculty.

The minor requires completion of a minimum of 21 hours including ENGL 755 and at least two courses from group 1. Students may take variable topic classes twice if the topic is different.

ENVIRONMENTAL STUDIES PROGRAM

Associate Professor Jacobs (Director), Assistant Professor Garton

Governing Board:

Arts and Sciences: Buckler (Geography), Jacobs (Environmental Studies), Khawaja (Geology), Mincey (Chemistry), Usis (Biological Sciences)

Engineering: Garr (Chemical Engineering), Martin (Civil and Environmental Engineering)

Health and Human Services: Benner (Health Professions)

The environmental studies program will prepare students to enter the job market as environmental specialists or to continue in their education in a graduate program. Students in Environmental Studies will complete a core sequence of 51-56 q.h., providing a broad background in science and environmental science and 57-72 q.h. in one of four areas of specialization: environmental science, environmental technology, environmental health, or environment affairs. All students will complete an internship, a cooperative project, or a research project. Students will be encouraged to develop teamwork, communication, computer and problem solving skills.

The University science/math area requirements may be satisfied by the following ENST courses: 600 and 600L.

REQUIRED ENVIRONMENTAL STUDIES CORE COURSES

The state of the s
Courses Cr. Hrs.
ENST 501 Professional Development in ENST 1
ENST 600 Foundations of ENST 4
ENST 600L Foundations of ENST Lab1
ENST 700 Environmental Chem 4
ENST 710A Environmental Safety
ENST 750 Seminar in ENST
ENST 760 Environmental Regulations 4
ENST 790 Internship/Cooperative2-6
ENST 800 Environmental Impact Assessment 4
STAT 601 or 717 Statistics 4 or 5
BIOL 509 Principles of Biology 14
GEOL 505 Physical Geology4
COMM 659 Com. for Envir. Prof. or
COMM 550 Public Speaking4
PHYS 501 Fundamentals 14

GEOG 603 Human Impact on the Environment or	GEOG 732 Computer Cartography
GEOL 615 Geology of the Environment 1 4	GEOG 710 Remote Sensing
CSIS 590 Survey of Computer Science	GEOG 765 Geographic Information Systems 4
and Information Systems4	Select one chemistry sequence:
01.00%	CHEM 505/506 Chemistry for Allied
REQUIRED COURSES FOR THE TRACK:	Health Sciences 1/2 4/4
ENVIRONMENTAL SCIENCE TRACK	CHEM 515/516/517
Courses Cr. Hrs.	General Chemistry 1/2/3 4/4/4
BIOL 510 Principles of Biology 24	Select two of the following:
BIOL 612 Principles of Biology 44	POLIT 604 American Government4
BIOL 780 Introduction to Ecology5	POLIT 701 American Legislative Process 4
ENST 780 Environmental Research2-6	POLIT 707 Interest Group Politics
CEEGR 736 Environmental Engineering 1 4	POLIT 714 Public Opinion
CHEM 515 General 1 4	POLIT 719 American Dublin Dalies
CHEM 516 General 2	& Policy Anal4
CHEM 517 General 3 4	POLIT 720 Public Administration 4
CHEM 603 Quantitative Analysis 15	POLIT 722 State and Local Government
ENST 710B Field Sampling	POLIT 742 Politics & the Econ. of Devel. Areas 4
ENST 780 Environmental Research2-6	
GEOG 765 Geographic Information Systems 4	Required Environmental Affairs Track Courses
GEOL 608 Geology Lab4	GEOL 608 Geology Lab
GEOL 815 Geology and the Environment 2 2	ENST 710F Industrial Hygiene Practices
PHYS 503 Fundamentals 3	Select one of the following:
MATH 550 Calculus	GEOG 737 Soils and Land Use
WATTI 550 Calculus	GEOL 716 Environmental Impact of Abandoned
ENVIRONMENTAL HEALTH TRACK	Mines 4
Courses Cr. Hrs.	GEOL 815 Geology and the Environment 2 4
AHLTH 708 Preventive Public Health Care 4	Select two of the following:
	ENGL/JOURN 622 Basic Journalism4
AHLTH 807 Epidemiology 4 AHLTH 808 Environmental Concerns	ENGL/JOURN 716 Feature Writing4
	ENGL/JOURN 717 Editorial & Opinion Writing 4
AHLTH 831 Introduction to Industrial Hygiene . 4	ENGL/JOURN 723 Make-Up and Design 4
BIOL 551 Physiology and Anatomy 1	ENGL 743 Profit Tech. Comm 5
BIOL 552 Physiology and Anatomy 2	ENGL 744 Proposal and Report Writing 4
BIOL 604 Food Micro	ENGL 849 Professional and Technical Editing 4
BIOL 801 Environmental Micro	Select one of the following:
ENST 751/751L Water Quality Anal. 1	COMM 652 Business & Professional Speaking 4
LSTEC 540 Fund. Occup. Safety	COMM 657 Organizational Communication 4
CHEM 515 General 1	COMM 750 Advanced Public Speaking 4
CHEM 516 General 2	COMM 754 Argumentation4
CHEM 517 General 3	Select one of the following:
CHEM 603 Quant. Anal. 1	PREL 710 Basic Public Relations 4
CHEM 864 Chem. Toxicology	PREL 750 Public Relations Communications 4
ENST 710C Soil and Ground Water Samp 2	MGT 725 Fundamentals of Management 4
ENST 710F Industrial Hygiene Practices	In addition select 8 q.h. of recommended elec-
GEOG 737 Soils and Land Use4	tives at the 700 or 800 level.
PHYS 503 Fundamentals 33	tives at the 700 of 000 level.
ENVIRONMENTAL APPAIRS TO ACK	ENVIRONMENTAL TECHNOLOGY TRACK
ENVIRONMENTAL AFFAIRS TRACK	Courses Cr. Hrs.
Courses Cr. Hrs.	ENST 751/751L Water Qual. Anal. 1
Select two of the following:	ENST 752/752L Water Qual. Anal. 2
ANTHR 817 Cultural Resource Mgmt	CHEM 515/516/517 General
ECON 510 Economic Theory & the Indiv 4	Chemistry 1/2/3
ECON 530 Principles of Economics 14	CHEM 603 Quant. Anal. 1
ECON 630 Principles of Economics 24	GEOL 608 Geology Lab
ECON 650 Environmental	PHYS 503 Fundamentals 3
Economics and Policy4	MATH 550 Calculus
GEOG 650 Global Economic Landscapes4	CEEGR 838 Hazardous Waste Management 4
SOCIO/BIO/CHEGR 789 Humans & the	
Technological Society4	or CEEGR 839 Solid Waste Management 4
PSYCH 704 Conflict Resolution4	Electives
Select one of the following:	In addition to all of the above courses the fol-
CSIS 580 Technical Presentation and	lowing may also be taken as electives in environ-
Communication4	mental studies. Contact the Center for Environmen-

tal Studies, its director, and the current curriculum guide for the environmental studies program.

Courses Cr. Hrs.

ENST 710B Field Sampling 2

ENST 710D Air Pollution Control and Sampling 2

ENST 730 Air Quality 4

GEOG 765 Geographic Information Systems 4

GEOL 815 Geology and the Environment 2 4

Environmental Studies Minor

Students interested in choosing environmental studies as a minor may inquire in the department of their major program. Requirements will be established by the department of their major program in consultation with the environmental studies director.

DEPARTMENT OF FOREIGN LANGUAGES

Professors Viehmeyer (Chair); Associate Professors Becerra, del Pozo, Sarkissian, Smith; Assistant Professors Corbe, Masagara.

FRENCH

Assistant Professors Corbe, Masagara.

A major in French comprises 45 quarter hours above the elementary level, including French 710, 750, 755, and at least one 800-level literature course. See Secondary, Multi-Age, and Vocational Education Programs for licensure requirements.

No native speaker who has completed high school in a French-speaking country may receive credit for French 501, 502, 503, 504, 510, 601, or 602.

Courses in French literature and culture (615, 705, 706, 750, 820, 830, 845, 850, 873) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See Foreign Language Requirement for B.A. and B.S. degrees at the beginning of the College of Arts and Sciences section for information about foreign language requirements.

GERMAN

Professor Viehmeyer.

A major in German comprises 45 quarter hours above the elementary level. See Secondary, Multi-Age, and Vocational Education Programs for licensure requirements.

No native speaker who has completed high school in a German-speaking country may receive credit for German 501, 502, 503, 505, 506, 510, 601 or 602.

Courses in German literature and culture (615, 625, 680, 750, 751, 860, 861) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See Foreign Language Requirement for B.A. and B.S. degrees at the beginning of the College of Arts and Sciences section for information about foreign language requirements.

GREEK (ANCIENT)

Associate Professor Sarkissian.

A major in Greek is not offered, but credit in Greek may be counted toward a major in Latin.

See Foreign Language Requirements for the B.A. and B.S. degrees at the beginning of the College of Arts and Sciences section for information about foreign language requirements.

ITALIAN

A major in Italian comprises 45 quarter hours above the elementary level. See Secondary Education for certification requirements.

No native speaker who has completed high school in an Italian-speaking country may receive credit for Italian 501, 502, 503, 504, 510, 601 or 602.

Courses in Italian literature and culture (708, 709, 801, 802, 830, 840) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See Foreign Language Requirement for the B.A. and B.S. degrees at the beginning of the College of Arts and Sciences section for information about foreign language requirements.

LATIN

Associate Professor Sarkissian.

A major in Latin comprises 45 quarter hours of Latin above the elementary level. With the consent of the department chair, some of these hours may be taken in relevant courses other than Latin. Ancient Greek is recommended. See Secondary, Multi-Age, and Vocational Education Programs for licensure requirements.

Courses in Latin Literature (660, 707, 708, 709, 717, 718, 719, 727, 729, 829) and Latin 885 (if the topic deals with literature) satisfy the humanities requirement.

See Foreign Language Requirement for the B.A. and B.S. degrees at the beginning of the College of Arts and Sciences section for information about foreign language requirements.

RUSSIAN

Associate Professor Smith.

A major in Russian comprises 45 quarter hours above the elementary level. With the consent of the department chair, some of these hours may be taken in Russian area studies. See Secondary, Multi-Age, and Vocational Education Programs for licensure requirements.

No native speaker who has completed high school in a Russian-speaking country may receive credit for Russian 501, 502, 503, 505, 506, 510, 601 or 602.

Courses in Russian literature and culture (615, 620, 660, 715, 716, 808, 809) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See Foreign Language Requirement for the B.A. and B.S. degrees at the beginning of the College of Arts and Sciences section for information about foreign language requirements.

SPANISH

Associate Professors Becerra, del Pozo.

A major in Spanish comprises 45 quarter hours above the elementary level. Required courses are Spanish 615, 735, 736, and one 800-level course, plus any two of the Spanish civilization courses (752, 753, 754) and any two of the Latin American civilization courses (756, 757, 758). See Secondary, Multi-Age, and Vocational Education Programs for licensure requirements.

No native speaker who has completed high school in a Spanish-speaking country may receive credit for SPAN 501, 502, 503, 504, 601, 602.

Courses in Spanish literature and culture (615, 752, 753, 754, 756, 757, 758, 870, 890) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See "Foreign Language Requirement for the B.A. and B.S. Degrees" at the beginning of the College of Arts and Sciences section for information about foreign language requirements.

DEPARTMENT OF GEOGRAPHY

Professors Maraffa (Chair), Stephens; Associate Professors Humbertson, Shaklee; Assistant Professors Buckler, Campbell.

Students majoring in geography earn the Bachelor of Arts degree. In addition to the usual university requirements, a student must complete a minimum of 48 hours in geography following the distribution listed below. At least 30 quarter hours must be earned in upper-division geography courses.

Required of all geography majors: GEOG 503, GEOG 610, GEOG 640 and

Two courses from: GEOG 715, GEOG 717, GEOG 719, GEOG 721 or GEOG 750, at least one of which must concern a non-U.S. region.

One course from: GEOG 650, GEOG 722, GEOG 726, GEOG 740, GEOG 741, GEOG 745, GEOG 755, GEOG 756 or GEOG 830.

One course from: GEOG 603, GEOG 630, GEOG 730, GEOG 735 or GEOG 737.

Two courses from: GEOG 710, GEOG 731, GEOG 732, GEOG 760, GEOG 765 or GEOG 813.

The department offers specialized areas of study that provide information and skills needed by students planning to enter the fields of cartography, climatology and meteorology, city and regional planning, elementary and secondary education, earth sciences, environmental studies, retail location, and to prepare for graduate studies in either geography or a variety of professional fields.

DEPARTMENT OF GEOLOGY

Professors Khawaja (Chair), A. Harris, Singler; Associate Professors Beiersdorfer, Dick, Jacobs.

Geology may be the major for the degree of Bachelor of Science or Bachelor of Arts.

The major in geology provides the student with a background for professional work, teaching, and graduate study in geology, environmental science, and related fields.

For the Bachelor of Science degree, students majoring in geology must complete, in addition to the general University requirements, a minimum of 57 quarter hours of courses in geology, of which 45 are specified and 12 are elective. The specified courses are Geology 505, 513, 514, 608, 700, 701, 704, 704L, 713, 718, 802 and a course in field geology. The latter must carry a minimum of four quarter hours of transferable credit. An additional 34-37 quarter hours of courses in the sciences area are required from chemistry, physics, and mathematics. Students should consult with the geology chair for details in the B.S. program.

The field camp and the specific courses for the minor are chosen in consultation with the advisor and the department curriculum committee.

For the Bachelor of Arts degree, students majoring in geology must complete, in addition to the general University requirements, 36 quarter hours in geology and other science courses, and 40 quarter hours of elective courses in geology, biology, chemistry, civil engineering, and geography. The required courses are geology 505, 513, 514, 608, 615, CHEM 515, 516, BIOL 509 and CSCI 500. Students should consult with the geology chair for details of the B.A. program and for the elective course options. An additional 12 q.h. are required from biology, chemistry, geography, and civil engineering. Students should consult the geology chair for details concerning the B.A. program.

The students may choose any minor desired.

Geology 505, 510, 513, 514 and 602 are recommended to satisfy the University science requirement. All geology courses apply towards a science requirement.

GERMAN

See Foreign Languages.

GREEK

See Foreign Languages.

DEPARTMENT OF HISTORY

Professors Berger, Blue, Domonkos, Friedman, Jenkins (Chair), Kulchytsky, Satre; Associate Professors Pallante, Viehe, York; Assistant Professors Ayana, Drobney, Hanchett, Madison.

The student majoring in history must complete, in addition to the general University requirements (see Degree Requirements, at the beginning of the College of Arts and Sciences Section), the group requirements listed below. It is recommended that the student select courses with assistance from an advisor, since certain courses are preferable to others according to whether one contemplates graduate study, secondary school teaching, or some other career.

Group A History 511, 512, 513, 605, 606 or 511H, 512H, 513H, 605H, 606H.

Group B Select three courses from the following courses: 601, 630, 701, 702, 704, 706, 708, 710, 712, 713, 714, 715, 717, 718, 720, 721, 723, 724, 725, 726, 732, 733, 734, 736, 737, 738, 739, 740, 741, 742, 743, 744, 747, 748, 762, 801, 808, 809, 810, 811, 812, 815.

Group C Select three courses from the following courses: 699, 752, 753, 754, 755, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 777, 778, 779, 780, 781, 782, 785, 787, 788, 790, 791, 792, 793, 794, 850, 851.

Group D Select three courses from the following courses: 611, 661, 662, 663, 727, 728, 729, 740, 749, 750, 770, 771, 772, 776, 789, 796, 797, 798, 799, 850, 860.

NOTE: No course can be counted in more than one group.

Students transferring 30 or more quarter hours in history to YSU from another institution must meet the group requirements listed above to obtain a major in History for graduation. At least five of the courses in groups B, C, and D must be taken at YSU.

It is recommended that the student in choosing electives should acquire as broad a background as possible in the social sciences and the humanities. Particular attention is called to courses offered by the Departments of English, Economics, Political Science, Philosophy, Art, Music, Geography, and Sociology, and to the humanities courses. Students

contemplating graduate work in history should consider taking more foreign language courses than the minimum necessary to meet the general degree requirement. Finally, the student is reminded that the Department of History takes seriously the University's emphasis on the importance of adequate competence in the English language (See Proficiency in English, in the Academic Policies and Procedures section); when there is need, students majoring in history should include in their programs advanced composition courses and courses in speech.

Certificate in Historic Preservation

Historic preservation specialists encourage the renovation and re-use of America's "built environment"—buildings and bridges, farms and factories, battlefields and business districts, even entire neighborhoods. Professionals in this fast-growing field find employment with consulting firms, or with local, state, or national preservation groups, museums or government agencies.

YSU offers a Certificate in Historic Preservation for students at either the undergraduate or graduate level. Six courses form the undergraduate Preservation Core, beginning with American Architectural History HIST 808 and Introduction to Historic Preservation HIST 715, then advancing to specialized instruction in Documentation and Interpretation of Historic Sites HIST 809 and Conservation of the Historic Built Environment HIST 810. The Core concludes with a group project in the community, Practicum in Historic Preservation HIST 811, and an Historic Preservation Internship HIST 812. Classes give students training in historic research skills plus direct experience in real-world preservation tasks.

Along with the Preservation Core undergraduates must take two electives from the following list: History 736, 748, 815; Geography 726, 765, 830; Anthropology 781, 825; Art 780, 816; Human Ecology 879.

In addition, hands-on instruction in preservation technology is available through arrangement with nationally renowned Belmont Technical College.

Undergraduates may earn the certificate as part of a history major, or as a minor supplementing work in a related field such as art history, anthropology, geography, or engineering.

ITALIAN

See Foreign Languages.

LABOR RELATIONS

See Economics.

LATIN

See Foreign Languages.

LINGUISTICS

See English / Foreign Languages.

DEPARTMENT OF MATHEMATICS AND STATISTICS

Professors Altinger, Barger, Brown, Buoni (Chair), Burden, Faires, Kent, Piotrowski, Rodabaugh, Wingler; Associate Professors Arlinghaus, Burris, Mattingly, Poggione, Pollack, Ritchey, Stanek; Assistant Professors Chang, Flowers, Goldthwait, Holcomb, Mullins, Smotzer.

Mathematics may be the major subject for the following degree programs: Bachelor of Science (B.S.), Bachelor of Arts (B.A.), and Bachelor of Science in Education (B.S. in Ed.).

In addition to satisfying the general University requirements (see Requirements for the Degree, at the beginning of the College of Arts and Sciences section of this *Bulletin*), all students majoring in mathematics must complete the following courses: Mathematics 571, 572, 673, 674, 683, 721, 722, 725, 743, 751, 752, 896; also CIS 590, 610, and 610L.

Additional requirements, specified for the individual degree programs in mathematics include:

BS Degree Program: 16 additional quarter hours of coursework applicable to the mathematics major with at least 4 q.h. chosen from 755 or 760, and at least 8 q.h. at the 800-level; the remaining 4 q.h. may be selected from 800-level courses or 755 or 760. In some cases 706 may be substituted for 755 with the approval of the department chair. The total number of hours of credits in mathematics is 58. The minor field of study must be selected from one of the following disciplines: biology, chemistry, computer science, economics, geology, physics, psychology, or one engineering specialty (from chemical, civil, electrical, industrial, mechanical).

BA Degree Program: 12 additional quarter hours of mathematics at the upper division, with at least two courses at the 800 level. The total number of hours of credits in mathematics is 54. The minor field of study may be any discipline.

In selecting the elective mathematics courses, the student should consult a departmental advisor, since certain courses are to be preferred according to whether the student contemplates graduate study, secondary school teaching, or a career in business, industry, or government. Further, in selecting elective courses in mathematics, the student should note that certain courses are not applicable towards the major in mathematics. Students seeking secondary certification in mathematics must complete MATH 730 or 830.

Students who plan to go on to graduate work in mathematics should study at least one of the following languages: French, German, or Russian.

Students receiving transfer credit from another institution for courses in mathematics should consult the department chair to determine how this credit will apply toward the major requirements.

Statistics. Students with a major in mathematics can elect to concentrate in statistics by taking the following courses: MATH 841, STAT 815 and two more 800 level statistics courses. Non-mathematics majors, including students under the individualized curriculum program, may obtain advising in statistics from the Department of Mathematics and Statistics

Actuarial Science. Actuaries can be called financial architects and social mathematicians. They use mathematics, statistics and financial theory to study and analyze future financial situations, especially of concern to insurance and pension programs. They are the backbone of the insurance and financial security industries. They are employed in banks, insurance firms, public accounting firms, investment firms, labor unions, government, and large corporations.

Students with a major in mathematics can elect to concentrate in actuarial science by taking the following courses: MATH 760, 841, 843, 845 and 848. The following courses are also recommended as part of their course work:

ACCTG 602 Fi ECON 530, 630 Pr FIN 726 Ri STAT 815 Ay MATH 842 Do

Financial Accounting Principles I & II Risk Management Applied Statistics Decision Theory

Mathematics Minors. Recommended mathematics courses for students who minor in mathematics are as follows:

For scientific applications: MATH 571, 572, 673; and two or more of 674, 705, 725, 743, 841, 760, 861.

For business applications: MATH 645, and calculus (550 or 571-572); electives to complete 21 q.h.

For mathematical theory: MATH 571, 572, 673, 683, 725 and one sequence 751-752 or 721-722.

Statistics Minors. The minor in statistics is intended for students who wish to strengthen their knowledge in statistical science while pursuing a major in another discipline. Students should consult with an advisor in the Department of Mathematics and Statistics about their choice of courses for the minor. The same courses cannot be counted for both the major and minor. A student minoring in statistics must complete at least 21 q.h. of courses in STAT, or one of the options below:

Option I. *Probability and Statistics*: STAT 717, MATH 743, STAT 815 and at least two or more courses chosen from MATH 841, 842, 843, 848 and STAT 840, 846, 847, 849, 895, 896.

Option II. Quantitative Methods: STAT 717, STAT 815 and at least two courses or more from STAT 840, 846, 847, 849, 895, 896 and MATH 645, 743, 841, 842, 845, 848.

For students who choose Option II:

- STAT 717 can be replaced by an elementary statistics course such as ECON 624, ISEGR 620, STAT 601, PSYCH 617, SOCIO 702 or CRJUS 711. However, only one of these courses should count towards the minor.
- STAT 815 can be replaced with ECON 705 or PSYCH 724. However, STAT 815 and PSYCH 724 should not both be counted towards the minor requirements.
- With the advice and approval of the chair of the major department, other statistics-based courses can be substituted as appropriate. These courses include but are not limited to: ECON 824, 825, 850.
 It is required, however, that at least two courses be taken from the Department of Mathematics and Statistics for the minor requirements to be fulfilled.

SUGGESTED MAJOR CURRICULUM

FIRST YEAR

Course	8	Cr.Hrs.
		Fall Quarter
MATH	571	Calculus 15
		Winter Quarter
MATH	572	Calculus 2 4
		Spring Quarter
MATH	673	Calculus 3 5
		Transition to Advanced Math 2
		cience 540, 610, 610L should also be first two years.

	The second secon
	SECOND YEAR
Course	Cr.Hrs.
	Fall Quarter
MATH	674 Calculus 4 4
MATH	725 Matrix Theory & Linear Algebra 4
- 0 capacit	Winter Quarter
	743 Mathematical Statistics 1 4
MATH	721 Abstract Algebra 1
MATH	722 Abstract Algebra 2 3
	Elective
	THIRD YEAR
Course	Cr.Hrs.
	Fall Quarter
MATH	751 Intermediate Real Analysis 1 3
MATH	
	Winter Quarter
	752 Intermediate Real Analysis 2 3 Elective
	68 811

Spring of the third year and the entire fourth year are available to take more electives and complete the senior project. The sequences 751-52 and 721-22 should be taken in consecutive quarters.

PEACE AND CONFLICT STUDIES

Associate Professor Palmer-Fernandez, Philosophy and Religious Studies (Coordinator).

The University offers a minor in peace and conflict studies with the advice and approval of the chair of the department the student is majoring in. The interdisciplinary minor focuses on the study of conflict and conflict resolution, and promotes global awareness.

The following is a list of approved recommended courses.

History 513. Introduction to World History 3. 4 q.h.

Religious Studies 617. Introduction to Eastern Religions. 4 q.h.

Geography 626. World Geography. 4 q.h.

English 633. Peace and War in Literature. Prereq.: ENGL 551. 4 q.h.

Political Science 660. *Elements of International Relations*. Prereq.: POLIT 601 or SOCSC 511.

4 q.h.

Psychology 704. Conflict Resolution. Prereq.: PSYCH 700 or consent of instructor. 4 q.h.

Sociology 708. Political Sociology. Prereq.: SOCIO 600. 4 q.h.

DEPARTMENT OF PHILOSOPHY AND RELIGIOUS STUDIES

Professors Bache, Minogue, Mir, Shipka (Chair), Waller; Associate Professors Palmer-Fernandez, Smith, Tessier, Wan-Tatah.

PHILOSOPHY

A major in philosophy is available for students who plan to enter the field of philosophy, law, professional or medical ethics, the ministry, or other fields requiring a liberal arts background.

The major consists of 45 quarter hours, including PHIL 600, 619, 700, 702, either 701 or 812; 711; and either 820 or 821. PHIL 861 is strongly recommended.

The department also offers minors in philosophy, religious studies and professional ethics, as well as a graduate certificate in bioethics. Contact the department for details. The department also houses the Dr. James Dale Ethics Center.

RELIGIOUS STUDIES

A major in religious studies is available for students who desire to prepare for a career in the ministry, counseling, religious education, social work or any field requiring a liberal arts background. The major consists of 45 quarter hours, no more than 8 of which can be taken at or below the 600-level. Majors must take RELIG 850 and at least one upper level course in each of the following areas: (1) History of Religion: 708, 713, 720, 722, 724; (2) Methodologies in the Study of Religion: 751, 752, 756, 758, 816, 818, PHIL 712; (3) Biblical Studies: 731, 732; (4) Non-Western Religions: 726, 814, PHIL 740, ANTHRO 815. RELIG 871 is strongly recommended. Remaining Hours: It is assumed that the remaining hours will be selected in religious studies. In some cases, courses outside religious studies may be accepted as part of the religious studies major if they deepen the student's understanding of religion. All such courses must have the approval of the chair.

The department also offers minors in religious studies, philosophy, and professional ethics, as well as a graduate certificate in bioethics. Contact the department for details.

PHYSICAL EDUCATION

See Human Performance and Exercise Science.

DEPARTMENT OF PHYSICS AND ASTRONOMY

Professors Bishop, Hanzely, Tabak, Young (Chair); Associate Professor Sturrus; Assistant Professors Andrews, Brower, Carroll.

Courses are organized with the following aims: (1) To provide well-rounded training in physics and astronomy for those needing it for graduate study, industry, or for secondary school teaching; (2) To provide basic training for engineering and pre-professional students; (3) To acquaint the non-specializing student with scientific methods and with the place of physics and astronomy in the modern world.

Following the course descriptions below are the curricula and minimum requirements for the degrees of Bachelor of Arts and Bachelor of Science with a major in physics and a Bachelor of Science degree with a combined major in physics and astronomy.

The B.A. degree program in physics is designed for students who are interested in fields that benefit from a strong background in physics or for students planning to terminate their education at the bachelor's degree level. The B.S. degree program in physics is designed for students who plan to pursue graduate studies in physics. The B.S. degree program with a combined physics-astronomy major is designed for students who plan to pursue graduate studies in astronomy or space science.

A student desiring to teach physics or astronomy in secondary schools should consult the dean of the College of Education.

Shown below are suggested curricula for complete four-year programs. Students are urged to come to the department office early in their first year to select, and consult with, an advisor from the teaching staff.

Suggested Curriculum for Majors With a Minor in Mathematics

FIRST YEAR

Courses	Cr. Hrs.
PHYS 510, 510L, 610, 610L, 611, 611L	15
MATH 571, 572, 673	14
CHEM 515, 516, 517 ⁺	12
Electives (See Note)	8
	49

SECOND YEAR

Courses	Cr. Hrs.
PHYS 704, 705, 705L	7
PHYS 710, 710L	4
MATH 674	
MATH 705, 706	8
ENGL 550, 551	
HSC 590	3
HPES Activity Courses	3
Foreign Language or Electives (See Note)	
	49

THIRD YEAR

Cours	es	Cr. Hrs.
PHYS	701, 702, 703	9
PHYS	741, 742, 743	9
PHYS	750	4
		23

FOURTH YEAR

Cours	es	Cr. Hrs.
PHYS	810	3
PHYS	815	4
PHYS	820	3
	Elective	
Electiv	res (See Note)	30
		43

*Recommended

NOTE: The electives must satisfy the general University and/or College requirements, upperdivision credit requirements, and the foreign language requirement of the College of Arts and Sciences. Students majoring in any of the degree programs offered by the department are strongly urged to satisfy the college language requirement in French, German, or Russian.

Minimum requirements for the B.A. degree in physics with a minor in mathematics: Physics courses 46 q.h.: 510, 510L, 610, 610L, 611, 611L, 701, 702, 703, 704, 705, 705L, 710, 710L, 741, 742. Mathematics courses, 22 q.h.: 571, 572, 673, 674, 705.

Minimum requirements for the B.S. degree in physics with a minor in mathematics: Physics courses, 63 q.h.: Same as the B.A. above plus courses 743, 750, 810, 815, 820 plus one 800-level physics elective. Mathematics courses 26 q.h.: Same as B.A. above plus course 706.

Minimum requirements for the B.S. with a combined major in physics and astronomy and a minor in mathematics: physics courses, 61 q.h.: Same as the B.A. above, plus 15 q.h. from the following physics courses -722, 722L, 743, 750, 810, 815, 820, 835, 835L. (Students interested in planetary or radio astronomy may substitute courses in geology or electrical engineering for up to 12 of these 15 hours with departmental permission.), Astronomy courses, 25 q.h.: 608, 700, 701, 702, 800, 801, 802, 805. Mathematics courses, 26 q.h.: Same as for the B.S. degree in physics.

DEPARTMENT OF POLITICAL AND SOCIAL SCIENCE

Professors Binning (Chair), Eichenberger; Associate Professors Lepak, Porter; Assistant Professor Sracic.

POLITICAL SCIENCE

A major in political science comprises 48 quarter hours, with the requirement that the student complete at least two courses in each of the four areas: American government, comparative government, international relations, and political thought.

Related minors in history, economics, geography, and sociology are valuable to the political science major preparing for graduate study in political science, or for a career in journalism, law, public administration or the Foreign Service. The student who plans to do graduate study in political science or who expects to apply to the Foreign Service should achieve proficiency in at least one modern foreign language.

COMBINED MAJOR IN SOCIAL STUDIES

The program for the combined major in social studies provides appropriate foundation for the study of law, for graduate work in the disciplines which it includes, and for entry into the civil service field. It can also fulfill requirements for teacher licensure in the social sciences.*

History 605 and 606 are required for the social studies major in addition to courses in economics, geography, history, political science, and sociology, to be distributed as follows:

- A. A minimum of 18 quarter hours in each of two disciplines;
- B. A minimum of eight quarter hours in each of the remaining three disciplines.

A minimum of 27 of the hours required must be in upper-division courses.

The student seeking teacher certification in combined social studies should check the College of Education catalog section on teaching fields.

PRE-FORESTRY

See Biological Sciences advisor.

PRE-LAW

Political Science Faculty, Advisors.

Pre-law advisement is available at the beginning of the student's college study to acquaint the student with the various fields of legal practice which require specialized undergraduate study, and in the junior year to arrange for law school entrance examinations and interviews.

There are no prescribed majors for the pre-law student. The options of a single discipline major, the American studies major, or the combined major in social studies exist.

Law school admission standards generally require an undergraduate point average of at least 3.00 and placement above the 60th percentile in the Law School Admissions Test, which is designed to measure capacity for analytic thought and for precision in the use of language. Regional and national law schools may have more rigorous requirements. Students are advised to consult The Official Guide to U.S. Law Schools, a publication of the Law School Admissions Council and the Association of American Law Schools, copies of which are available for use in the offices of the Department of Political Science.

PRE-MEDICAL, PRE-OPTOMETRY, PRE-PODIATRY, PRE-DENTISTRY, PRE-OSTEOPATHY, and PRE-VETERINARY

See advisors in the Departments of Biological Sciences or Chemistry for details about these programs.

The primary aim of pre-professional students is to satisfy entrance requirements for their respective professional schools. The requirements are listed in bulletins from those schools and should be carefully studied. The American Association of Medical Colleges has published a book entitled Medical School Admission Requirements, which summarizes entrance requirements for medical schools in the United States and Canada. Copies of this book are on reserve in the library and in the Department of Biological Sciences.

Pre-medical students may elect either of the following programs:

- A biology major with a chemistry minor
- (2) A chemistry major with a biology minor

One of these programs is taken by the majority of students accepted into medical school. A student may elect any other major and minor if desired, but this is recommended only for students who can maintain extremely high grade averages.

See also The Northeastern Ohio Universities College of Medicine.

PRE-PHARMACY

See Chemistry.

DEPARTMENT OF PSYCHOLOGY

Professors Beckett, Ellyson, Fry, Gittis, Graf, Haynes, Kestner, Masaki, Morrison (Chair), Small, Sweeney, White; Associate Professors Coldren, Flora, Gray, Stringer; Assistant Professors Hampston, Thomas.

Psychology offers majors for both the Bachelor of Arts and Bachelor of Science degrees. The Bachelor of Arts degree may be appropriate for students seeking: (1) a general liberal arts degree; (2) paraprofessional employment; (3) certification with a B.A. degree to teach psychology in the secondary schools; (4) preparation for graduate study in psychology in non-experimental areas.

The Bachelor of Science degree program is designed for those students who are interested in pursuing graduate work in experimental, biophysiological, psychopharmacological, or related research areas in psychology; and it may be appropriate for other areas.

Honors Program in Psychology: Requirements for admission are: (1) completion of a minimum of 45 q.h. at YSU with a minimum GPA of 3.4; (2) completion of PSYCH 560, 616, 617, and 618, preferably by the end of the sophomore year, with a minimum GPA of 3.50. Eligible students should consult an advisor and chair of Honors Committee for the application and further information.

BACHELOR OF ARTS— PSYCHOLOGY

48 Hours:

- A. PSYCH 560 (General); 616, 617 & 618 (Research Design and Statistical Analysis 1, 2 & 3).
- B. An additional 30 hours in courses applicable to the psychology major, excluding PSYCH 720, 770, 790, 785, 845 and 891.

At least one course must be taken from each category from at least four of the five categories below. (Students may take as many courses from within a category as they desire): (1) Clinical/Personality: PSYCH 702, 802, 840. (2) Learning/Motivation: PSYCH 734, 761, 800, 833, 860. (3) Development: 755, 756, 757. (4) Social/Industrial: PSYCH 700, 704, 712. (5) Experimental/Physiological: PSYCH 760, 762, 763, 810 & 810 L, 838

C. The remaining 3 hours in coursework may be taken in any course applicable to the major — 48 q.h.

BACHELOR OF SCIENCE— PSYCHOLOGY

60 Hours:

- A. PSYCH 560, 616, 617, 618, 724. (Statistics 3) 19 q.h.
- B. Six of the following courses: PSYCH 734, 760, 761, 762, 763, 765, 800, 802, 810, 810L, 828, 833, 840, 860. 24-25 q.h.
- Remaining courses from any applicable to major. 16-17 q.h.
- D. MATH 550 and a course in Computer Science.
- E. Minor in one of the Natural Sciences, Mathematics, Engineering, or Computer Science.

As a major, psychology is primarily an upper-division program. Prospective majors are advised to concentrate on the completion of the University and College requirements during their freshman and sophomore years.

Students seeking licensure to teach psychology / sociology in the secondary schools should consult the College of Education.

RELIGIOUS STUDIES

See Philosophy and Religious Studies.

RUSSIAN

See Foreign Languages.

SOCIAL SCIENCE

See Political Science.

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

Professors Fry, Gilmartin, White (Chair); Associate Professors Gartland, Shutes, Weaver; Assistant Professors D'Apolito, Jiang.

The Department of Sociology and Anthropology offers majors and/or minors in both of its areas including a minor in gerontology.

SOCIOLOGY

The concentrations in sociology are useful to the professional study of law, teaching, research, and other fields requiring work beyond the bachelor's level.

Sociology majors are employed in a variety of settings, such as schools, institutions, urban affairs, social security and personnel.

A major in sociology comprises 45 quarter hours. Majors must take SOCIO 500, 600, 701, 749, and 750, 751, in addition to 25 q.h. of sociology courses.

ANTHROPOLOGY

A major in anthropology can take several directions. A background in anthropology can be immediately useful in many professional fields such as law, elementary and secondary education, urban affairs, administration, business and industry. Others can use the bachelor's degree as a first step in acquiring an advanced degree and ultimately teaching and doing research at the college or university level

A major in anthropology comprises 45 quarter hours. Majors must take Sociology 701, 750, and 751, Anthropology 602 and 801, courses in cultural anthropology, physical anthropology, and archaeology, and two area courses.

The University science/mathematics area requirement may be satisfied by the following anthropology courses: 703, 704, 884.

SPANISH

See Foreign Languages.

WOMEN'S STUDIES

L.J. "Tess" Tessier (Director), Philosophy and Religious Studies; Brothers, Brown-Clark, Belanger, Budge, Fagan, Falconer, Garr, Gergits, Gilmartin, Gittis, Jenkins, King, Leck, Linkon, Litowitz, Lorimer, Lovelace, McMahon, McNierney, Moneyhun, Mullins, S. Russo, Segreto, Sarkissian, Schramer, Shillington, Stephan, Stringer, Strom, Tingley, Willis.

The University offers a minor in women's studies with the advice and approval of the chair of the department the student is majoring in and by completing 21 hours in the following courses, with at least two 700-800 level courses in at least two departments and at least three 500-600 level courses in at least two departments.

Lower-Division Courses

English 617. Women in Literature. Prereq .: ENGL 551. 4 q.h.

English 632. Images of Women. Prereq.: ENGL 551. 4 q.h.

Latin 660. Women in the Ancient World. 4 q.h.

Psychology 620. Women: A Psychological Study. Prereq.: PSYCH 560. 4 q.h.

Sociology 640. Women in Society. Prereq.: SOCIO 500. 4 q.h.

Upper-Division Courses

History 726. History of Women in the United States. Prereq.: HIST 590, 605 or 606. 4 q.h.

Philosophy 704. Woman: A Philosophical Study. Prereq.: PHIL 600 or junior or senior standing.

4 q.h.

Religious Studies 752. Feminist Theology and Spirituality. Prereq.: Any 600 level course in Philosophy or Religious Studies or Junior standing.

4 q.h.

The student may select one of the following special topics courses when offered with the appropriate focus to complete the 21 hours for a minor.

Art 790. Special Topics in Studio Art. Prereq.: ART 503 and/or ART 504 or consent of instructor.

2-4 q.h.

Black Studies 701. Black Studies Colloquium 2. Prereq: BLKST 601 or consent of the instructor.

4 q.h.

English 890. Seminar in Literary Study. Prereq.: 12 hours in upper-division literature courses.

4 q.h.

Foundations of Education 875. Seminar in Foundations of Education. 1-4 q.h.

History 801. Selected Problems in American History. Prereq.: Consent of instructor. 4 q.h.

Management 880. Special Topics in Management. Prereq.: senior standing or consent of instructor.

1-4 q.h.

Marketing 831. Special Topics in Advertising and Public Relations. Prereq.: consent of instructor.

3 q.h.

Health Sciences 893. Workshop on Women's Health. Prereq.: consent of instructor.

Human Performance and Exercise Science 894. Workshop in Physical Education/Athletics. Prereq.: HPES 750, 768 or consent of instructor. 1-4 q.h.

Philosophy 820. Seminar: Contemporary Philosophical Problems. Prereq.: PHIL 600 and 8 q.h. of upper-division philosophy or approval of department chair. 1-4 q.h.

Psychology 850. Seminar. Prereq.: senior major in psychology or consent of instructor. 3 q.h.

Religious Studies 850. Seminar in Religious Studies. Prereq.: any two upper-division courses in either philosophy or religious studies, or consent of instructor.

1-4 q.h.

Religious Studies 851. *Directed Readings in Religion.* Prereq.: any upper-division course in either philosophy or religious studies, or consent of instructor.

1-4 q.h.

Sociology 898. Select Problems in Sociology and Anthropology. Prereq.: departmental major in senior year. 1-5 q.h.

Speech 740. Special Topics in Speech Communication. Prereq.: SPCH 530 or 540 or junior standing with permission of the instructor. 4 q.h.

ZOOLOGY

See Biological Sciences

The Warren P. Williamson, Jr. College of Business Administration

Betty Jo Licata, Dean



The mission of the Williamson College of Business Administration is to create a learning environment that provides a broad professional business education which, in turn, prepares students for productive and fulfilling careers. That education is the foundation for self-development and progress toward positions of increasing responsibility.

WCBA programs are designed to prepare students for careers in general areas of business as well as public and non-profit enterprise. Education in business emphasizes the development of analytical, decision-making, and communication skills as the foundation for positions of responsibility and leadership within organizations. While working toward professional competency in career-related fields, business students also receive a broad-based liberal education. Over one-half of their academic course work is taken outside the WCBA.

The WCBA emphasizes a student-centered, teaching/learning process with an emphasis on application of theory to practice. The WCBA is committed to the integration of teaching, scholarship, and service. The WCBA offers associate, bachelor's, and master's degrees in business and strives to offer a selected group of niche programs which meet the needs of stakeholders. The WCBA is committed to serving the regional business community. Recognizing that many students are working and going to school, the WCBA is committed to maximizing accessibility to education. As a primarily undergraduate college, teaching is the first priority—followed by applied scholarship/instructional development and service.

Accreditation

The Williamson College of Business Administration is accredited by the Association of Collegiate Business Schools and Programs.

Degrees

The Williamson College of Business Administration offers courses leading to the Bachelor of Science in Business Administration degree, with a major in accounting, advertising art in conjunction with the Department of Art, advertising and public relations, fashion retailing in conjunction with the Department of Human Ecology, finance, general administration, industrial management, industrial marketing, management (human resource management, management information systems, organizational administration tracks), marketing management, public administration, retail marketing or shopping center/mall management.

The WCBA also offers an Associate in Labor Studies and Associate of Arts in Business Administration. At the graduate level, the WCBA offers the Master of Business Administration (MBA) degree.

Goals

The business curriculum is designed to provide all majors with a strong foundation in the general areas of business, as well as an opportunity for specialized study. In addition to the business core courses and the major courses, students must complete the University's general education requirements.

Students working toward the Bachelor of Science in Business Administration will develop the following competencies:

General Knowledge

 A sense of the diversity of perspectives concerning ideas, issues, and events in history as reflected in various cultures of the world. Such perspectives address contrasting economic, political, social, and technological forces; personal and social values; and art, literature, and science. 2. A basic understanding of behavioral social science, economics, mathematics, and statistics.

Intellectual Skills

- An ability to identify and solve problems using various capacities for thinking and reasoning, including sensitivity to the ethical dimensions of the problem. Such problems are typically characterized by uncertainty and the need for timely decision-making.
- An ability to obtain, organize, and use information from various sources (human, print, electronic) for decision-making.

Interpersonal Skills

5. An ability to work as both leader and follower with diverse people in a productive manner.

Communication Skills

- An ability to present and interpret information in writing with clarity and conciseness.
- An ability to effectively express views orally and to carefully listen and interpret the orally-expressed views of others.

Organizational/Business Knowledge

- 8. A knowledge of the activities of business, government, and nonprofit organizations and of the environments in which they operate.
- A knowledge of the internal dynamics of business, including interpersonal and group interaction and methods of dealing with change.
- 10. A knowledge of customer markets and the adjustment to change in those markets.
- 11. A knowledge of the functional areas of business (accounting, finance, management, and marketing) and their interrelationships.
- 12. An ability to apply academically-gained information and skills in the context of the "real world."

The emphasis in the business programs is on developing analytical, problem solving, and communication skills necessary for informed decision making within the context of an organization. The moral and ethical components of business as a profession are stressed throughout each program.

Individualized Curriculum Program

Students seeking more specialization in a learning program may investigate and apply for an Individualized Curriculum Program (ICP). This program enables interested students to design the course of study best suited to their particular background and career goals and thereby create alternative pathways to currently offered degrees.

ICP in International Business

Students interested in careers in international business may pursue the Individualized Curriculum Program in international business. This program consists of general education requirements, business core courses, and courses such as international marketing, international management, international accounting and finance, comparative management, international trade, and international finance. Students are also required to complete a functional specialization in accounting, finance, management or marketing, and a foreign language sequence.

Williamson Center for International Business

The Williamson Center for International Business is a resource for students, faculty, and the Youngstown business community. Located directly adjacent to Williamson Hall in the Phelps Building, the Center provides a focal point for activities related to global business. The Center's primary goals are to integrate global business issues into the business curriculum, to promote international business expansion by area firms through cooperative work with YSU, and to expand international exchange opportunities in business schools to more than 25 countries. The Center's director is a former CEO with extensive multinational experience.

Beyond the Classroom

An important dimension of a student's preparation is the learning that takes place beyond the classroom. In the WCBA, opportunities for leadership development, networking, and professional enhancement are extensive.

Student chapters of national professional organizations provide an excellent means for students to develop leadership skills, network with professionals in their chosen career fields, and increase their exposure to the business world. WCBA organizations are actively involved in public service such as the Voluntary Income Tax Assistance (VITA) program, national competitions, and fund raising activities.

Students are also involved in the WCBA through the Student Leadership Council which is composed of 25 WCBA students. These students, who meet monthly with the dean, serve as representatives of the WCBA student body and as ambassadors for the College.

Through the Williamson Symposium Series and the Scholars in Residence Program, students are able to interact with business people who are leaders in their fields. These programs provide a forum for the exchange of ideas and give an added dimension to the education of our students.

Rigorous academic preparation, career-related work experience, and involvement in activities beyond the classroom create a valuable combination that positions business majors for success in the business world.

Professional Practice Program

In addition to broad academic training through the WCBA degree programs, students can acquire professional experience through the Professional Practice Programs. Internships and cooperative education programs are designed to benefit both students and sponsoring organizations through internships and cooperative education positions. Participating students have the opportunity to supplement their classroom learning with actual business experience.

With hundreds of applications for every job opening, today's graduates cannot rely on their college degrees alone to acquire the positions they desire. Employers spend less than 30 seconds scanning a resume. They look for key words like "internship" and "cooperative education" in addition to the college degree when determining which students to interview for full-time positions. In fact, many employers will not hire anyone who does not have internship or co-op experience prior to graduation.

Through internships and cooperative education, students can earn academic credit toward their degrees and, in most cases, be paid for their work. Students work for public accounting firms, state and local government, public relations firms, Fortune 500 corporations, marketing agencies, brokerage firms, banks, investments groups, nonprofit agencies, and retail establishments.

To be eligible for internship positions, students must have a minimum grade point average, junior standing, and completed at least one course in their major beyond the core. Internships are typically ten weeks in length or a minimum of 200 hours. To be eligible for co-op positions, students must have completed their freshman year of study, be in good academic standing, and meet the requirements of the sponsoring organization. Cooperative education students work for an employer a minimum of two separate times before graduation. Additional information concerning programs and sponsoring organizations is available from the WCBA coordinator of Professional Practice Programs located in the Advisement Center.

Career Services

YSU maintains a Career Services office to help students plan and explore careers, aid them in resume and letter-writing and help them prepare for job interview and job placement. Job openings are posted daily for current students and alumni; these include full-and part-time, seasonal and summer employment opportunities. Several hundred corporations, business, schools, agencies and governmental units visit the Career Services office yearly to hold job interviews.

The business career advisor focuses on assisting business majors with their job search plans and has offices in Jones Hall and Williamson Hall.

Facilities

The Williamson College of Business Administration is located in Williamson Hall, a six-story classroom and office building that houses the Advisement Center, the Professional Practice office, the Business Career/Advisor's office, the Small Business Institute/Service Corp. of Retired Executives, and the student organizations' office. Also located in Williamson Hall are the college's computer facilities, which consist of 80 Pentium® computers in three labs, Internet access, and laser printers.

Requirements for Pre-Business Admission to Baccalaureate Program

New Applicants

First-quarter freshmen who are admitted to Youngstown State University will be accepted into the Williamson College of Business Administration as pre-business majors.

Transfer students both within and outside of Youngstown State University must have a minimum grade point average of 2.00 to transfer into the WCBA as a pre-business major.

Satisfactory progress toward the completion of the pre-business course requirements must be made before the completion of 50 quarter hours of course work in order to retain pre-business status in the WCBA. Students who have not made satisfactory progress within this period of time must consider transferring to another college within the University. An advisor is available for consultation regarding other majors within the University.

Upper-Division Requirements/ Declared Business Major

Upon the completion of 80 quarter hours of course work (inclusive of English 551, Mathematics 550, 645, Economics 610, 630, 632, 624, 705, Management 604, Accounting 602, 603, and CSIS 514 with grades of "C" or better), students who wish to be considered for upper-division standing in the WCBA must apply with an academic advisor in Room 408 of Williamson Hall.

Students are restricted from registering for upper-division business courses until a major has been declared.

Requirements for the Degree

ASSOCIATE IN ARTS IN BUSINESS ADMINISTRATION

The Associate in Arts degree is intended for students not seeking other associate or baccalaureate degrees. To pursue an Associate in Arts degree, consult the Advisement Center in the College of Business Administration, room 408 of Williamson Hall.

Associate in Arts Business Administration Requirements - AA Degree

Courses Cr. Hrs. ENGL 550 Basic Composition I 4 ENGL 551 Basic Composition II (Engl 550) 4 BUS 500 Dynamics of U.S. & Global Bus. 4 MATH 550 Calc/Soc Mgt (Algebra 2) 5 ECON 610 Principles I (Algebra 2) 4 ECON 630 Principles of Econ II (Econ 610) 4 CSIS 514 Business Computer Systems 4 PSYCH 560 General Psychology 4 HSC 590 Strategies Hlth/Well 3 PHIL 625 Intro to Professional Ethics 4

Humanities Electives 4

FIRST YEAR

MGT 604 Legal Environ. of Bus I4
ACCTG 602 Financial Acctg (Soph Stdg)4
ACCTG 603 Mgr. Acctg (CSIS 514 & Acctg 602) . 4
ECON 624 Econ & Social Stat I (Soph Stdg) 4
ENGL 600 Level Literature (Engl 551)4
Science Elective

WCBA Tool Courses must be completed before permits are issued for Finance 720, Management 725 or Marketing 703.

WCBA Core Courses

MGT 725 Fund of Mgt (Permit Required)	4
MKTG 703 Marketing Concepts & Practice	5

Area of Concentration (16 quarter hours)

Proper prerequisites must be completed before registering for courses in the area of concentration. For specific courses see curriculum for area of concentration.

Total Hours 101

[&]quot;WCBA upper-division core courses: each must be completed with a grade of "C" or better.

ASSOCIATE IN LABOR STUDIES

Associate Labor Studies Requirements - ALS Degree - Labor Studies

FIRST YEAR

Courses	Cr. Hrs.
ENGL 550 Basic Composition I	4
ENGL 551 Basic Composition II (Engl 550)	4
MATH 550 Calc/Soc Mgt (Algebra 2)	5
ECON 610 Principles I (Algebra 2)	4
ECON 630 Principles of Econ II (Econ 530)	4
CSIS 514 Bus Computer Systems	4
HSC 590 Strategies Hlth/Well	3
PSYCH 560 General Psychology	4
HIST 502 History of Labor Movement	
ENGL 600 Level Literature (Engl 551)	
PHIL 625	4
Science Elective	4
BUS 500 Dynamics of U.S. & Global Bus	4
SECOND YEAR	
MGT 604 Legal Environment of Bus	
ACCTG 602 Financial Acctg (Soph Stdg)	4
ACCTG 603 Manag (CSIS 514 & Acctg 602)	
ECON 624 Econ & Soc Stats I (Soph Stdg) .	4
Tool Courses and English 551 must be con	npleted

("C" or better) Core Course permits are issued.

CORE COURSES

the Courses section of this Bulletin.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

The student has the responsibility for seeing that all graduation requirements for the degree are satisfied. For the Bachelor of Science in Business Administration degree, these are:

- Pre-college or preparatory courses, taken in high school. See the Academic Policies and Procedures section.
- Courses and other requirements of the University. These are explained in the Academic Policies and Procedures section, and are listed below.

The curricula leading to a degree in Business require a minimum of 186 quarter hours.

Admission to Pre-Business does not guarantee admission to upper-division status with a major in Business.

The student whose needs are not completely met by existing programs may wish to investigate and apply for the Individualized Curriculum Program. See the Academic Policies and Procedures section. ROTC students are permitted specific modifications of the requirement as explained in the Academic Policies and Procedures section.

Pre-Business Course Requirements

FIRST YEAR

Courses	Cr.Hrs.
ENGL 550 Basic Composition I	4
ENGL 551 Basic Composition II (Engl 550)	
***BUS 500 Dynamics of U.S. & Global Bus	
***CSIS 514 Business Computer Systems	
***MATH 550 Calc/Soc Mgt (Algebra 2)	
***MATH 645 Math for Oper Rsch (Math 55	
***ECON 610 Principles I (Algebra 2)	
***ECON 630 Principles II (Econ 610)	
***ECON 632 International Econ (Econ 630)	
HSC 590 Strategies Hlth/Well	3
Science Elective	4
Humanities Elective	4
Total Hours	
SECOND YEAR	
Course	Cr. Hrs.
***MGT 604 Legal Environment of Bus I	4
W. COMO (00 T) 111 . (0 10 1)	

"*WCBA lower-division tool courses: each must be completed with a grade of "C" or better before applying for upper-division status. Tool and core courses may not be used to satisfy any other degree requirements. CR/NC options may not be used in tool and core courses.

Upper-Division Requirements/ Declared Major

THIRD YEAR

Course	Cr. Hrs.
FIN 720 Bus Finance	4
MGT 725 Fundamentals of Mgt	
MKGT 703 Mkgt Concepts & Appl	5
Major Requirements and elective	s, see major.
Non-Business electives, quarter h	
according to major.	

FOURTH YEAR

Course Cr. Hrs.

MGT 850 Strategic Mgt & Leadership4

Major Requirements and electives, see major. Non-Business electives, quarter hours vary according to major.

Courses for the major must exclude all courses used to satisfy general university, WCBA tool, and WCBA core requirements.

A grade of "C" or better must be earned in all courses taken in the major. The CR/NC option may not be used for major courses or core courses.

Other Degree Requirements

- Completion of the appropriate number of quarter hours.
- Upper-division status (completion of 80 quarter hours of credit; completion of all tool courses with a grade of "C" or better; application must be made in the advisors' office).
- Major requirements (a grade of "C" or better must be earned in all courses taken in the major).
- Course-level requirements (completion of ninety (90) quarter hours of courses must be completed at the 600 level or higher, of which seventy-two (72) quarter hours must be at the 700 level or higher).
- At least 50 percent (90 hours) of the total degree requirements must be taken in nonbusiness courses. Up to 13 hours of economics courses can be counted as nonbusiness.
- Point index requirement.
- Residence requirement.
- · Application for graduation.

Requirements for the Major

The courses required for the various majors are listed by each department. The combined majors in advertising art, advertising and public relations, and the interdisciplinary requirements for fashion retailing are described in the Department of Marketing listings. The combined majors in general administration and in public administration are described in the Department of Management listings.

Requirements for the Minor

A suggested business minor (business foundations) for nonbusiness students would include ACCTG 602 and 603, FIN 720, MGT 604 and 725, MKTG 703 and at least eight additional hours of credit from the Williamson College of Business Administration for which proper prerequisites have been met.

Courses of Instruction and Curricula

Course descriptions can be found in a separate section in the back of this *Bulletin*.

Each student is charged with the responsibility of checking the catalog for preprequisites for each course he or she wishes to take. This will ensure minimum changes of registration on the student's behalf and will alleviate many problems associated with scheduling.

The programs and courses in the Williamson College of Business Administration will vary in nature depending upon content, level of instruction, and the pedagogical approach of the professor. At all times, discussion and the exchange of ideas between student and faculty is encouraged.

DEPARTMENT OF ACCOUNTING AND FINANCE

Professors Bensinger, Chen, Ross, Savage, Shaffer, Tackett (Chair), Volpe, Zetts; Associate Professors Antenucci, Claypool, Heal, Law, McMath, Wolf, Woodlock.

ACCOUNTING

Accounting can be described as a service activity, a descriptive/analytical discipline, and an information system. As a service activity, it provides users with quantitative financial information to aid in making business-related decisions. As a descriptive, analytical discipline, it identifies those economic transactions affecting an economic entity and describes—through measurement, classification summarization, and reporting—the impact of the transactions on the entity. As an information system, accounting communicates financial information to interested parties. Accountants are involved in one or more of these areas.

Career Opportunities

The demand for accounting graduates continues to grow as corporations develop, tax laws change, and new government regulations are introduced.

All types of organizations, public and private, require accounting services in their operations. Private accounting includes such areas of specialization as financial accounting, cost accounting, systems, managerial accounting, internal auditing, tax accounting, budgeting, and financial analysis. In public accounting, the major specializations include external auditing, management advisory services, tax accounting, and planning.

Employers of accountants include banks, retail and wholesale businesses, manufacturers, labor unions, tax firms, pension funds, foundations, hospitals, universities, churches, government agencies, and consulting companies. Self-employed accountants may set up their own offices and work for private clients.

Student Organizations

The Institute of Management Accountants Student Chapter at YSU operates under the sponsorship of the Institute of Management Accountants, the world's largest association of management accountants and financial managers. The Alpha Tau Gamma Honorary Accounting Fraternity is open to accounting majors who strive to learn more about all aspects of the accounting profession. Accounting students are actively involved in public service such as the Voluntary Income Tax Assistance (VITA) program.

Requirements to sit for the Certified Public Accountants (CPA) Exam

Effective with the year 2000, Ohio residents wishing to sit for the Certified Public Accountants (CPA) exam are required to have completed 225 quarter hours (150 semester hours) of education. To assist our students in meeting that requirement and to enhance their overall education and preparation for the exam, the Master of Business Administration (MBA) degree with a specialization in accounting is strongly recommended in conjunction with the bachelor's degree. With proper planning and coordination, a student could complete both a B.S. and MBA in five years (for example, students may take MBA courses in their senior year which would be counted towards the graduate degree). Please consult the YSU Graduate School catalog and the Department of Accounting and Finance.

Curricula

For University requirements, lower-division tool requirements, and upper-division core requirements, see pre-business course requirements.

Accounting Major (186 Hours for the Degree)

Accounting 703, 704, 705, 709, 711, 801, 808, 813, and accounting electives

Finance upper-division elective

Management 714

Business upper-division electives

Accounting Minor

Suggested courses include: Accounting 602, 603, 703, 704, 705, and 711 or 813

FINANCE

Due to rapid technological change, finance is one of the most exciting areas of business as well as an

expanding career choice. A career in finance offers flexibility, security, and a wide choice of specializations. Corporations, governments, nonprofit institutions, and individuals all require the expertise that a financial professional can offer. During this era of restructuring, the unique analytical skills that a financial specialist provides can translate into job security as well as additional opportunity.

The role of finance professionals is to provide information and analyses to organizations and individuals that will result in superior decision making. A career in finance requires careful preparation, an aptitude for practical analytical skills, and the ability to recognize and communicate potential remedies and solutions to a wide variety of problems.

Career Opportunities

Areas of specialization in finance include real estate, risk management, investment analysis, insurance, financial planning and analysis, banking, credit analysis, cash management, and corporate finance. The rapid expansion of international business and investments has led to a shortage of finance professionals to work in this area both domestically and abroad. The aging of the "Baby Boom" generation together with changing pension regulations increases the demand for professionals specializing in retirement planning and investments.

Finance Major

(186 Hours for the Degree)

Finance 725, 726, 730, 835, 836, 839, 853

Additional requirements include selection of 4 courses from the following: Accounting 703, 704, 705, 711, 813, 820; Economics 701, 702, 808, 811, 812; Finance 721, 841, 850, 852, 870, 871

Business upper-division electives

Finance Minor

Suggested courses include: Finance 720, 725, 726, 730, 835 or 836 or 839

DEPARTMENT OF MANAGEMENT

Professors Arlow, Daly, Guzell, Karpak, Kasuganti (Chair), Katz, McMahon, Psenicka, Russo, Sellaro; Associate Professors Granito, Rakestraw, Vendemia.

Management is the study of the process of working with and through others to solve practical problems and reach organizational goals. Programs offered by the Department of Management are designed to develop and enhance the skills and knowledge base necessary for successful managers. Effective managers must be able to meet the challenges of rapid change, intense and global competition, and

increased sensitivity to social concerns that characterize today's business environment.

As leaders, managers are responsible for the successful performance of their unit and its function. They must have a thorough understanding of strategic planning, human resource management, product planning and design, capacity management, materials management, global operations, organizational design, and information systems. Supervisory, middle, and upper-level managers practice in a variety of profit and non-profit settings, and they must be adept in their interpersonal, informational and decisional roles.

The Department of Management offers programs leading to the Bachelor of Science in Business Administration degree in the following majors: management (organizational administration, management information systems, or human resource management tracks), operations management, general administration, and public administration. An Individualized Curriculum Program in international management is also offered.

The programs in the department are designed to prepare individuals for careers as managers/supervisors in business/industrial/transportation/public organizations. For those not majoring in one of these fields, the courses offered provide a knowledgeable background in management/supervision/administration of organizations.

The curriculum for a major in Management is 44 hours; combined major (Accounting and Finance, Management and Marketing) in General Administration is 60 hours; and the combined major (Accounting, Management, Political Science, Sociology and Anthropology) in Public Administration is 60 hours

The department also offers a two-year Labor Studies program designed to help students develop collective bargaining skills. The Associate in Arts in Business Administration provides a foundation in business.

Career Opportunities

Managers work in every field. Some opportunities that are available for managers include the following:

General Management - Executive, Chief Executive Officer (CEO), Chief Operating Officer (COO), president, city manager, health services manager, hotel general manager, strategic planner, hospital administrator, entrepreneur.

The curriculum emphasizes knowledge of all areas of business as well as good analytical, organizational, and strategic management skills.

Human Resource Management - Human resource manager, vice president of human resources, employee relations, salary and wage administrator, labor relations, organizational design and development specialist. Students will learn how to increase organizational effectiveness through the best use of personnel.

Operations Management - Operations manager, COO, vice president of operations, materials manager, quality assurance manager, production planner, facilities manager. This curriculum is designed to develop individual and team based problem solving, decision making, and quality improvement skills applied to the critical function of the creation of services and goods.

Information Systems Management - Management Information Systems (MIS) manager, vice president of information systems, systems analyst, data base administrator, network manager, programmer. Courses in this area will focus on the personal, organizational, and technical aspects of the MIS function.

International Management - Careers in any of the areas listed above, when the employing organization has significant international involvement in the form of export/import, joint ventures, foreign direct investment, and multinational/global operations.

Student Organizations

The American Society for Quality Control (ASQC) helps students enhance their professional skills and employability by connecting them with the resources they need. Sigma Pi Alpha is the YSU student affiliate of the Society for Human Resource Management (SHRM) and is open to students who have an ongoing interest in human resource management.

Curricula

All students in management must take the department core requirements and the courses listed in their respective major. For University requirements, lower- division tool requirements, and upper-division core requirements, see Pre-Business Course Requirements on page 93.

Management Department Core Requirements

Management 750, 789, 860 or 890

Management Major Organizational Administration Track

Management 735, 840, elective Accounting elective, 4 Marketing elective

Management Major Information Systems Track

Management 761, 835, 865, 875, and MIS electives

Management Major Human Resource Track

Management 804, 810, LS 710 Major Requirements 8 hours (selected from the following with consent of chair or faculty advisor: Mgt. 755, 819, LS 715, 720, 730, 740; ECON 831, 843)

Management upper-division electives Business upper-division electives

Operations Management Major

Management upper-division electives 815, 820, 851

Business upper-division electives

General Administration (Combined) Major

(186 Quarter Hours for the Degree)
Accounting/Finance Electives
Marketing Upper-Division Elective
Management upper-division elective
Business upper-division elective

Public Administration (Combined) Major

(186 Quarter Hours for the Degree)
Economics 702, 822
Political Science 604, 718, 720, 721, 722
Sociology 708
Anthropology 701
Management upper-division electives
Business upper-division electives

Management Minor

Suggested courses include: Management 725, 735, 737, 750, 789, 804, 815 or 855

DEPARTMENT OF MARKETING

Professors Burns, Deiderick (Chair), Decker, Reid, Roussos, Sekeres, Wilkinson; Associate Professors Kohut, Warren; Assistant Professor Kittle.

Marketing deals with processes that provide products and services to buyers with the goal of satisfying their needs and wants. Buyers can be consumers like you or businesses. Deciding what products to offer, to whom, at what price, and at what location are all fundamental marketing problems. Marketing majors in the Williamson College of Business Administration (WCBA) enroll in a wide variety of courses that examine these areas in great detail.

Marketing courses are designed to prepare a student for a career in areas related to the development, distribution, pricing, and promotion of goods and services whether it is in a business, nonprofit, or public organization. For those not majoring in marketing, the course offerings provide a knowledge of marketing as a management tool and functional area of the organization.

The Department of Marketing offers several majors. The broadest marketing major is marketing management which deals with general marketing techniques applicable to all types of organizations. The *retail marketing* major is concerned with retail businesses who sell directly to consumers. The nation's first shopping center/mall management major is more specifically focused on preparing students to manage groups of retail tenants. The *industrial marketing* major concentrates on business-to-business marketing programs and practices. All of the marketing majors lead to a Bachelor of Science in Business Administration degree.

Fashion retailing students complete a block of interdisciplinary courses as well as general and professional courses for their specific degrees which are offered through the departments of Marketing and Human Ecology.

Career Opportunities

Marketing courses at YSU are designed to prepare students for careers related to the development, distribution, pricing, promotion, and selling of goods and services. It is estimated that about 50 percent of all jobs in the United States now are associated with these marketing functions. Department stores and mail-order and franchise service operations seek college-trained marketing experts. The marketing divisions of industrial corporation and advertising agencies have also traditionally held career opportunities for marketing graduates. Today they are joined by banks and other financial institutions, health-related and charitable organizations, and government agencies.

Student Organizations

Alpha Mu is a national professional business society affiliated with the American Marketing Association (AMA); it is open to students enrolled in the business curriculum.

Curricula

Industrial, retail, marketing management and shopping center management majors must take the departments or requirements and the courses listed in their respective majors. Fashion retailing majors must take the interdisciplinary courses listed under the major. For University requirements, lower-division tool requirements, and upper-division core requirements, see Pre-Business Course Requirements on page 161.

Department Core Requirements (For Industrial, Retail, Marketing Management And Shopping Center/Mall Management Majors)

Marketing 625, 726, 815, 825

Fashion Retailing Major (186 Hours for the Degree)

Interdisciplinary requirements: Marketing 625, 709, 731, 755, 809, 815, 825, 848 Advertising 704, P. Rel 710 Merch 525, 705, 764, Home Economics 835 or Marketing 850, Home Economics 780

Industrial Marketing Major (186 Hours for the Degree)

Advertising 704 Marketing 715, 720, 843, Management 789 upper-division electives

Marketing Management Major (186 Hours for the Degree)

Advertising 704, Public Relations 710 Marketing 709, 715, 720, 847, P. Rel 710 and upperdivision electives

Retail Marketing Major

(186 Hours for the Degree)

Advertising 704, 705 Marketing 713, 731, 755, 709 Upper-division electives

Shopping Center/ Mall Management Major

(186 Hours for the Degree)

Marketing 709, 726, 755, 757, 850, 865, 875, upperdivision electives

Marketing Minor

Suggested courses include:

Marketing 625, 703, 709, 720, 815

ADVERTISING AND PUBLIC RELATIONS

Advertising and public relations are mainly concerned with communications by organizations to their various audiences. Organizations have public images which must be maintained and improved. Advertising and public relations practitioners create and place messages designed to inform or persuade audiences about an organization or its products and services. Many of these messages have selling as a major goal.

These messages are the ones the average person sees each day. How did you first learn about the car you drive or your favorite soft drink? It was probably through advertising messages. Similarly, public relations messages provide us with information about new developments in cancer research or charitable activities and services. Public relations activities also include planning events, writing newsletters, developing good relationships with media personnel, and providing information services to customers.

YSU's advertising and public relations major is unique because it is offered by the Department of Marketing in the Williamson College of Business Administration (WCBA). YSU's program has a distinct advantage because it is focused on integrated marketing communications similar to employer's organizations, thus enhancing the marketability of our graduates. The advertising and public relations program leads to a Bachelor of Science degree in Business Administration. Another option is our advertising art program which is a combined major with the Department of Art. These one-of-a-kind programs prepare graduates to create advertising and public relations campaigns as part of innovative business plans.

Advertising and public relations courses are designed for those students who plan careers in advertising and public relations and for those who desire to have a knowledge of advertising that would benefit them as they pursue a career in business, public, or nonprofit organizations.

A major in advertising and public relations consists of 45 quarter hours.

In conjunction with the Art Department a combined major of 69 quarter hours is offered in Advertising Art.

A minor in advertising consists of 22 quarter hours.

Student Organizations

Alpha Delta Sigma (ADS) is a national professional advertising society affiliated with the American Advertising Federation.

Curricula

For University requirements, lower-division tool requirements, and upper-division core requirements, see Pre-Business Course Requirements, page 93

Advertising and Public Relations Major

(186 Hours for the degree)

Advertising 704, 705, 706, 707, 811, 813, 823, MKTG 625, 815

Public Relations 710, 750

Business upper-division elective

Advertising Art (Combined) Major (186 Hours for the degree)

Art 501, 502, 503, 550, 650, 655, 656, 657, 728, 755, 830

Advertising 704, 705, 707, 823 MKTG 815 MKTG/ADV/PREL upper-division electives

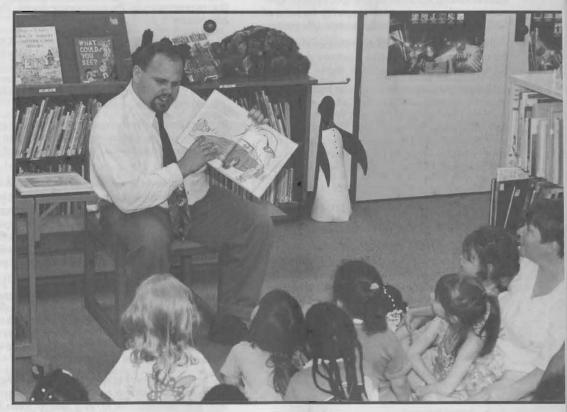
Advertising Minor

Suggested courses include:

Advertising 704, 705 and departmental electives.

The Beeghly College of Education

Clara Jennings, Dean Richard A. McEwing, Assistant to the Dean



The College of Education offers programs and activities for preparing individuals for a variety of educational positions in schools, colleges, industry, business and governmental agencies. It is organized to offer curricula and/or services for the preparation of: (1) teachers in early childhood, elementary, middle, and secondary school classrooms; (2) personnel to serve in various levels of school and administrative positions; (3) supervisory personnel for curricular development and instructional improvement; (4) teachers and other personnel in special education; (5) individuals for a wide variety of guidance and student personnel positions; (6) professional educators in colleges; community, technical, and vocational schools; and governmental agencies.

The College of Education is essentially an upperdivision school comprising three departments: Teacher Education; Educational Administration, Research, and Foundations; and Counseling. It cooperates with the College of Arts and Sciences, the College of Health and Human Services, and the College of Fine and Performing Arts in preparing teachers for both public and private schools. Youngstown State University teacher education programs are accredited by the Ohio Department of Education, the North Central Association of Colleges and Secondary Schools, and NCATE. These programs are subject to the sections of the Ohio law and regulations governing teacher education and licensure. The College of Education serves as the recommending agent for all Youngstown State University graduates who wish to qualify for state of Ohio licensure as well as for licensure in other states.

In the College of Education, professional courses are offered leading to teacher licensure and to the Bachelor of Science in Education degree.

Prospective teachers may also be licensed upon receiving degrees earned in the College of Arts and Sciences, the College of Fine and Performing Arts, and the College of Health and Human Services, providing they meet requirements for admission to upper-division status in the College of Education and complete the proper teacher education programs.

Program Conceptual Framework: Reflection in Action

The College's professional education programs at the initial and advanced levels are defined within a conceptual framework referred to as **Reflection** in Action. This is translated into six program goals to develop teachers who are

- critical thinkers
- problem solvers
- · decision makers
- · discerning counselors
- · lifelong learners
- active learners

The framework is intended to produce a parallel set of six significant outcomes, i.e., teachers who can

- · analyze educational policy
- solve pedagogical and professional problems
- make instructional and professional decisions
- · demonstrate effective interaction
- · show personal development
- establish professional development

The courses, practices, and management strategies used in educational programs must create and support a consistent image of what the philosophy of the programs means in classroom life. The College of Education uses the Reflection in Action conceptual framework to provide this consistent image. This conceptual framework functions to inform, to guide, and inspire faculty and students by

providing a central core of related ideas from which programs evolve, are explained, and are evaluated.

Requirements for the Degrees

Bachelor of Science in Education

It is the student's responsibility to fulfill graduation requirements for the appropriate degree. These consist of:

- The pre-college or preparatory courses for each degree. Typically, these are completed at the high school level. Prior to admission to upper-division, the student must remove any deficiencies by a process described in the Academic Policies and Procedures section of this catalog.
- The General Education requirements to be completed in the University are explained in the Academic Policies and Procedures section of this catalog.
- Completion of a minimum of 186 quarter hours
 of credit with a grade point average of at least
 2.50 overall and a 2.67 grade point average in
 the teaching field and professional education
 courses (each computed separately including
 transfer hours) with no less than a C grade in
 all major, licensure, and professional education
 courses.
- 4. The Bachelor of Science in Education degree is earned by all students enrolled in the College of Education. It is awarded only to students who qualify for a teaching license. Exceptions to this policy can be made only by the dean of the College of Education.

The curricula leading to the degrees are designed to be completed in four academic years. A student who is willing and able to carry heavier loads successfully or to attend four quarters annually, may finish in less than four years.

ROTC students are allowed certain modifications of the requirements, as explained in the Department of Military Science in the College of Health and Human Services section.

Majors in Teacher Education

The following designations indicate student majors and the approximate number of quarter hours required to complete the program.

- Early Childhood Education (Pre-kindergartenthrough grade three). For teaching children whoare typically developing, at-risk, gifted, and who have mild/moderate educational needs.
- Middle Childhood Education (Grades four through nine). For teaching learners in at least two of four curriculum concentration areas named on the teaching license. Students choose two areas from the following four: a) reading and language arts; b) mathematics; c) science; d) social studies.

- Secondary Education (Grades seven through twelve). For teaching learners in a curriculum area named on the teaching license. Students may choose from: a) Life Sciences Educ.; b) Earth Sciences Educ.; c) Physical Sciences Educ; d) Integrated Sciences Educ.; e) Integrated Language Arts Educ.; f) Integrated Mathematics Educ.; g) Integrated Social Studies Educ.
- Vocational Education (grades four and beyond). For teaching in a subject area named on the teaching license. Students may choose from:

 a) Integrated Business Educ.;
 b) Family and Consumer Sciences Educ.
- Multi-age Education (Pre-kindergarten through grade twelve). For teaching in a curriculum area named on the teaching license. Students may choose from: a) Art Educ.; b) Drama/Theater Educ.; c) French Educ.; d) German Educ.; e) Italian Educ.; f) Russian Educ.; g) Spanish Educ.; h) Latin Educ.; i) Health Educ.; j) Physical Educ.; k) Music Educ.
- Special Education (Intervention specialist, kindergarten through grade twelve). For teaching learners named on the teaching license. Students may choose from: a) Mild/Moderate Disabilities; b) Moderate/Intensive Disabilities.

Requirements for Admission to Upper-Division Status

Neither admission to the University nor enrollment in the College of Education guarantees admission to upper-division status in the College of Education or candidacy for a teaching license. The student must apply for admission to upper-division status in the College of Education upon the accumulation of 90 quarter hours of lower-division credit. This application is submitted through the Office of the Assistant Dean, College of Education. A student applying for upper division must complete an application and meet with an academic advisor in the College of Education. Applications are available in the assistant dean's office. Upperdivision status admission grants permission to enroll in the upper-division education courses through a class permit system.

Students who wish to qualify for a Bachelor of Science in Education degree must enroll in the College of Education. Admission to upper-division status in the College of Education is obtained upon satisfactory completion of the following requirements:*

- 1. 90 quarter hours of credit.
- Grade of "C" or better in FOUND 501 and COMM 654.
- 3. A 2.50 cumulative grade point average.
- Completion of ENGL 550 and 551 with at least a "B" average; or ENGL 601 with a "C" or better.
- Completion of FOUND 710 with a grade of "C" or better.

- Completion of the NTE General Knowledge section.
- Completion of the career goal statement and the Ohio "good moral character" statement.
- 8. Completion of all high school deficiencies.
- Approval by the Professional Education Committee of the College of Education.

*These requirements are under revision. See College of Education advisement office for current requirements.

Competence in written and spoken English is required for each candidate in order to qualify for upper-division status in the College of Education.

All B.S. in Ed. candidates are enrolled in the College of Education, regardless of major. Candidates for B.A. or B.S. degrees are enrolled in the College of Arts and Sciences, but must also be admitted to upper-division status in the College of Education. B. Mus., B.S. in B.A., or B.F.A. degree candidates are enrolled in the college awarding the particular degree, but they must be approved for upper-division status in the College of Education in order to earn a teaching certificate.

Requirements for admission to upper-division status in the College of Education should usually be met by the end of the sophomore year. Later qualification does not justify waiving any course prerequisites or planned sequences, and usually results in prolonging the period of study beyond the usual four years.

An undergraduate transfer student may be admitted to upper-division status in the College of Education if in good standing in an NCATE approved teacher education program at the previous school.

Requirements for Student Teaching

Application for a student teaching assignment must be filed with the Student Field Experiences Office during fall quarter of the year preceding the academic year in which student teaching is to be completed. The student must register for the proper number of hours for the respective student teaching course(s) during the open registration period preceding the student teaching term. Students anticipating more than one teaching license should seek advisement in the College of Education. To qualify for a student teaching assignment, the student must have: 1) senior status; 2) an overall G.P.A. of at least 2.50; 3) completed prescribed prerequisites for student teaching and 4) an average of 2.67 in the major/teaching area and professional education courses (each computed separately with no grade less than a C) with the course sequence substantially completed. No other coursework may be taken concurrently with student teaching. Student teaching is a full-time eleven-week course which may deviate somewhat from the University calendar depending on the calendar of the assigned school.

Requirements for Licensure

Initial Licensure. The dean of the College of Education has the authority to recommend to the Ohio State Board of Education, and other licensure agencies, those Youngstown State University graduates who qualify for licensure in any teacher education program offered by the University. Students earning degrees in schools other than the College of Education must complete all requirements of the teacher education program in order to be licensed. All candidates for any teaching license must meet the requirements for admission to upper-division status in the College of Education, but the degree earned may be conferred by any of the University colleges in accordance with the specific requirements for the degree desired. However an overall undergraduate grade point average of 2.50 and 2.67 in the major field(s) and professional-education courses must have been earned if the student is to be recommended for licensure by Youngstown State University, irrespective of the type of degree received. In addition, each candidate for licensure must pass the State of Ohio prescribed licensing examination(s) prior to receiving YSU's recommendation for licensure.

For more information regarding additional fields, validations or endorsements, consult the academic advisors in the College of Education.

Post-Baccalaureate Alternative Licensure. Post-baccalaureate students desiring Youngstown State University's recommendation for licensure in Ohio and any other state must be admitted to the University and advised in the same manner as undergraduate students. They must meet the standard set of requirements for admission and upper-division status in the College of Education. In addition, they must satisfy the general education, teaching field, and professional education requirements comparable to the undergraduate program. Post-baccalaureate students may use approved, documented program equivalency to satisfy appropriate parts of the licensure program.

Post-baccalaureate students seeking initial high school licensure not desiring Youngstown State University's recommendation and who are part of a State-approved Internship Certificate Program of an Ohio public board of education may take courses from the College of Education to satisfy the requirements. The College of Education and the intern's school district will determine the specific courses. Twenty-seven quarter hours of course work will be required, none of which can be met by program equivalency or previous class work. The internship begins with 9 quarter hours in the summer, followed by one to two internship years during which the remaining courses are taken. Successful internship completion leads to recommendation for high school certification by the school system's superintendent and is good in Ohio only.

Licensure in a Second Teaching Field. Post-baccalaureate and undergraduate students seeking licensure in a second teaching field will need to satisfy the approved academic program as stated in the catalog under the section "Teaching Fields." The same quality point requirements apply to second teaching fields as those for initial licensure. A passing score on the specialty exam of the State of Ohio for the second teaching field is required prior to YSU's recommendation for the second teaching field.

Advisement

All prospective teachers are advised by the academic advisors in the College of Education. Secondary students are also advised in the department in which their major is located. Students seeking advice in the College of Education should make appointments in advance with the academic advisors in the Office of the Assistant Dean.

Curricula and Courses of Instruction

Each curriculum leads to an Ohio provisional license. Minimum requirements for teachers' certificates are determined by the Ohio Department of Education; if those requirements change, they become effective immediately at Youngstown State University. State department minimal requirements may be, and usually are, exceeded by University requirements.

Courses will be found in the back of this *Bulletin* in alphabetical order by course prefix.

DEPARTMENT OF TEACHER EDUCATION

Professors Angle, Beary, Douglass, Funk, Glasser, Hoover, Kim, Longmuir, McCracken, Phillips, Pullman, Ruggles, Salvner, Tribble; Associate Professors Bailey, Feist-Willis, Ginnetti (Chair), NcNierney, Schaiper, Shillington, Sweeney; Assistant Professors Ausmann, Byrd, DaRos, DiPillo, Dove, Hauschildt, Johnston, Kate, Matanin; Instructor Kunar.

ELEMENTARY EDUCATION

IMPORTANT NOTICE: All teacher education program, course, and credit information provided below is pending completion of all formal review processes at Youngstown State University and the Ohio Department of Education. Contact the College Education academic advisors to be advised of any changes in information provided here regarding these teacher licensure programs in early childhood education, middle childhood education, secondary education, and special education.

In cooperation with the Department of Human Ecology, the Department of Teacher Education offers a four-year early childhood education program approved by the Ohio Department of Education. Advisement is provided by the faculty in Child and Family and Early Childhood Education, as well as the academic advisors in the College of Education. Majors in this program must complete general education requirements, professional education requirements, reading course requirements, and curriculum content requirements totalling 190 q.h.

Prior to student teaching, all early childhood majors must complete a Teacher Education Center (TEC) experience. A TEC, conducted in local schools, is defined as University faculty presenting theory and supervising the students' teaching of lessons. This program requires students to spend the entire day at a school site for ten weeks. Because TEC is a full-time commitment, students are advised not to plan any outside work during that period, nor will they be permitted to take any concurrent course work. TEC is scheduled during the fall, winter, and spring quarters. Applications for TEC are due two quarters prior to participation and may be obtained from the Department of Teacher Education. Contact the College of Education academic advisors to determine the current courses included in TEC and the minimum prerequisites.

General Education Requirements in Early Childhood Education (67 q.h.)

The specific course work required in general education for early childhood education majors is as follows:

Basic Requirements (18 q.h.)

	Area Requirements (49 q.h.)	
	Four of the following seven social studies area area (16 q.h.):	ľ
	PSYCH 560 General Psychology	
	Psychology 1 - Child 4 q.h.	
	ECON 510 - Economics in Action 4 q.h	
	GEOG 640 Human Geography 4 q.h HIST 605 or 606 History of the	
	United States 4 q.h	
	SOCIO 500 Fundamentals of Sociology 4 q.h.	
	SCWK 726 The African American Family 4 q.h	
B.	Math 535 Mathematics for Elementary	
	Teachers 1 5 q.h.	
	MATH 523 Survey of Math 4 q.h.	
	Three of the following six science area courses q.h.:	
	ASTRO 504 Descriptive Astronomy 4 q.h BIOL 505 Biology and the	

Modern World 4 q.h.

CHEM 500 Chemistry and
Modern Living
Geography 4 g.h.
GEOL 505 Physical Geology 4 q.h. PHYS 500 Physics and Man 4 q.h.
D. All of the following humanities courses 12 q.h.: MUSED 621 Music Literature and
Appreciation
Teachers 4 q.h. Elective in English Literature 4 q.h.
Professional Education Requirements in Early Childhood Education (50 q.h.)
The specific course work required in professional
education is as follows:
FOUND 501 Introduction to Education . 4 q.h. FOUND 708 Education and Society 4 q.h. PSYCH 755 Development
Psychology 1 – Child
EDTEC 771 Technologies for Teaching 4 q.h. SPED 802 Education of Children and
Youth with Exceptionalities 4 q.h. CHFAM 664 Managing Classroom
Behaviors and Staff Relationships 4 q.h.
SPED 731 Early Intervention Strategies
with Special Needs Children
Through Third Grade4 q.h. CHFAM/EMCE 790 Practice in Early
Childhood Education 4 q.h.
CHFAM/EMCE 790A Applied Instructional
Technology
Early Childhood Education 10 q.h.
CHFAM/EMCE 870A Student Teaching Seminar
Reading Course Requirements in Early Childhood Education (17 q.h.)
The specific course work required in reading is as follows:
EMCE 810 Phonics in Reading
Instruction 5 q.h. EMCE 812 Developmental Reading Instruction
and Literature Strategies, P-9
EMCE 881 Assessment and Instruction in Reading, P-9
Curriculum Content Requirements in Early Childhood Education (56 q.h.)
The specific course work required in curriculum
content is as follows: ART 761 Art Experiences in Early Childhood
Settings
CHFAM 531 Infant/Toddler Development
and Education 4 q.h.

CHFAM 532 The Early Childhood Years . 4 q.h.
CHFAM 750 Parent and Professional
Relationships 4 q.h.
CHFAM 860 Coordination and Evaluation
of Early Childhood Programs4 q.h
CHFAM/EMCE 859 Methods and Materials
in Early Childhood Settings 4 q.h
CHFAM 760 Language
and Literacy Experiences 4 q.h
EMCE 630 Early Childhood Curriculum and
Teaching Strategies 4 q.h
EMCE 734 Math, Science, and Technology in
Early Childhood Classrooms 4 q.h
EMCE 780 Social Studies for Young
Children 4 q.h.
HPES 623 Physical Education for Children
in Early Childhood Settings 4 q.h
CHFAM 770 Wellness in Early Childhood 4 q.h.
MUSED 722 Music in Early Childhood
Settings 4 q.h
SPED 831 Assessment and Referral in
Early Childhood4 q.h

MIDDLE CHILDHOOD EDUCATION

In cooperation with various academic discipline departments in the University, the Department of Teacher Education offers programs leading to licensure in middle childhood education programs approved by the Ohio Department of Education. Advisement is provided by the academic advisors in the College of Education. Majors in this program must complete general education requirements, professional education requirements, reading requirements, and two of four curriculum concentration areas named on the teaching license: a) reading and language arts; b) mathematics; c) science; d) social studies. While total credit hour requirements depend on student's choice of concentration areas, the middle school program requires approximately 208 q.h.

Prior to student teaching, all middle childhood majors must complete a Teacher Education Center (TEC) experience. A TEC, conducted in local schools, is defined as University faculty presenting theory and supervising the students' teaching of lessons. This program requires students to spend the entire day at a school site for ten weeks. Because TEC is a full-time commitment, students are advised not to plan any outside work during that period, nor will they be permitted to take any concurrent course work. TEC is scheduled during the fall, winter, and spring quarters. Applications for TEC are due two quarters prior to participation and may be obtained from the Department of Teacher Education. Contact the College of Education academic advisors to determine the current courses included in TEC and the minimum prerequisites.

General Education Requirements in Middle Childhood Education (67 q.h.)

The specific course work required in general education is as follows:

cation is as follows:
Pasia Paguiraments (18 a h)
Basic Requirements (18 q.h.) ENGL 550 and 551
Composition 1 and 2 4 + 4 q.h.
COMM 654 Speech Communication
in the Classroom
HSC 590 Strategies for Health
and Wellness 3 q.h.
HPES Activities
THES ACTIVITIES
Area Requirements (49 q.h.)
A Social Studies (16 a h.)
PSYCH 560 General Psychology 4 g.h.
PSYCH 755 Development Psychology 1 – Child
Psychology 1 - Child
GEOG 640 Human Geography 4 q.h.
HIST 605 History of the
United States 4 q.h.
B. Math 535, 536 Mathematics for Elementary Teach-
ers 1, 2 (9 q.h.)
C. Three of the following six science area courses
(12 q.h.):
ASTRO 504 Descriptive Astronomy 4 q.h.
BIOL 505 Biology and the
Modern World
CHEM 500 Chemistry and
Modern Living
Geography 4 q.h. GEOL 505 Physical Geology 4 q.h.
PHYS 500 Physics and Man4 q.h.
D. All of the following humanities courses (12 q.h.):
MUSED 621 Music Literature
and Appreciation
ART 662 Art Appreciation for Classroom
Teachers
Elective in English Literature 4 q.n.
Professional Education Requirements in Middle
Childhood Education (64-68 q.h.)
The specific course work required in professional
education is as follows:
FOUND 501 Introduction to Education 4 q.h.
FOUND 708 Education and Society 4 q.h.
PSYCH 755 Developmental
Psychology 1, Child 4 q.h. EDTEC 771 Technologies for Teaching 4 q.h.
EDTEC 899 Integration of Instructional
Computing
SPED 802 Education of Children and
Youth with Exceptionalities 4 q.h.
SPED 835 Behavior Management 4 q.h.
EMCE 707 Methods of Teaching Early
EMCE 707 Methods of Teaching Early Adolescents
EMCE 707 Methods of Teaching Early Adolescents

Adolescents & Implications for C&I 6 q.h.

EMCE 712 The Middle School Learning
Community4 q.h.
EMCE 840 Supervised Student Teaching -
Middle School
EMCE 840A Student Teaching Seminar-
Learning Environment 2 q.h.
And, depending on the student's teaching con-
centrations, two or more of the following:
EMCE 709 Thematic Instruction and Assessment
Methods in Social Studies 4 q.h
EMCE 713 Teaching Mathematics in the
Middle School 6 q.h.
EMCE 715 Teaching of Science in the
Middle School 4 q.h.
EMCE 813 Teaching Language Arts in the
Middle School 6 q.h.
Reading Course Requirements in Middle
Childhood Education (17 a.h.)

The specific course work required in reading is

12	S IOHOWS:		
	EMCE 810 Phonics in Reading		
	Instruction	5	q.h
	EMCE 812 Developmental Reading Instru	ct	ion
	and Literature Strategies, P-9	4	q.h
	EMCE 880 Reading Applications in		4
	Content Areas, P-12	. 4	q.h.
	EMCE 881 Assessment and Instruction		1
	in Reading, P-9	4	q.h.

Curriculum Concentration Requirements in Middle Childhood Education (72-100 q.h.)

(Note that the sciences and social studies concentrations include courses which completely fulfill the general education requirements in those areas; reading/language arts includes a literature requirement which fulfills a general education humanities requirement.) The specific course work required in the curriculum content areas is as follows:

- A) Reading and language arts, 36 q.h. required All of the following - ENGL 651, 690, 707, 709, COMM 656, JOUR/ENGL 602, EMCE 881A. One of the following - ENGL 610, 617, 620, 631, 632, 638, 738. One of the following - ENGL 770, 780, 862, 864, 871. One of the following -ENGL 622, 740, 741.
- B) Mathematics, 36 q.h. required All of the following: MATH 547, 548, 549, 647, 648, 747, 748, 847, EMCE 710.
- C) Science, 48 q.h. required All of the following: ASTRO 504, BIOL 505, CHEM 500, GEOG 503, GEOL 505, PHYS 500 and twenty-four (24) q.h. of courses currently being developed specifically for middle school teachers: Biology and Biology Laboratory; Environmental Science and Environmental Science Laboratory; Earth/Space Science and Earth/Space Science Laboratory; EMCE 711-Science/Technology/Society and Science/Technology/Society Internship.

D) Social studies, 52 q.h. required. These hours include the 16 q.h. from gen ed. - PSYCH 560, 755, HIST 511, 512, 605, 748, A&S 805. Twentyfour (24) q.h. electives in each of the following discipline areas; each discipline area must be selected once; two discipline areas must be selected twice: Geography (GEOG 640 and one course from 626, 650, 715, 717, 719, 721, 722, 726, 741, 745, 813, 850); Political Science (POLIT 604 and one course from 605,640, 660, 700, 704, 706, 722.) Economics (ECON 510 and 720 or 610 and 630). Sociology / Anthropology (SOCIO 600 and ANTHRO 602).

SECONDARY, MULTI-AGE, AND VOCATIONAL EDUCATION

In cooperation with various academic discipline departments in the University, the Department of Teacher Education offers programs leading to licensure in many adolescent, multi-age, and vocational teaching fields approved by the Ohio Department of Education. Advisement in these areas is provided by faculty in the academic disciplines of the teaching fields, the professional secondary education faculty in the Department of Teacher Education, and the academic advisors in the College of Education. The College of Education assumes full responsibility for approval of matters dealing with licensure requirements (regardless of teaching field or degree involved) and for graduation requirements for the Bachelor of Science in Education degree.

Majors in these programs must complete general education requirements, professional education requirements, and teaching field requirements. The total credit hours required depend on choice of teaching field(s); students in programs with less than 186 q.h. must add electives to reach 186 q.h. for the B.S. in Ed. degree. Majors range from 170 to 220 q.h.

General education requirements (64 q.h.)

The specific course work required in general education is as follows:

Basic Requirements (18 q.h.) ENGL 550 and 551 Composition
1 and 2
in the Classroom
and Wellness
Area Requirements (46 q.h.) PSYCH 560 General Psychology
Mau 222 4 q.1.

or a higher math course

Science Electives 8 q	h.
from Astronomy, Biology, Chemistry,	
Geology, Physical Geography, Physics	
Humanities Electives 8 q	.h.
from Fine Arts, Religion, Philosophy,	
Literature	
Electives 10 q.	h.
which may be taken from social studies, ma	th,
science and/or humanities as defined abov	e.

Students are encouraged to check with their advisors, because a) in some licensure areas, teaching field requirements may be used to meet some general education requirements, and 2) some licensure areas recommended alternatives within these general education requirements that are particularly relevant to the teaching field.

Professional Education Requirements (50 q.h.)

The specific course work required in professional education is as follows:

ducation is as follows:
FOUND 501 Introduction to Education 4 q.h.
FOUND 708 Education and Society 4 q.h.
†PSYCH 709 Psychology of Education 4 q.h.
EDTEC 771 Technologies for Teaching 4 q.h.
SPED 730 Exceptional Learners in the
Regular Classroom
SEDUC 704 Classroom Management
and Discipline4 q.h.
SEDUC 706 Principles of Teaching
Adolescents
EMCE 880 Reading Applications in Content
Areas, P-12
*SEDUC 800 Reflective Teaching Methods
for Adolescent Learning 4 q.h.
*SEDUC 842 Student Teaching 10 q.h.
SEDUC 842A Student Teaching Seminar 2 q.h.

Note 1: Several professional education courses have field components which require the student to spend various amounts of time in local elementary, middle, and secondary schools, as well as in meetings on campus. FOUND 501, 708, SEDUC 704, 706, and student teaching with the student teaching seminar have such requirements. Check with individual course descriptions regarding important sequence and prerequisite information.

*Courses above listed with a † may have alternative or specialized courses approved by the Department of Teacher Education for particular teaching fields. See the curriculum advisement sheets in the College of Education academic advising office and in the offices of the academic discipline and/or professional education faculty advisors.

Adolescent, Multi-age, and Vocational Teaching Fields in Secondary Education

These teaching fields are built around a secondary education major. All prospective students majoring in these teaching areas are advised to read carefully the sections relative to requirements for admission to upper-division status, for student teaching, and for licensure which appear at the beginning of this College of Education section. In addition to the subject area teaching field requirements listed here, all majors must complete the secondary education professional-education course sequence as specified by the Department of Teacher Education.

YSU recommends that students complete courses of study which lead to qualification in more than one teaching field and/or train the student in teaching fields projected to be available in the job market at the time of licensure. Students should see the coordinator in Career Services for current job market information which may enhance ultimate "salability."

The State of Ohio adopted new teacher licensure standards effective September 1, 1998 and YSU's programs below reflect these changes. Students who began work in a secondary teaching field prior to September 1, 1998, and can complete that program by August 2002, may seek to qualify under the certification standards that are being phased out. See an academic advisor in the College of Education to make this determination.

A. Grades 7-12 Subject Teaching Fields

Earth Sciences (Major for Secondary Teaching, Grades 7-12) 84 q.h. required. GEOL 505, 513, 514, 602, 608, 615, 815, GEOG 630, 737, ASTRO 504, 608. Eight (8) q.h. of Earth Science electives selected from ENST 600, GEOG 730, 735, or any upper-division geology courses. One of following statistics courses: FOUND 872, PSYCH 613. One of the following mathematics courses: MATH 525, 550, or 571. Twenty-four (24) q.h. from the following three areas with at least 1 course in each area: Biology, Chemistry, Physics. Note: YSU has a dual science option which may combine licensure in Earth Sciences with licensure in Life Science, Chemistry, or Physics; see an academic advisor for details.

Integrated Mathematics (Major for Secondary Teaching, Grades 7-12) 63 q.h. required. MATH 571, 572, 673, 674, 683, 721, 722, 725, 743, 750, 751, 752, 838, 896, CSIS 590, 610. Either MATH 730 or 830.

Integrated Language Arts (Major for Secondary Teaching, Grades 7-12) 68 q.h. required. All the following: COMM 653, 656, 670, 750, ENGL 690, 709, 741, 755, 890, JOUR 622. One (1) of the following: ENGL 617, 620, 632, 871. One (1) of the following: ENGL 651, 750, 757, 850, 851, 858. One (1) of the following: ENGL 610, 631, 638, 738. Two (2) of the following: ENGL 770, 780, 862, 864, 871. Three (3) of the following: ENGL 860, 881, 882, 883, 884, 886, 887, 891, 892, 895, 896. One (1) of the following: JOUR 820, 824. One (1) of the following: ENGL 665, 765, 743, TCOM 581, THTR 590, JOUR 723.

Integrated Sciences (Major for Secondary Teaching, Grades 7-12) 110 q.h. required. First, chose one of the following course sequences as a primary science concentration:

- Biology: BIOL 509, 510, 611, 612. Select twenty (20) q.h. from BIOL 701,702, 721, 762, 770, 780, 790, 790L, 792.
- Chemistry: CHEM 515, 516, 603, 719, 720, 801, and seven (7) q.h. of chemistry electives selected from CHEM 604, 721, 785, 785L, 786, 786L, or any 800-level chemistry course, OR
- Physics: PHYS 510, 510L, 608, 610, 610L, 611, 611L, and seventeen (17) q.h. physics electives selected from PHYS 701, 702, 704, 705, 705L, 710, 710L, 722, 805, 890, OR
- Earth/Space Science: GEOL 505, 514, 602, 608, GEOG 630, ASTRO 504, 608. Select one from GEOL 513, 615, GEOG 600, 603. Select one from GEOG 730, 735, 737.

then, take the remaining three science fields of the following course sequences as secondary concentrations:

- Biology: BIOL 509, 510, 611, 612. Select six (6)
 q.h. from BIOL 701,702, 721, 762, 770, 780, 790, 790L, 792.
- Chemistry: CHEM 517, 516, 517, 719, 720 and two (2) q.h. of chemistry electives selected from CHEM 603, 721, 785, 801.
- c. Physics: PHYS 510, 510L, 608, 610, 610L, 611, 611L, and three (3) q.h. physics electives selected from PHYS 701, 702, 704, 705, 705L, 710, 710L, 722, 805, 890.
- d. Earth/Space Science: GEOL 505, 602, 608, GEOG 630, ASTRO 504. Select one from ENST 600, GEOL 615, GEOG 603. Select one from GEOG 730, 735, 737.

And one of following statistics courses: FOUND 872, PSYCH 613. One of the following mathematics courses: MATH 571, 572 and 673.

Integrated Social Studies (Major for Secondary Teaching, Grades 7-12) 100 q.h. required (these hours include 26 q.h. taken to fulfill area requirements in general education). PSYCH 560, 709. HIST 511, 512, 513, 605, 606, 748, and eight (8) q.h. in history electives. ECON 510 or 610. GEOG 640. POLIT 604. SOCIO 600 or ANTHRO 602. A&S 805 - Integrated Social Studies. Sixteen (16) q.h. electives in each of two of the following disciplines: Political Science, Economics, Sociology/Anthropology, Geography. Four (4) q.h. electives in each of the two remaining disciplines: Political Science, Economics, Sociology/Anthropology, Geography. See College of Education advisement sheets for list of approved electives in these disciplines.

Life Sciences (Major for Secondary Teaching, Grades 7-12) 84 q.h. required. BIOL 509, 510, 611, 612, 701,702, 721, 762, 770, 780, 790, 790L, 792. One of following statistics courses: FOUND 872, BIOL 853. One of the following mathematics courses: MATH 525, 550, or 571. Twenty-four (24) q.h. from the following three areas with at least 1 course in each area: Chemistry, Earth/Space Sciences, Phys-

ics. Note: YSU has a dual science option which may combine licensure in Life Sciences with licensure in Earth Science, Chemistry, or Physics; see an academic advisor for details.

Physical Sciences (Major for Secondary Teaching, Grades 7-12) 110 q.h. required. CHEM 515, 516, 517, 603, 719, 720, 801, and seven (7) q.h. of chemistry electives selected from CHEM 604, 721, 785, 785L, 786, 786L, or any 800-level chemistry course. PHYS 510, 510L, 608, 610, 610L, 611, 611L, and seventeen (17) q.h. physics electives selected from PHYS 701, 702, 704, 705, 705L, 710, 710L, 722, 805, 890. BIOL 509, 510, 611, 612. GEOL 505, 602, GEOG 630, ASTRO 504. One of following statistics courses: FOUND 872, PSYCH 613. One of the following mathematics courses: MATH 571, 572, 673 and 674.

B. PreK-12th Grade Teaching Fields

Drama/Theater (Major for Teaching Grades P-12) 68 q.h. required. All of the following: THTR 561, 661, 668, 761, 762, 765, 868, 869, 895. ENGL 708. Three (3) of the following: THTR 860, 861, 891, 892. One of the following two blocks: I) Acting/Directing - THTR 791, 863, 864, 865, 866; or II) Design/Technical - THTR 763, 769, 792, 866, 867. Ten (10) q.h. of electives in Theater.

French (Major for Teaching Grades P-12) 70 q.h. required. All of the following: FRNCH 501, 502, 503, 601, 602, 615, 655, 675, 705, 706, 710, 750, 755, 771, 772, 874. ENGL/FLNG 850, 851. EMCE 812, 824. Two (2) of the following: FRNCH 820, 830, 845, 873, 885. Notes: Students majoring in teaching in two language fields qualify for a 22 q.h. reduction in the quarter hours listed; see the chairperson of the Department of Foreign Languages or an academic advisor in the College of Education for dual program requirements. If a student has had previous French preparation in high school, he/she may elect to receive the credits for FRNCH 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for FRNCH 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

German (Major for Teaching Grades P-12) 70 q.h. required. All of the following: GERMN 501, 502, 503, 601, 602, 615, 618, 620, 625, 680, 730, 750, 751, 755. ENGL/FLNG 850, 851. EMCE 812, 824. Three (3) of the following: GERMN 860, 861, 874, 885. Notes: Students majoring in teaching in two language fields qualify for a 22 q.h. reduction in the quarter hours listed; see the chairperson of the Department of Foreign Languages or an academic advisor in the College of Education for dual program requirements. If a student has had previous German preparation in high school, he/she may elect to receive the credits for GERMN 501, 502, 503 by

examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for GERMN 601 and 602 by examination. Successful completion of appropriate competency tests will be required before students complete a subsequent course.

Health (Major for Teaching Grades P-12) 60 q.h. required. All of the following: HSC 590, 596, 601, 604, 608, 680, 692, 721, 731, 755, 756, 791, 794, 827, 892, 899. FNTR 551. CHEM 505. ALHTH 804.

Italian (Major for Teaching Grades P-12) 70 q.h. required. All of the following: ITALN 501, 502, 503, 601, 602, 640, 708, 709, 720, 721, 730, 731, 801, 802, 830, 840. ITALN 885 (Special Topics) is taken twice, content different. ENGL/FLNG 850, 851. EMCE 812, 824. Notes: Students majoring in teaching in two language fields qualify for a 22 q.h. reduction in the quarter hours listed; see the chairperson of the Department of Foreign Languages or an academic advisor in the College of Education for dual program requirements. If a student has had previous Italian preparation in high school, he/she may elect to receive the credits for ITALN 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for ITALN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

Latin (Major for Teaching Grades P-12) 70 q.h. required. All of the following: LATIN 501, 502, 503, 601, 602, 660, 707, 708, 709, 717, 718, 719, 727, 729, 804, 829. LATIN 885 (Special Topics) is taken twice, content different. ENGL/FLNG 850, 851. EMCE 812, 824. Notes: Students majoring in teaching in two language fields qualify for a 22 q.h. reduction in the quarter hours listed; see the chairperson of the Department of Foreign Languages or an academic advisor in the College of Education for dual program requirements. If a student has had previous Latin preparation in high school, he/she may elect to receive the credits for LATIN 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for LATIN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

Music (Major for Teaching Grades P-12) 98 q.h. required. All of the following: MUSIC 511, 611, 823, 824, 825, MUSHL 518, 519, 770, 771, 772, MUSTC 530, 531, 532, 630, 631, 632, 750, MUSCO 716, 717. Fifty-three (53) q.h. in one of the following four ar-

eas of emphasis: Voice Emphasis; Instrumental Emphasis; Keyboard Emphasis, Piano; Keyboard Emphasis, Organ. See the chairperson of the Department of Music or an academic advisor in the College of Education for a list of these emphasis area requirements.

Physical Education (Major for Teaching Grades P-12) 65 q.h. required. All of the following: HPES 506, 567, 568, 574, 575, 577, 589, 595, 610, 628, 661, 671, 680, 750, 765, 767, 780, 795, 851, 852, 855, 860, 876, 878, 895, 896. HSC 601. One (1) q.h. of elective activity.

Russian (Major for Teaching Grades P-12) 70 q.h. required. All of the following: RUSSN 501, 502, 503, 601, 602, 604, 615, 620, 660, 700, 715, 716, 765, 770, 800, 808, 809, 885. ENGL/FLNG 850, 851. EMCE 812, 824. Notes: Students majoring in teaching in two language fields qualify for a 22 q.h. reduction in the quarter hours listed; see the chairperson of the Department of Foreign Languages or an academic advisor in the College of Education for dual program requirements. If a student has had previous Russian preparation in high school, he/she may elect to receive the credits for RUSSN 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for RUSSN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

Spanish (Major for Teaching Grades P-12) 70 q.h. required. All of the following: SPAN 501, 502, 503, 601, 602, 615, 655, 724, 735, 736, 737, 755. ENGL/ FLNG 850, 851. EMCE 812, 824. Two (2) of the following: SPAN 752, 753, 754. Two of the following: SPAN 756, 757, 758. Two (2) of the following, one of which must be an 800-level course: SPAN 640, 645, 855, 870, 885, 890. Notes: Students majoring in teaching in two language fields qualify for a 22 q.h. reduction in the quarter hours listed; see the chairperson of the Department of Foreign Languages or an academic advisor in the College of Education for dual program requirements. If a student has had previous Spanish preparation in high school, he/she may elect to receive the credits for SPAN 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for SPAN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

Visual Art (Major for Teaching Grades P-12) 77 q.h. required. All of the following: ART 500, 501, 502, 503, 504, 550, 601, 602, 604, 606, 655, 662, 725, 730, 762, 763, 770, 780. One of the following: ART

611, 612. One of the following: ART 808, 809. One of the following: ART 723, 882. Eight (8) q.h. of art history electives.

C. Vocational Teaching Fields

Integrated Business (Major for Teaching Grades 4 and beyond) 71 q.h. required. All of the following: OIS 575, 663, 675, 704, 714, 720, 750, 775, ACCTG 602, 603, 703, CSIS 580, 590, CIS 621, VF&CSE 780, MGT 511, 604, MKTG 703. For vocational licensure, you must have two years of relevant work experience or equivalent (see your advisor for options). In order to be approved for student teaching, business education majors must pass (with at least 80%) all departmental subject-matter proficiency examinations.

Family and Consumer Sciences (Major for Teaching Grades 4 and beyond) 72 q.h. required. All of the following: FNUTR 551, 606, 606L, MERCH 705, 730, 764, CHFAM 532, 731, 750, HMEC 550, 771, 780, 799, 800, 850, 852, 893, BIOL 604, HSC 692. Four (4) q.h. in a FNUTR elective.

SPECIAL EDUCATION

The Department of Teacher Education offers undergraduate programs leading to licensure in Intervention specialist, kindergarten through grade twelve, in two areas as approved by the Ohio Department of Education. Students may choose from: a) Mild/Moderate Disabilities; b) Moderate/Intensive Disabilities. A Mild/Moderate Intervention Specialist serves grades K-12 relative to educational needs of students with learning disabilities and developmental handicaps. A Moderate/Intensive Intervention Specialist serves grades K-12 relative to educational needs of students with multiple handicaps and severe behavior handicaps. Advisement in these areas is provided by the special education faculty in the Department of Teacher Education and the academic advisors in the College of Education.

Majors in this program must complete general education requirements, professional education requirements, reading course requirements, and curriculum content requirements. The Mild/Moderate Disabilities program requires 190 q.h.; the Moderate/Intensive Disabilities program requires 196.

General education requirements in Special Education (74 q.h.)

The specific course work required in general education for both Mild/Moderate and Moderate/Intensive is as follows:

Basic Requirements (18 q.h.)
ENGL 550 and 551 Composition 1 and 2
(4 + 4 q.h.)
COMM 654 Speech Communication in the
Classroom (4 q.h.)
HSC 590 Strategies for Health and Wellness
(3 q.h.)
HPES activities (3 q.h.)

Area Requirements (56 q.h.)	
A.Social Studies (16 q.h.):	
CRJUS 735 Juvenile Delinquency (4 q.h.)	
PSYCH 560 General Psychology (4 q.h.) HIST 605 or 606 History of the United States	
(4 q.h.)	
One of the following three:	
PSYCH 755 Development Psychology 1 –	
Child (4 q.h.) PSYCH 756 Development Psychology 2 –	
Adolescent (4 q.h.)	
PSYCH 702 Abnormal Psychology (4 q.h.)	
3. Math 535, 536 Mathematics for Elementary	
Teachers 1, 2 (9 q.h.)	
C. Two of the following six science area courses	
(8 q.h.): ASTRO 504 Descriptive Astronomy 4 q.h.	
BIOL 505 Biology and the Modern	
World	
Living	
Geography 4 g.h.	
GEOL 505 Physical Geology 4 q.h.	
PHYS 500 Physics and Man 4 q.h.	
D. The following humanities courses (16 q.h.): MUSED 621 Music Literature and	
Appreciation 4 q.h.	
ART 662 Art Appreciation for Classroom	
Teachers	
One of the following three:	
ENGL 651 Introduction to Language 4 q.h.	
ENGL 708 Children's Literature	
E. The following courses taught in the content	
areas (7 q.h.):	
ART 762 Art Strategies for Classroom	
Teachers	
Elementary Teachers 4 q.h.	
Professional Education Requirements in	
Special Education (44 q.h.)	
The specific course work required in professional	
education for both Mild/Moderate and Moderate/	
ntensive is as follows: FOUND 501 Introduction to Education 4 q.h.	
FOUND 708 Education and Society 4 q.h.	
PSYCH 709 Psychology of Education 4 q.h.	
EDTEC 771 Technologies for Teaching 4 q.h.	
EDTEC 899 Integration of Instructional Computing 4 q.h.	
SPED 802 Education of Children and Youth	
with Exceptionalities 4 q.h.	
SPED 866 Aggregate and Grandel	
SPED 866 Assessment in Special Education	
Student Teaching [SPED 849 for M/M;	
SPED 839 for M/I]	
SPED 869 Student Teaching Seminar 2 q.h.	

as follows:

Reading Course Requirements in Special Education (17 q.h.)

EMCE 810 Phonics in Reading

The specific course work required in reading is

EMCE 880 Reading Applications in Content Areas, P-12
Areas, P-12 4 q.h.
EMCE 881 Assessment and Instruction in
Reading, P-9 4 q.h.
Curriculum Content Requirements for Teaching Students with Mild/Moderate Disabilities (55 q.h.)
The specific course work required is as follows: SPED 833 Educ of Children & Youth with M/M Disabilities: Mental
Retardation
of Exceptional Children & Youth 4 q.h. SPED 853 Diagnostic & Prescriptive Math for Exceptional Children & Youth 4 q.h.
SPED 854 Reading and Cross-Curricular Interventions
Exceptional Children and Youth 4 q.h. SPED 862 Service Coordination/Collaboration/
Consultation for Inter. Specialists 3 q.h. SPED 863 Characteristics & Needs of Children & Youth with M/M Disabilities
SPED 864 Communication and Consultation Skills for Intervention Specialists 4 q.h.
SPED 866L Practicum in the Assessment and Referral for Inter. Specialists
SPED 867 Mild/Moderate Disabilities
SPED 870 Remediation of Process Dysf. in Receptive & Expressive Language 4 q.h.
COMM 705 Speech Problems
Language 1
Middle School4 q.h.
Curriculum Content Requirements for Teaching Students with Moderate/Intensive Disabilities (61 q.h.)
The specific course work required is as follows: SPED 828 Characteristics/Needs of Seriously
Emotion. Disturbed Children Youth 4 q.h. SPED 828L Educ of Children and Youth with
Severe Behavior Disorders
SPED 834L Practicum in the Educ of Children/ Youth with M/I Disabilities 3 q.h.

SPED 836 Characteristics & Needs of Children & Youth with M/I Disabilities
SPED 851 Dev. Personal and Social Growth of Exceptional Children & Youth 4 q.h.
SPED 853 Diagnostic & Prescriptive Math for Exceptional Children & Youth
SPED 854 Reading and Cross-Curricular Interventions
SPED 855 Transitional and Planning for Exceptional Children and Youth 4 q.h.
SPED 862 Service Coordination Collaboration/ Consultation for Inter. Specialists 3 q.h.
SPED 863 Characteristics & Needs of Children & Youth with M/M Disabilities
SPED 864 Communication and Consultation Skills for Intervention Specialists
SPED 866L Practicum in the Assessment and
Referral for Inter. Specialists
Receptive & Expressive Language 4 q.h. COMM 705 Speech Problems 3 q.h. ASL 501 Elementary American Sign
Language 1 4 q.h.

STEP

All students seeking licensure in an area of special education must complete STEP (Special Teacher Education Program). The program is an intensive field-based experience conducted in cooperation with local elementary and secondary schools. STEP is scheduled during the fall, winter, and spring quarters and students are committed to an 8:00 a.m. to 3:00 p.m. schedule. Because STEP is a full-time commitment, students are advised not to plan any outside work during that period, nor will they be permitted to take any concurrent course work.

In STEP, theory and methods instruction takes place at the university and onsite teaching takes place in the public schools. Students learn to observe, diagnose, prescribe for, and teach exceptional children individually and in small and large groups. Field experiences are carefully planned and closely supervised and evaluated daily to insure that students will develop needed competencies. The emphasis is on individualized instruction adapted to the unique needs of each child.

Junior or senior students planning to take STEP must submit an application available in the office of the Department of Teacher Education. Applications for Fall STEP are accepted beginning on the second Monday of the Winter Quarter. Applications for Winter STEP are accepted beginning on the second Monday of the Spring Quarter. Applications for Spring STEP are accepted beginning on the second Monday of the Fall Quarter. It is best to take STEP one or two quarters prior to student teaching. Contact faculty advisors in the Special Education program area or the College of Education academic advisors to determine the current courses included in STEP and the minimum prerequisites for STEP.

Endorsement Programs

The Department of Teacher Education offers endorsement programs in some areas. These endorsements may be added to an existing teacher license, valid for teaching the subjects or learners named. Thus, endorsements are not majors and do not stand by themselves as areas of study. Individuals who complete an endorsement area are limited to the age and grade levels listed on the teacher license. Youngstown State University offers the following endorsement areas:

Computer/Technology
Early Education of Handicapped Children
Pre-kindergarten
Reading
Teaching English to Speakers of Other
Languages (TESOL)

Some of these endorsements are offered at both the graduate and undergraduate level. Advisement is provided by the academic advisors in the College of Education. See the curriculum advisement sheets for these endorsements in the College of Education academic advising office for additional information.

DEPARTMENT OF EDUCATIONAL ADMINISTRATION, RESEARCH, AND FOUNDATIONS

Professors Beebe, Leck, Pullman, Ruggles, Tokar, Vergon; Associate Professors Alley, deBlois, Pusch, Wesson (Chair); Assistant Professors Hamovitch, Levin.

Educational Administration Courses

For course listings, please see the 1998-1999 Graduate Bulletin.

DEPARTMENT OF COUNSELING

Professor Gill-Wigal; Associate Professors Rogers (Chair), Warden; Assistant Professors Carney, Evans, Rando.

Reading and Study Skills (R&SK)

The Reading and Study Skills Laboratory is operated by the Department of Counseling in the College of Education to provide individualized and group instruction in reading and study skills for all students attending the University. The Reading and Study Skills Lab staff includes members of the Reading and Study Skills faculty, undergraduate and graduate tutors, and a full-time laboratory coordinator. Services include diagnostic testing, individualized tutoring, and reading and study skills workshops. The R&SK Laboratory also maintains a laboratory component for Reading and Study Skills 510A and 510B which are mandated to students based on their Composition and Reading Placement Test (Crpt). However, all Reading and Study Skills courses are open to all YSU students.

The Reading and Study Skills Laboratory services are free of charge to all registered YSU students. The laboratory is located in Beeghly Hall, and is open from 8:00 a.m. to 5:00 p.m. Monday through Friday. For further information contact the Reading and Study Skills Laboratory at (330) 742-3099.

School Nurse Licensure

The Department of Counseling collaborates with the Department of Nursing to recommend students for the School Nurse professional pupil services license. This is not a degree program. Nurses interested in attaining this recommendation must complete an identified curriculum of course work, must hold a baccalaureate degree, and must have a current Ohio license to practice as a registered nurse in order to meet all Ohio Board of Education criteria. While the curriculum is listed under the Department of Nursing, the College of Education assumes full responsibility for the processing and all approval of matters dealing with School Nurse licensure requirements.

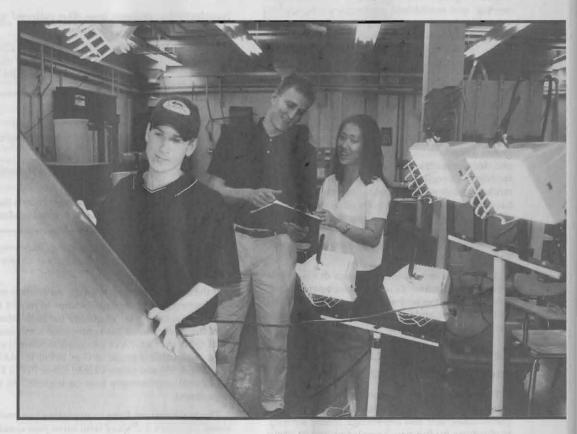
Counseling Courses

The department offers work toward the M.S. in Education degree with specialization in higher education student personnel services, school counseling and community counseling. Students may qualify for state licensure in school counseling and meet the educational requirements for National Counselor certification and Ohio licensure as Professional Counselors. A complete listing of program options and course descriptions is presented in the YSU Graduate Bulletin.

The Department of Counseling offers a limited number of undergraduate elective courses for students planning to become teachers or counselors.

The Rayen College of Engineering and Technology

Charles A. Stevens, Dean



The College of Engineering and Technology is committed to furthering the mission of Youngstown State University by providing quality programs in engineering and engineering technology which encompass the mathematical and physical sciences, engineering sciences, social sciences and humanities. Application of these fundamentals prepares students for careers in both engineering and engineering related fields, educates students for living more abundantly, advances technology and supports, as well as challenges, industry and government, both locally and nationally, through research and public service integrated with teaching.

The College of Engineering and Technology offers the Bachelor of Engineering degree in chemical, civil & environmental, electrical, industrial & systems, and mechanical engineering; the Associate in Applied Science degree in civil, electrical and mechanical engineering technology and in drafting and design. The Bachelor of Science in Applied Science degree is offered in civil, electrical, and mechanical engineering technology.

Accreditation

Programs in the William Rayen College of Engineering and Technology accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology include chemical engineering (jointly accredited by the American Institute of Chemical Engineers), civil engineering, electrical engineering, industrial engineering, and mechanical engineering. The associate and bachelor's programs in civil, electrical, and mechanical engineering technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

Facilities

The Engineering Science Building is the home of the engineering and engineering technology programs. It includes classrooms, laboratories, research and development rooms, and high-tech computer facilities. The college's spacious laboratories have modern equipment for standard experiments at the baccalaureate level as well as for advanced study at the graduate level in many engineering fields. The college operates a machine shop for the preparation of materials and equipment used in classroom and research activities.

A \$6.8 million renovation project during 1995-1996 enhanced offices and classrooms, upgraded the computer facilities with state-of-the-art technology and equipment, and transformed the 208 seat auditorium into a 21st century classroom.

Center for Engineering Research and Technology Transfer

The mission of the Center for Engineering Research and Technology Transfer (CERTT) is to do research; to create new knowledge; to help develop applications for this new knowledge; and to apply state-of-the-art technologies to business and industry. The Center for Engineering Research and Technology Transfer also cooperates in training programs through University Outreach.

Scholarships and Loans

Scholarships, loans and various awards available to engineering students are listed in Appendix B.

Admission-Engineering

Admission to entry-level majors in the College of Engineering and Technology is determined on the following categories:

First-time college students from high school:

First-Year Engineering: Minimum ACT Composite score of 20 or minimum total SAT score of 950 for those wanting the traditional baccalaureate engineering program. International students must also have a minimum TOEFL score of 525.

Engineering Technology: Minimum one year of algebra and one year of geometry, both with grades of C or better, for those wanting either the associate or baccalaureate (2 + 2) engineering technology program.

Pre-Engineering/Pre-Engineering Technology:
For those who do not qualify for their choice of above categories.

Transfer/former students from other colleges/ universities and/or YSU programs:

First-Year Engineering: Must be at least qualified to enroll in English 550 and Math 571 AND must have one of the following grade point averages:

- (1) Unrecalculated 2.0 from an ABET accredited engineering program
- (2) Unrecalculated 2.3 from a baccalaureate program other than an engineering program
- (3) Unrecalculated 2.5 from a technical/ community college or engineering technology program

Engineering Technology: Must meet criteria listed above (from high school) and be in good academic standing.

Pre-Engineering/Pre-Engineering Technology: For those who do not qualify for their choice of above categories.

If the above conditions are met, the student may be admitted to engineering, but not to one of the professional curricula. To qualify for such admission, the student must have completed a minimum of 24 Q.H. with a GPA of 2.0 (unrecalculated) and must have made a grade of C or better in MATH 571, ENGL 550 and either CHEM 515 or PHYS 510. Additional requirements may be imposed by the department.

Disqualification: Prior to admission to a professional program, a student who earns two unsatisfactory grades (D, F, NC) in any required course will be disqualified from enrollment in engineering. A student who interrupts his or her enrollment may return as a pre-engineering major but will be subject to this rule even if he or she has been in a professional program previously.

Course Enrollment

All 600-, 700-, or 800- level courses in engineering, except CEEGR 610, 610L, 711 and 711L are available only to students who have been admitted to a professional curriculum.

Requirements for the Bachelor of Engineering Degree

It is the student's responsibility to complete the graduation requirements for his or her specific engineering program. It is recommended, however, that the student consult with his or her advisor on a quarterly basis.

The curricula leading to the degree require a minimum of 197 quarter hours of credit, not including any make-up of high school deficiencies. High school deficiencies must be completed during the first two years of coursework.

A limited offering is available during summer terms, and should be used with the consultation of the advisor.

B.E. Graduation Policies

Each engineering program has minimum graduation requirements. These requirements (listed below) can affect a student's enrollment in senior-level classes. If a senior-level student reaches a point where it is not possible to achieve graduation requirements, further enrollment in engineering classes will be denied. In addition to the overall recalculated C average required by the University, an unrecalculated C average in the major is required. Also, an unrecalculated C average in all engineering courses is required in all majors except industrial and systems engineering.

Chemical Engineering

A student deficient prior to the senior year will be denied enrollment in CHEGR 887.

Civil and Environmental Engineering

A student deficient in the major prior to the senior year will be denied enrollment in CEEGR 837, 855, & 881.

Electrical Engineering

Enrollment may be denied in required courses if the student falls below the requirements.

Industrial and Systems Engineering

A student who is deficient will be denied enrollment in any 800-level course.

Mechanical Engineering

In order to enroll in MECH 808, 825, and 870, student must have no deficiency in any of the three requirements and must have a C or better in MECH 603 and MECH 641.

High School Units

The table below shows the minimum requirements:

ENGINEERING

PRE-COLLEGE

Subject

English	
English	2
Geometry	
Trigonometry	
Chemistry	
Mechanical Drawing	
Physics	
Other	
GENERAL EDUCATION REQUIREMENTS	q.h.
English 550, 551	8
Health Science 590	
Human Performance and Exercise Science Activities	3
Basic Sciences (as specified by the department)	24
Mathematics (as specified by the department)	
Social Science (as specified by the department)	
Humanities (as specified by the department)	12 +
General Education Total	84

[†]A two-course sequence plus an elective course in an area different from the sequence must be chosen to satisfy both the humanities and social science requirements. The two-course sequence must include one lower-division course (500 or 600 level) and one upper-division course (700 or 800 level) in the same area. The course chosen in the different area may be any level course.

"This component will bring the total minimum degree requirements to 197 quarter hours, and will satisfy the ABET requirements of one year of engineering science and one-half year of design; or, one and one-half years of engineering topics.

Cooperative Education

Several programs leading to the Bachelor of Engineering degree offer students an optional cooperative education program. Co-op students are required to complete the same academic program for graduation as those not participating in the cooperative education experience. Credit hours awarded for the cooperative education experience are considered "add-on" hours only. A coordinator of professional practice is available to assist in student placement.

A student registering for a co-op course, working as a co-op student, and having a signed co-op agreement, will be considered a full-time student.

Engineering Courses

Course descriptions can be found in a separate section in the back of this *Bulletin*.

CHEMICAL ENGINEERING (Nuclear Minor)

Professors Lim (Chair), and Gladysz; Assistant Professor Garr.

The chemical engineering program, supplemented with courses in chemistry, physics, mathematics, and engineering, provides a broad preparation for design, operation and management in the chemical, biological, nuclear, pharmaceutical, and energy conversion industries as well as graduate study leading to research positions in industry and government and to academic careers.

The curriculum may be easily modified for students whose career objectives lie in environmental, biochemical engineering, medicine, or business administration.

Transfer to chemical engineering from other engineering programs, or from chemistry, physics, biology, and mathematics may be accomplished without loss of time or credit during the first two years.

The chemical engineering laboratories are equipped for undergraduate instruction and student and faculty research. The equipment includes fluid flow apparatus, concentric tube and plate and frame heat exchangers, thermal conductivity apparatus, boiling heat transfer apparatus, tray dryer, double effect evaporator, computer-controlled distillation tower, gas absorption and liquid-liquid extraction columns, chemical reactors, crushers, grinders, and other solids processing equipment, electrostatic particle separator, centrifuges, filter presses, and other miscellaneous equipment. The nuclear laboratory contains radiation detectors, area monitoring and gamma scintillation equipment, and proportional counters. The University's subcritical nuclear reactor is also available to the department. The analytical equipment includes mass

sensitive gas chromatograph, high performance liquid chromatograph, absorption and emission spectroscopes, x-ray fluorescence analyzer and infrared gas analysis apparatus.

For student computations the department has several personal computers, printers, and plotters, as well as computer terminals connected directly to the mainframe computer at the University Computer Center.

The laboratory equipment is being continuously upgraded and modernized through the State of Ohio-equipment replacement program.

Curriculum for the degree Bachelor of Engineering with a major in Chemical Engineering

FIRST YEAR

Courses	Cr. Hrs.
ENGR 550/560/570	9
CHEM 515, 515L, 516, 516L, 517,	
517L, General Chemistry	12
MATH 571, 572, 673 Calculus	14
ENGL 550, 551 Basic Composition	8
HPES Activities	2
PHYS 510 General Physics	4
	49
Note: Students without background	l in mechani-
cal drawing must enroll in MECH 500 I	Orawing Fun-
damentals.	Jawang Lan
SECOND YEAR	
Courses	Cr. Hrs.
CHEM 719, 719L, 720, 720L, 721,	40
721L Organic Chemistry	12
CHEGR 650 Computer Methods	2
CHEGR 682, 683, Prin. of	
Chem. Engineering	6
CHEGR 684 Stagewise Separation	
MATH 705 DIG	4
MATH 705 Differential Equations 1	4
PHYS 610, 611 General Physics Mathematics Elective	
Humanities/Social Science Elective	3
HSC 590 Health CEEGR 601 Mechanics	
CEEGR 601 Mechanics	52
THIRD YEAR	
	Cr. Hrs.
CHEM 739, 739L, 740, 740L,	
741, 741L Physical Chemistry	12
CHEGR 771, 772 Chem. Eng.	
Thermodynamics	8
CHEGR 785, 785L, 786, 786L	400
Transport Phenomena	10
CHEGR 787 Unit Operations 1	4

MTEGR 606 Engineering Materials4

HPES Activity1

Cr. Hrs.

Courses

FOURTH YEAR

Courses	r. Hrs.
CHEGR 787L Unit Operations Laboratory 1	1
	5
CHEGR 880, 881, Chemical Reactor Design .	6
CHEGR 882, 882L Process Dynamics	
CHEGR 887, 888, 889 Plant and	
Process Design	12
Humanities/Social Science Elective	4
CHEGR Electives	13
	4
	50
Chemical Engineering Electives	
Courses	r. Hrs.
CHEGR 680 Design Techniques in	
Chemical Engineering	3
CHEGR 745 Corrosion Control Engineering	4
CHEGR 721 Engineering Plastics	4
CHEGR 726 Elementary Nuclear Reactor	
Engineering	3
CHEGR 800 Special Topics	1-4
CHEGR 801-802-803 Chemical	
Engineering Projects	6
CHEGR 805 Principles of Biomedical	
Engineering	4
CHEGR 811 Transport Phenomena 3	4

CHEGR 817 Management of Nuclear By

Products 1

CHEGR 820 Industrial Pollution Control 4

CHEGR 821 Polymer Science4

CHEGR 822 Reinforced Polymer Structures 4

at this University who wish to pursue studies in chemical engineering should consult the department chair for individual counseling in order to arrive at a program of studies fully utilizing their educational background and requiring a minimum of time to satisfy the requirements for the degree of Bachelor of Engineering.

Nuclear Science and Engineering Minor

The minor is open to all engineering and physical science majors and comprises a minimum of 21 quarter hours including 10 quarter hours of core courses and the rest selected from the list of electives.

Engineering students may substitute a number of their departmental electives or other technical electives with the Nuclear Engineering courses to obtain the Nuclear Engineering minor with few or no additional credit hours.

CORE COURSES

Courses Cr. 1115.
CHEGR 726 Elementary Nuclear
Reactor Engineering
CHEGR 830 Introduction to Nuclear Reactors or
CHEGR 835 Introduction to Nuclear Fusion 3
CHEGR 886 Nuclear Reactor Design4
10
ELECTIVES
Courses Cr. Hrs.
CHEGR 811 Transport Phenomena 34
CHEGR 883 Mathematical Methods in
Chemical Engineering4
CHEGR 817 Management of Nuclear
By-products1
CHEGR 831 Introduction to Nuclear Materials 3

MATH 706 Differential Equations 24

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

Professors Alam, Bakos (Chair), Cernica, Khan, Martin; Associate Professor Husain; Assistant Professor Garton.

In addition to furthering the mission of Youngstown State University, the Department of Civil & Environmental Engineering has established the following academic goals: to provide a quality program of engineering education which encompasses the basic and engineering sciences, mathematics, and the traditional and emerging areas of the discipline; to insure that graduates understand the scientific basis of the discipline; to develop in the students the skills to synthesize or design a device, system or process and to evaluate this design against standards of performance, economics, reliability, safety and environmental impact; to prepare its graduates for engineering practice or for graduate studies; to instill in its students a sense of pride and professionalism and an appreciation of ethics; to develop the student's oral and written communication skills; to provide the students with an opportunity to understand man and his/her culture, as well as, the individual relationships in and to society; to implement an aggressive and effective outcome assessment program and to use the results to improve the curriculum and overall program, and to provide a base for lifelong learning and professional development.

Students entering the program will basically take a common curriculum for the first two years. This commonality will provide the students with coursework in the fundamentals of engineering, mathematics, and basic science, so that they will obtain a greater depth of understanding and intellectual maturity. The student then continues in a traditional civil engineering program, eventually choosing an area of concentration in transportation/ structural, or environmental engineering. These options, however, are accompanied by a broadbased civil engineering education. The selection of engineering topics within the broad-based program were chosen in order to develop a degree of competence in a variety of areas within the discipline. These would include such areas as environmental, transportation, structures, hydraulics, geotechnical, and surveying/measurements.

Engineers seek to create what "never was" and thus, students must have an early view of civil engineering as a creative career. Integrating design throughout the curriculum, therefore, fosters the depth of understanding and self confidence they will need to think creatively and eventually become productive engineers. Design is, therefore, fully integrated into the curriculum so that students recognize design as a routine feature of their civil engineering education. It is the department's assertion that students can best develop these creative skills through an educational program that contains significant design experiences including, but extending well beyond, a traditional, senior-level, major design experience.

The department concentrates on the quality and coherence of these student design experiences and has a philosophy for presenting design to its students. Individual small design experiences added to otherwise traditional courses with minimal intrusion on their subject area, simply challenge students to identify and define the problem at hand and devise and examine solutions. Fundamental courses within and throughout the program help develop and build the understanding of design concepts and these, along with the program's pure design courses, ultimately lead to a significant, seniorlevel design project which provides the obvious proving ground for the skills which the student body has acquired from such a comprehensive civil engineering design education.

Students majoring in civil & environmental engineering earn the Bachelor of Engineering (B.E.) degree. The course of study at the undergraduate level is principally a four-year program unless the student selects the co-op option.

Along with an emphasis on preparation for professional practice, University policy assures that each student obtains a significant exposure to the humanities and social sciences. The department further requires that the students achieve both breadth and depth in these areas.

Graduates are prepared for study on the masters and doctoral level in engineering or for employment in the engineering profession directly upon receipt of the baccalaureate degree.

The department retains its tradition acquired as a small school in maintaining close contact between its students and faculty. Senior professors serve as academic advisors and are used in all phases of instruction from freshmen to graduate courses.

All departmental facilities are located within the modern Engineering Sciences Building. The department itself maintains laboratories for environmental engineering, incompressible fluid mechanics, soil mechanics, strength of materials, surveying and concrete testing. A wide variety of equipment and instrumentation is available to support both academic and research activities.

Curriculum for the degree Bachelor of Engineering with a major in Civil and Environmental Engineering

ENVIRONMENTAL OPTION

FIRST YEAR+

Courses	Cr. Hrs.
ENGR 550 Intro to Engr	3
CEEGR 610 Surveying 1	
CEEGR 610L Surveying 1 Lab	1
MATH 571 Calc 1	
MATH 572 Calc 2	4
MATH 673 Calc 3	5
ENGL 550 Basic Comp 1	
ENGL 551 Basic Comp 2	
PHYS 510 Gen Physics 1	4
GEOL 611 Geol for Engineers	
ENGR 560 Engr Communications	
ENGR 570 Engr Computations	
HSC 590 Health Education	
HPES Activity	1
	48

SECOND YEAR

ON COLUMN THINK	
Courses	Cr.Hrs.
CEEGR 601 Mechanics 1	4
CEEGR 602 Mechanics 2	
CEEGR 603 Mechanics 3	4
MATH 674 Calc 4	4
MATH 705 Diff Equa 1	4
SOCSC Elec	4
MECH 641 Dynamics	
CEEGR 612 Cpt Mtd Civil Engrs	3
CHEM 515 Gen Chem 1	4

¹Students deficient in high school mechanical drawing must take ENGR 561 (Engr. Communications with CAD) 4 q.h. in lieu of ENGR 560.

53

CHEM 516 Gen Chem 2	SECOND YEAR
CHEM 517 Gen Chem 3	Courses Cr. Hrs.
MATH 743 Math Stats 14	
Basic Sci Elec4	
HPES Activity	
5	
	MATH 705 Diff Equa 14
THIRD YEAR	SOCSC Elec 4
Courses Cr.Hrs	MECH 641 Demandes
CEEGR 716 Fluid Mechanics	CEEGR 612 Cpt Mtd for Civil Engrs
CEEGR 716L Fluid Mech Lab	CUEM E1E Con Chan 1
CEEGR 720 Highway Engr4	
SOCSC Elec4	CHEM 516 Gen Chem 2
CEEGR 749 Structural Analy 14	GEOL 611 Geol for Engineers4
CEEGR 717 Hydraulic Engr4	MATH 743 Math Stat 14
CEEGR 736 Environ Engr 14	50CSC Elec4
ELEGR 714 Circuits & Elec4	HPES Activity1
MECH 603 Thermodynamics 14	
ISEGR 724 Engr Economy4	
Basic Sci Elec	IIIKD IEAK
HPES Activity1	Courses Cr. Hrs.
HUMAN Elec	CEEGR 710 Fluid Wechanics
CEEGR 751 Water Qual Analy4	CEEGR / 16L Fluid Mechanics Lab
4	CEEGR 720 Flighway Engr4
	CEEGR 877 Systems Engr4
FOURTH YEAR	CEEGR 749 Structural Anal 14
Courses Cr.Hrs	CEEGR 717 Hydraulic Engr4
CEEGR 855 Struct Design 14	CEEGR 736 Environ Engr 14
CEEGR 881 Soil Mechanics3	ELEGR 714 Circuits & Elect4
CEEGR 881L Soil Mech Lab1	MECH 603 Thermodynamics 14
CEEGR 856 Struct Design 24	ISEGR 724 Engr Economy4
CEEGR 820 Industrial Pollution Control	HUMAN Elec4
CEEGR 883 Design Wtr Systms4	
CEEGR 837 Environmtl Engr4	CEEGR 775 Hydrology4
CEEGR 838 Hazardous Waste Mgmt4	HUMAN Elec4
or CEEGR 839 Solid Waste Mgmt4	49
CEEGR 863 Int Design Proj4	
CEEGR 775 Hydrology4	FOURTH YEAR
PHIL 625 Intro Prof Ethics4	Courses Cr. Hrs.
HUMAN Elec4	CEEGR 855 Structural Design 14
SOCSC Elec4	CEEGR 881 Soil Mechanics3
41	CEEGR 881L Soil Mechanics Lab1
	CEEGR 856 Structural Design 24
STRUCTURAL AND TRANSPORTATION	CEEGR 882 Soil & Foundation Engr4
OPTION	CEEGR 835 Highway Location and Design4
	CEEGR 820 Pavement Design4
FIRST YEAR#	CEEGR 857 Structural Design 34
Courses Cr. Hrs	
ENGR 550 Intro to Engr3	
CEEGR 610 Surveying 14	
CEEGR 610L Surveying 1 Lab	
MATH 571 Calc 1	
MATH 571 Calc 1	
IVIAILI J/Z Calc Z	2000

Cooperative Education (Co-op) Option

Students who have successfully completed the sophomore year and have fulfilled the additional requirements set forth by the department may select the Cooperative Education Option. Students selecting this option must complete four successful, one-quarter work periods. Qualifying students will register for these work periods/assignments on an alternating basis with academic quarters begin-

ENGR 570 Engr Computations3

HSC 590 Health Education3

⁺¹Students deficient in high school mechanical drawing must take ENGR 561 (Engr. Communications with CAD) in lieu of ENGR 560.

ning at the conclusion of the sophomore year. Students selecting the co-op option will be required to register for Engineering 798, 799, 898, 899 (Co-op Assignment I, II, III, and IV). It should be noted that the selection of the co-op option will result in adding an extra year to complete both the program's academic requirements and the co-op work assignments. Curriculum sheets outlining the alternating co-op scheme as well as the Cooperative Education Program Guidelines are available in the departmental office.

Normal Day Offerings

FALL	WINTER	SPRING
601	601	602
603	602	603
610	716	612
610L	716L	717
716	749	820
716L	751	736
720	775	752
855	835	838
877	837	839
881	856	849
881L	858	857
	882	863
		883

	Normal FALL	Night Offeri WINTER	-
98-99	601	602	603
	877	716	612
		716L	838
LINH Y	2	835	883
99-00	601	602	603
	610	716	863
	610L	716L	
		749	
00-01	601	602	603
	881	716	
	881L	716L	
	855	856	
CONTRA		882	
01-02	601	602	603
	720	716	736
	610	716L	
	610L	751	

DEPARTMENT OF ELECTRICAL ENGINEERING

Professors Foulkes, Jalali, Munro, Pansino (Chair), Rost, Skarote.

Laboratory Facilities

The Department of Electrical Engineering maintains modern, well-equipped laboratory facilities for

circuits, electronics, communications, electro-magnetics, energy conversion, control systems, and digital systems. The department also maintains Intel Microprocessor Development Systems with sufficient capability for complete design of both software and hardware for microprocessor-based systems. Both mainframe and PC computing is available.

Curriculum for the degree Bachelor of Engineering with a major in Electrical Engineering

The electrical engineering Bachelor of Engineering degree requires 71 hours of electrical engineering coursework. In addition, 42 quarter hours of engineering, math, science, and other courses applicable to a computer science minor; 22 quarter hours of basic science; 26 quarter hours of mathematics (beyond trigonometry); 24 quarter hours of social studies and humanities (12 of which must be humanities); 6 quarter hours of health and physical education; 8 quarter hours of English (Basic Composition 1 and 2) are required.

A quarter-by-quarter arrangement of courses for each individual student is compiled and approved in consultation with the student's electrical engineering advisor. Students must carefully plan their program to meet time constraints in course scheduling and also to prepare for career goals.

The student must carefully plan the program as it is currently impossible to offer each course every quarter and many courses must follow specific sequences.

Electrical Engineering Major (ELEGR) Courses 621L Logic Circuits Lab1 632 Basic Circuit Theory 1 4 632L Instr & Comp Lab 1 1 633 Basic Circuit Theory 24 633L Instr & Comp Lab 21 741 Electromagnetic Fields 1 5 742 Electromagnetic Fields 2 5 742L Electromagnetic Fields Lab 2 1 771 Analog Circ Anal & Design 15 771L Analog Circuit Lab 11 772 Analog Circ Anal & Design 25 831 Digital Circ & Systems5 831L Digital Circ & Systems Lab1 844L Electromag Energy Conv Lab 11 8XX ELEGR Electives12

Engineering & Miscellaneous
ENGR 550
ENGR 570
CEEGR 601 Mechanics 1
MECH 641 Dynamics
Electives ⁺ 21
42
*Suitable electrical engineering, engineering, sci-
ence, computer science, math. Hours may be used to make a suitable minor.
to make a suitable inmor.
Mathematics (MATH)
571 Calculus 1
572 Calculus 2
674 Calculus 4
705 Differential Equations 1
706 Differential Equations 24
26
Science
CHEM 515 Gen Chem 1
CHEM 516 Gen Chem 2 4
PHYS 510 Gen Physics1
PHYS 610 Gen Physics 2
PHYS 611 Gen Physics 34
PHYS 611L Gen Physics Lab 31
22
English (ENGL)
550 Composition 1
550 Composition 1
8
Social Sciences
ECON 610 Principles 1: Micro
Elective (selected for breadth/depth)
12
Humanities
PHIL 625 Intro to Prof Ethics, or PHIL 828 Engin Ethics
Elective (selected for breadth/depth)
Elective (")4
12
Health
HSC 590 Strat for Health & Wellness3
HPES Activities3
Total Hours
10101 110015
Suggested Course Scheduling

Suggested Course Scheduling

Scheduling of courses will depend upon your particular situation. Are you working part time? Will you be co-oping, either alternate or parallel? Or do you wish a full-time academic pursuit of the degree? Your answers to these questions will affect your scheduling of courses. The Department of Elec-

trical Engineering has designed the last two years of its courses to work for any of these schedules.

A Co-op/Curriculum Scheduling sheet which shows the required electrical engineering courses and their expected scheduling for the next three years is available in the departmental office. You need to plan your course scheduling carefully and may want to get help with planning by contacting an advisor in the department.

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

Professors Driscoll, Mehri (Chair); Associate Professor Cala.

Industrial and Systems engineering is a broad professional discipline concerned with the effective use of the basic resources of production people, equipment and materials. The industrial and systems engineer functions as a problem-solver, innovator, coordinator and agent of change in a wide variety of positions in the manufacturing industries, the service industries, and the government. The industrial and systems engineer's unique background combines a study of science, mathematics and management principles with the principles of engineering analysis and design to provide access to a wide variety of flexible technical and managerial careers.

The aim of the Industrial and Systems Engineering Department is to produce graduates who secure professional engineering positions, who practice the profession ethically and effectively, who maintain their professional competency through lifelong learning, and who advance in one of the many technical and managerial career paths available to industrial and systems engineers. The program prepares its students for these accomplishments by providing them with a broad scientific and engineering base via courses in mathematics, physics, chemistry and the engineering sciences. In addition, courses in the social sciences and the humanities develop a sensitivity to the social context within which the profession must be ethically practiced. Finally, industrial and systems engineering courses in the areas of manufacturing systems, human-machine systems, management systems, and management science develop the technical expertise required by professional practice.

The above areas—mathematics, communications, the physical sciences, the humanities and social sciences, and engineering topics—constitute over two-thirds of the ISE program at YSU. The areas provide the student with a requisite base of knowledge and technical expertise for both practicing the profession and contributing to society as conscientious citizens. ISEs employ a wide variety of non-technical skills in practicing the profession, including:

- critical thinking;
- problem-solving;

- written and oral communication;
- · computer use;
- project management, including time management, teamwork or leadership;
- laboratory work, including design of experiments or data acquisitions; and
- data management and statistical analysis.

All of these skills contribute to the development of the ability to apply pertinent knowledge to the identification and solution of discipline-related problems of society. The ISE program is flexible and broad enough to make a transfer to Industrial and Systems engineering from other engineering programs or from mathematics, computer science, physics, chemistry, business, and management, feasible and without too much loss of time and/or credit hours during the first two years.

Industrial and Systems Engineering Laboratories

The industrial and systems engineering laboratories, which are located in the Engineering Science Building, include a facilities design laboratory, a manufacturing laboratory, methods engineering laboratory, and a starter multimedia laboratory.

The Industrial and Systems Engineering Department also uses the facilities of the CE&T computer laboratory which is equipped with state-of-the-art computation, design, and communication hardware and software.

The facilities design laboratory is equipped with computers, drafting equipment, layout tools and miscellaneous scale models for facilities layout presentation.

The manufacturing laboratory contains plastic injection modeling machines, a CNC lathe, and a CNC milling machine—both with computer simulation and CAM capabilities, an advanced optical comparator, a process monitoring system, a surface measurement machine, and various assorted measurement devices.

The methods laboratory contains time study equipment, including a video tape recorder with time lapse capability, a conveyor system, an electronic parts production fabrication machine, and table top robots which can be controlled by a computer.

Other laboratory facilities used by the department include the computer-aided design (CAD) and computer-aided manufacturing (CAM) laboratories.

The CE&T CAD laboratory includes a large number of workstations, each with AutoCAD and other design/drafting software. The workstations are all linked to the University's microcomputer network, plotters and printers.

The industrial engineering CAM laboratory includes a full-size CNC lathe, a CNC milling ma-

chine, a conveyor system, programmable controllers, two industrial robots and other accessories.

Curriculum for the degree Bachelor of Engineering with a major in Industrial and Systems Engineering

FIRST YEAR

Courses	Cr. Hrs.
MATH 571, 572, 673 Calculus 1, 2, 3	14
PHYS 510 General 1	
ENGL 550, 551 Basic Composition 1, 2	8
SOCST Elective+	
ENGR 560	3
ENGR 550	
HPES Activity	
CHEM 515, 516 General 1, 2	8
HSC 590	
ENGR 570	3
	51

SECOND YEAR

Courses	Cr. Hrs.
MATH 674 Calculus 4	4
MATH 705 Differential Equations 1	
MATH Elective	
PHYS 610, 611 General 2, 3	
CEEGR 601, 602 Mechanics 1, 2	
MTEGR 606 Materials	4
ISEGR 620 Engineering Statistics	4
ISEGR 636 Methods Engineering	
ISEGR 636L Methods Engineering Lab.	
ISEGR 724 Engineering Economy	
SPCH 651 Business and Professional	
HPES Activities	2
	50

THIRD YEAR

THIND I LAN	
Courses	Hrs.
ISEGR Elective [†]	
ISEGR 642	3
ISEGR 720 Stat. Quality Control	4
ISEGR 725 Manufacturing Processes	4
ISEGR 725L Manufacturing Processes Lab	
ISEGR 727 Simulation of IE Systems	
ISEGR 820 Advanced QC for Engineers	
ELEGR 714 Circuits and Electronics	
ISEGR 801 Operations Research 1	4
MECH 641 Dynamics	4
SOCST Electives +	8
HUMAN Elective†	4
	48

FOURTH YEAR

Courses	Cr. Hrs.
Engineering Electives †	8
ISEGR Electives [†]	8
ISEGR 815 Production Planning	
ISEGR 821, 822 Facilities Design 1, 2	
ISEGR 850 Operations Research 2	

^{&#}x27;All electives must be selected with the consent of the student's departmental advisor.

ISEGR 860 Operations Engineering	4
SCI Elective f	4
HUMAN Elective +	
	49

*All electives must be selected with the consent of the student's departmental advisor.

DEPARTMENT OF MATERIALS ENGINEERING

Admission to the Materials Engineering Program has been temporarily suspended.

Professor McCov.

DEPARTMENT OF MECHANICAL ENGINEERING

Professors Kim (Chair), McCoy, Suchora; Associate Professor Kuday; Assistant Professor Shields.

Mechanical engineering is the branch of the engineering profession that deals with the conversion and use of energy; the design of machines and engines of all types; and the instrumentation and control of physical processes, systems and environments. The challenge of mechanical engineering is to use the principles of mathematics and the physical and thermal sciences to design and construct what people need and want. Mechanical engineers are concerned with the practical purpose and function of a machine or system, as well as its design for strength, reliability, safety, economy and appearance.

The mission of the Department of Mechanical Engineering is to provide all Ohioans, particularly those in the northeast region, with a quality program in mechanical engineering. The department is committed to meeting regional and state-wide priorities in higher education by providing its undergraduate students with a broad general education and an up-to-date technological curriculum in a four-year program. Also in place is a Master of Science in Engineering evening program which provides local/regional practicing engineers and recent engineering graduates an opportunity to further their education beyond the baccalaureate level.

Laboratory Facilities

The Department of Mechanical Engineering maintains eight experimental laboratories in the Engineering Science Building. A wide array of modern equipment—including instrumentation and department-owned computers, support academic and research activities in thermodynamics, heat power, finite element analysis, machine design, heat transfer, fluid mechanics, kinematics and dynamic systems, stress analysis, mechanical vibrations and acoustics. The college also maintains and constantly upgrades modern computer facilities and software. The department is one of the most active computer

users. The students and faculty also use the computer facilities in Meshel Hall and Kilcawley Center.

Curriculum for the degree Bachelor of Engineering with a major in Mechanical Engineering

FIRST YEAR
Courses Cr. Hrs.
MATH 571, 572, 673 Calculus 1, 2, 3 14
CHEM 515, 516 General Chemistry 1, 2 8
PHYS 510 General Physics 1 4
ENGL 550, 551 Basic Composition 1, 2 8
ENGR 550 Introduction to Engineering
ENGR 560 Engineering Communication
with CAD3
ENGR 570 Engineering Computations3
Elective (Social Studies)4
HPES Activity
50
PA 1- 12 PA 2- 19
SECOND YEAR

SECOND YEAR Courses Cr. Hrs. MATH 674 Calculus 4 4 PHYS 610, 611 General Physics 2, 3 8 CEEGR 601, 602, 603 Mechanics 1, 2, 3 12 MECH 603, 604 Thermodynamics 1, 2 8 MECH 641 Dynamics 4 MECH 680 Engineering Computer Graphics 3 MATH 705, 706 Differential Equations 1, 2 8 HSC 590 Strategies of Health and Wellness 3 50

THIRD YEAR
Courses Cr. Hrs.
MTEGR 606 Materials Engineering4
PHIL 625 Engineering Ethics4
MECH 725 Heat Transfer 1 4
MECH 726 Thermal Fluid Applications 4
MECH 742 Kinematics of Machines4
MECH 751 Stress and Strain Analysis I4
MECH 762, 762L Machine Design 1, Lab 5
MECH 781 Dynamic Systems Analysis 4
CEEGR 716, 716L Fluid Mechanics, Lab 4
ELEGR 714 Circuits and Electronics 4
ISEGR 724 Engineering Economy4
Elective (Social Studies)4
49

FOURTH YEAR	
Courses	Cr. Hrs.
MECH 808-809 Mechanical System	
Design 1, 2	8
MECH 808L Mechanical System Design	Lab 1
MECH 830 Fluid Mechanics	4
MECH 892 Control Theory	4
Electives (Social Studies)	4
Electives (Humanities)	8
Elective (Science)	4
Electives (Mechanical Engineering)	15
	48
TOTAL	197

DEPARTMENTAL ELECTIVES

Courses Cr. Hrs. 704L Applied Thermodynamics Laboratory
800 Special Topics 1-4 811 Solar Engineering 4 811L Solar Engineering Laboratory 1 815 Energy Conversion Systems 4 823 Refrigeration and Air Conditioning 4 823L Refrigeration and Air Conditioning Lab 1 825 Heat Transfer 2 4
811 Solar Engineering
811L Solar Engineering Laboratory 1 815 Energy Conversion Systems 4 823 Refrigeration and Air Conditioning 4 823L Refrigeration and Air Conditioning Lab 1 825 Heat Transfer 2 4
815 Energy Conversion Systems 4 823 Refrigeration and Air Conditioning 4 823L Refrigeration and Air Conditioning Lab 1 825 Heat Transfer 2 4
823 Refrigeration and Air Conditioning
823 Refrigeration and Air Conditioning
825 Heat Transfer 2 4
825L Heat Transfer 2 Laboratory 1
830L Fluid Mechanics Laboratory 1
843 Kinetics of Machinery4
850L Stress and Strain Analysis Laboratory 1
852 Stress and Strain Analysis 24
862 Human Factors in Mechanical Design 4
863 Advanced Machine Design4
863L Advanced Machine Design Laboratory* 1
870 Mechanical Vibrations 4
870L Mechanical Vibrations Laboratory
872 Engineering Acoustics4
872L Engineering Acoustics Laboratory
883 Mechanical Engineering Measurements 4
884 Finite Element Analysis4
884L Finite Element Analysis Applied to
Design Lab*

NOTE: Three 4 q.h. lecture courses and three 1 q.h. laboratory courses listed in the above electives are required.

*863L and 884L will not be counted as laboratory requirement.

SUMMARY

Arts and	Sciences Courses	Cr. Hrs.
Mathem	atics	26
Science:	Chemistry	8
	Physics	
	Elective	4
English		8
Social St	udies	12
Professio	onal Ethics	4
Humani	ties	8
Health/	Phys Education	
Enginee	ring Courses	Cr. Hrs.
	n Engineering	
		53
	gr Electives	
		32
1		109

Cooperative Education

The Department of Mechanical Engineering actively participates in the newly implemented optional cooperative education program. The program includes an alternating and a parallel co-op arrangement.

Co-op students are required to complete the same academic program for graduation as non-co-op students and will be considered full-time by the Uni-

versity in the quarter which the students are off campus to do the co-op work. Students must establish an official documented work report by an established date and will receive a grade of PR, CR, or NC.

M.E. students who are interested in the co-op program must confer to the Mechanical Engineering Department co-op handbook for the rules and regulations and for the suggested schedule of coursework.

Mechanical Engineering Minor

The following courses are recommended for students seeking a minor in mechanical engineering:

ENGR 560	-	Engineering Comm w/CAD. 3 q.h.
MECH 603	-	Thermodynamics 1 4 q.h.
MECH 641	-	Dynamics 4 q.h.
MECH 725	-	Heat Transfer 4 q.h.
MECH 751	-	Stress and Strain Analysis 1 4 q.h.
MECH 604	4	Thermodynamics 2 or
MECH 742	-	Kinematics of Machines 4 q.h.
Total		23 q.h.

In cases where required courses in the student's major indicate significant duplication of subject matter with the above courses, appropriate course substitutions will be recommended by the department in consultation with the advisor in the student's major discipline.

SCHOOL OF TECHNOLOGY

Associate Professors Bosela (Director), Krygowski, Messuri, Zenouzi, Zupanic; Assistant Professor Wood; Instructor Slanina.

The School of Technology offers "two-plus-two" programs in engineering technology. Students in these programs may work toward a two-year associate degree or a four-year bachelor's degree, as they prefer. The programs include both classroom and laboratory experiences which stress the application of established engineering and computer knowledge and methods to the solution of problems. They include study of the sciences and mathematics necessary to support a technology, as well as study of the methods, processes, skills, and materials used in that technology. The programs are designed to prepare graduates for a cluster of job opportunities in industry. Demands developed by an expanding technology place graduates of these programs in one of the fastest-growing occupational groups in the country.

Associate in Applied Science Degree

The school offers two-year programs in:

Civil Engineering Technology Drafting and Design Technology Electrical Engineering Technology Mechanical Engineering Technology Graduates of these programs are awarded the Associate in Applied Science degree and serve as engineering technicians.

Engineering technicians function as aides or professional associates in support of scientists and engineers. Their work is in the design, drafting (manual or CAD), development, testing, and production phases of engineering projects. Their tasks include laboratory testing, data gathering, evaluation, and instrument calibration. They may perform quality control tests, serve as technical sales representatives, or serve as technical writers in the formulation of specifications or trade manuals.

Drafting and design graduates work with engineers, architects, and technicians in converting ideas, designs, and sketches into workable plans and specifications using both manual and CAD techniques.

Bachelor of Science in Applied Science Degree

The civil, electrical, and mechanical engineering technology programs are based on the "two-plustwo" educational system which provides the student with the flexibility of earning an associate degree or a bachelor's degree according to the student's needs. After completing the requirements of the two-year associate degree, the student may elect to either enter industry or, through an added two years of full-time study or equivalent part-time, earn the Bachelor of Science in Applied Science degree. The student's career potential will then have increased to that of an engineering technologist.

In some instances technologists perform analysis and design under the direction of engineering professionals, but those assigned to production frequently work independently. They may develop specifications for materials and methods, serve as production supervisors, or serve as liaisons among development, engineering, and production departments. Tasks related to the installation, operation, and maintenance of production machinery are often supervised by technologists.

Based on an evaluation of their work, transfer students who have a related associate degree from a regionally accredited institution will be admitted to the bachelor's degree program at the junior level.

Certificate Programs

The School of Technology offers certificate programs in the following areas:

Electronics Technology Electrical Power Technology Machine Design Technology Manufacturing Technology Construction Technology HVAC/R Design Technology These certificate programs consist of approximately 45 QH of coursework in a specialized area. Credits may be applied to A.A.S. or B.S.A.S. degree granting programs. Other certificate programs can be developed to suit individual or corporate needs.

Individualized Curriculum Program

In some instances, the existing degree programs offered in the School of Technology may not suit the career interest of the prospective student. In these instances, the student is advised to consider the Individualized Curriculum Program. In this program, the student designs the curriculum best suited for his or her career interest. The courses must be selected from the existing course inventory, and all general University and departmental requirements must be fulfilled. Several "standard" individualized curriculum programs have been developed by the School of Technology, including the following:

Electro-Mechanical Engineering Technology— Associate in Applied Science (A.A.S.) and Bachelor of Science in Applied Science (B.S.A.S.)

Computer Engineering Technology–A.A.S. and B.S.A.S.

Construction Management Technology-B.S.A.S.

Facilities Management Technology-B.S.A.S.

Machine Design Technology-A.A.S.

Students interested in developing an Individualized Curriculum Program should contact the director of the School of Technology.

Accreditation and Registration

The civil, electrical, and mechanical engineering technology associate and bachelor programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. Graduates are qualified to sit for the National Institute for Certification in Engineering Technologies (NICET) Part A examination and are exempt from Part B. In many states, including Ohio and Pennsylvania, bachelor's degree graduates are qualified to take the Fundamentals of Engineering (FE) exam, and, with sufficient work experience, the Professional Engineers (PE) exam.

Cooperative Education

The School of Technology offers an optional cooperative education program for qualified students enrolled in the civil engineering technology, electrical engineering technology, and mechanical engineering technology bachelor's degree programs. Cooperative work experiences are normally taken during the junior year of study and allow the student to alternate between academic study and fulltime work experiences. Students may also participate in a parallel arrangement as well. Details about the co-op program may be obtained from the director of the School of Technology.

Admission Requirements

Admission to all School of Technology programs requires at least one year of high school algebra and one year of high school geometry with grades of C or better. In addition, transfer students must be in good standing.

Students not meeting the above admission requirements are enrolled as pre-majors in the College of Engineering and Technology. While advising is provided by professional advisors within the college, these students are also encouraged to see the coordinator of the program in which they are interested for further orientation.

Prospective engineering technology students are urged to enroll in the STECH 505 course. It is designed to acquaint students with the nature of this career area, and therefore assist prospective students in determining the level of their interest. STECH 505 is required of all engineering technology majors.

CIVIL ENGINEERING TECHNOLOGY

Associate Professor Zupanic; Assistant Professor Wood (Program Coordinator).

The civil engineering technology (CET) program is developed on the "two-plus-two" system. Students may choose to terminate their formal education after completing two years of study and earning the Associate in Applied Science degree, or they may continue full or part-time to a bachelor's degree.

Associate Degree Program

The associate degree program prepares technicians to support civil engineers in structural design, public works, construction, transportation, and environmental engineering. Most graduates are hired by government agencies, consulting engineers, architects, and contractors.

Bachelor's Degree Program

The bachelor's program in civil engineering technology allows students to increase their potential to that of an engineering technologist and broaden their knowledge in several technical and non-technical areas. The student can also concentrate in urban planning, architecture, construction, or transportation as interests dictate. A co-op program with the Ohio Department of Transportation enables CET students to gain experience and income during their junior and senior years.

Associate In Applied Science Degree

FIRST YEAR FIRST QUARTER

FIRST QUARTER
Courses Cr. Hrs.
STECH 505 Elements of Engr Technology 4
CHEM 501 Introduction to Chemistry4
CHEM 510L Introduction to Chemistry Lab 1
ENGL 550 Basic Composition 1 4
ENGL 550 Basic Composition 1
17
17
SECOND QUARTER
Courses Cr. Hrs. ECON 610 Principles of Economics 1
ECON 610 Principles of Economics 1 4
ENGL 551 Basic Comp. 2
HSC 590 Strategies Hlth/Well
MATH 520 Trigonometry
MET 515 Mashaniss 1
MET 515 Mechanics 1
19
THIRD QUARTER
Courses Cr. Hrs.
CET 604 Properties & Strength of Matls 4
DDT 605 CAD Technology 1
MATH 570 Calc. for Engr. Tech. 1
MET 516 Mechanics 2
17
CECONED VENE
SECOND YEAR
FOURTH QUARTER
Courses Cr. Hrs.
CET 607 Solid Mechanics 14
CET 607 Solid Mechanics 1
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 17
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 17
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 17
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 17
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 1 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4 16
CET 607 Solid Mechanics 1
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 4 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4 SIXTH QUARTER Courses Cr. Hrs.
CET 607 Solid Mechanics 1
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 4 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4 SIXTH QUARTER Courses Cr. Hrs.
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 4 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4 SIXTH QUARTER Courses Cr. Hrs. CET 612 Structural Design and Drafting 3 CET 612L Structural Design and Drafting Lab 1
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 4 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4 SIXTH QUARTER Courses Cr. Hrs. CET 612 Structural Design and Drafting 3 CET 612L Structural Design and Drafting Lab 1 CET 624 Environmental Analysis 4
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 4 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4 Interpretable Courses Cr. Hrs. CET 612 Structural Design and Drafting 3 CET 612L Structural Design and Drafting Lab 1 CET 624 Environmental Analysis 4 PHYS 502 Fundamentals of Physics 2 3
CET 607 Solid Mechanics 1 4 CET 617 Construction Methods and Matls 3 CET 617L Construction Methods and Matls Lab 1 4 CEEGR 610 Surveying 1 4 CEEGR 610L Surveying 1 Lab 1 MET 615 Fluid Mechanics 3 MET 615L Fluid Mechanics Lab 1 FIFTH QUARTER Courses Cr. Hrs. CET 610 Structural Analysis 1 4 CET 611 Specifications and Estimating 4 CET 615 Soil Mechanics 3 CET 615L Soil Mechanics Lab 1 MATH 670 Calc. for Engr Tech. 2 4 SIXTH QUARTER Courses Cr. Hrs. CET 612 Structural Design and Drafting 3 CET 612L Structural Design and Drafting Lab 1 CET 624 Environmental Analysis 4

Social Studies Elective

Total Credit Hours 2 years 105

19

Bachelor's Degree Program

THIRD YEAR SEVENTH QUARTER

Courses ENGL 743 Pro/Tech Comm MATH 770 Calc for Engr Tech 3 CET 705 Computing for Technologists	Cr. Hrs.
ENGL 743 Pro/Tech Comm	CI. IIIS.
MATH 770 Calc for Engr Tech 3	5
CET 705 Computing for Technologists	A
	4
CE1 705 Computing for fechnologists	4
CET 710 Structural Analysis 2	4
HPES Activity Course Elective	1
	18
	10
PICULTY OUT DEED	
EIGHTH QUARTER	_ =
	Cr. Hrs.
MATH 785 Matrix Alg & Num Methods .	4
MGT 604 Legal Environment of Business	4
CET 707 Advanced Steel Design	
CET Elective (700/800 Level)	
	16
NINTH QUARTER	
Courses	Cr. Hrs.
Humanities Elective	4
Pumanines Elective	4
PHYS 503 Fund of Physics 3	3
PHYS 503 Fund of Physics 3PHYS 503L Fund of Physics 3 Lab	1
CPT P1 11 /F00 /000 T 1)	240
CET 717 Underground Construction	4
CEI / I/ Olider Ground Combination mini	16
	10
FOURTH YEAR	
TENTH QUARTER	
	CIT
Courses	Cr. Hrs.
Humanities Elective	4
EET 625 Electrical Systems 1	4
Courses Humanities Elective EET 625 Electrical Systems 1 CET 724 Public Works Tech	4
CET 724 Public Works Tech	4
CET 724 Public Works Tech	4
CET 724 Public Works Tech	4
CET 724 Public Works Tech	4
CET 724 Public Works Tech	4
CET 724 Public Works Tech	4 4 1 17
CET 724 Public Works Tech	4
CET 724 Public Works Tech	
CET 724 Public Works Tech	
CET 724 Public Works Tech	4 4 17 17 Cr. Hrs.
CET 724 Public Works Tech	
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER	
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER Courses	
CET 724 Public Works Tech	
CET 724 Public Works Tech	
CET 724 Public Works Tech	
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER Courses GEOG 765 Geographic Information System GEOG 732 Advanced Cartography CET 807 Design Project Management	
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER Courses GEOG 765 Geographic Information System GEOG 732 Advanced Cartography CET 807 Design Project Management CET 817 Construction Management	Cr. Hrs. 4 4 4 1 7 17 Cr. Hrs. 4 4 16 Cr. Hrs. ns or 4 4 4
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER Courses GEOG 765 Geographic Information System GEOG 732 Advanced Cartography CET 807 Design Project Management CET 817 Construction Management MET 870 Applied Finite Element Method	Cr. Hrs. 4 4 4 1 7 7 Cr. Hrs. 4 4 16 Cr. Hrs. ns or 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER Courses GEOG 765 Geographic Information System GEOG 732 Advanced Cartography CET 807 Design Project Management CET 817 Construction Management MET 870 Applied Finite Element Method	Cr. Hrs. 4 4 4 1 7 17 Cr. Hrs. 4 4 16 Cr. Hrs. ns or 4 4 4 11
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER Courses GEOG 765 Geographic Information System GEOG 732 Advanced Cartography CET 807 Design Project Management CET 817 Construction Management MET 870 Applied Finite Element Method HPES Activity	Cr. Hrs. 4 4 4 1 17 Cr. Hrs. 4 16 Cr. Hrs. 16 17
CET 724 Public Works Tech CET 730 Transportation Tech HPES Activity Course ELEVENTH QUARTER Courses GEOG 741 Transportation Geography or GEOG 830 City and Regional Planning EET 810 Electrical Systems Design CET 800 Building Systems CET 812 Advanced Concrete Design TWELFTH QUARTER Courses GEOG 765 Geographic Information System GEOG 732 Advanced Cartography CET 807 Design Project Management CET 817 Construction Management MET 870 Applied Finite Element Method	Cr. Hrs. 4 4 4 1 17 Cr. Hrs. 4 16 Cr. Hrs. 16 17

DRAFTING AND DESIGN TECHNOLOGY

Associate Professor Zupanic (Program Coordinator).

This program prepares students to function as design drafters in either the mechanical or civil-architectural field. They study design (the determination of size, form, and clearance) and CAD drafting (the conversion of ideas, sketches, and specifications into plans). They also become acquainted with cost of materials, estimating and specifications writing. Graduates earn the associate degree and are employable in industries relating to the fabrication and production of building structures and metal products. Graduates interested in further technical education should consider the "two-plus-two" bachelor's degree program in civil or mechanical engineering Technology.

Associate Degree Program

FIRST YEAR FIRST QUARTER

FIRST QUARTER	
Courses	Cr. Hrs.
STECH 505 Elements of Engr. Technology	4
MATH 513 Intensive Intermediate Algebra	
HSC 590 Strategies Hlth/Well	
Social Studies Elective	
	15
SECOND QUARTER	
NAME OF THE PARTY	Cr. Hrs.
DDT 605 CAD Technology 1	
MET 515 Mechanics 1	
MATH 520 Trigonometry	4
Science Elective	16
THIRD QUARTER	
Courses	Cr. Hrs.
CET 604 Properties and Strengths of Matls	
Social Studies Elective	
ENGL 550 Basic Composition I	
SPCH 651 Comm for Bus & Professions	3
Social Studies Elective	
DOCINE O'STATE DE L'ACTIVE	19
SECOND YEAR FOURTH QUARTER	
Courses	Cr. Hrs.
DDT 606 CAD Technology 2	
CET 607 Solid Mechanics 1	
CLI 007 DOILG PICCIAGUES I	

FIFTH QUARTER	MATH 513 Intensive Inter Algebra4
Courses Cr. Hrs.	Drawing/CAD Elective4
DDT 603 Piping and HVAC CAD4	19
DDT 602 Civil & Architectural Drafting4	SECOND QUARTER
CET 611 Specifications & Estimating 4	Courses Cr. Hrs.
Technical Elective from CET, MET,	EET 501 Circuit Theory 13
DDT, EET, or CIS4	EET 501L Circuit Theory 1 Lab
16	ENGL 551 Basic Composition 2
	MATH 520 Trigonometry
SIXTH QUARTER	Jocial Studies Elective
Courses Cr. Hrs.	THE OWNER
DDT 613 Electronic & Elect CAD4	THIRD QUARTER
CET 612 Structural Design and Drafting3	Courses Cr. Hrs. EET 502 Circuit Theory 2
CET 612L Structural Design and Drafting Lab 1	EET 502L Circuit Theory 2 Lab
MET 620 Tool Design3	MATH 570 Calc. for Engr Tech 15
MATH/SCI Elective4	PHYS 501 Fundamentals of Phys 14
DDT 608 Machine Elements4	SPCH 651 Comm. for Bus and Professions 3
19	16
Total Credit Hours	SECOND YEAR
	FOURTH QUARTER
ELECTRICAL ENGINEERING	Courses Cr. Hrs.
TECHNOLOGY	EET 503 Circuit Theory 33
	EET 503L Circuit Theory 3 Lab
Associate Professors Bosela, Messuri; Instructor Slanina (Program Coordinator).	EET 605 Electronics 1
	EET 605L Electronics 1 Lab
The electrical engineering technology (EET) pro-	EET 610L Direct Current Machines Lab
gram is based on the "two-plus-two" concept. This provides students the opportunity to pursue two	ECON 610 Principles of Economics 1
years of full-time study leading to the Associate in	16
Applied Science degree, and then, if they desire, to	FIFTH QUARTER
continue for two more years of full-time study, at	Courses Cr. Hrs.
which time the Bachelor of Science in Applied Sci-	EET 606 Electronics 2
ence degree is awarded.	EET 606L Electronics 2 Lab
Associate Degree Program	EET 611 Alternating Current Machines3
	EET 611L Alternating Current Machines Lab 1
Graduates of the two-year electrical engineering	EET 620 Digital Fundamentals
technology program generally function as assistants	EET 620L Digital Fundamentals Lab
to electrical engineers in the design, analysis, and laboratory testing of electrical and electronic sys-	MATH 670 Calc for Engr Tech 24
tems and of rotating machinery. Most graduates are	
employed by electrical and electronic equipment	SIXTH QUARTER Courses Cr. Hrs.
manufacturers, utility companies, the aerospace in-	Courses Cr. Hrs. EET 612 Programmable Logic Controllers
dustry, and manufacturing companies in general.	EET 612L PLC Lab
Rashalar's Dagras Program	EET 607 Electronics 3
Bachelor's Degree Program	EET 607L Electronics 3 Lab
The last two years in the electrical engineering	EET 645 Microprocessor Systems 1/Lab
technology bachelor's program provide the student	PHYS 503 Fundamentals of Physics 33
with broader technical and business management	PHYS 503L Fundamentals of Physics 3 Lab 1
background. Graduates generally assume more re- sponsibility in the design and testing of electrical	Total Cradit II
systems, and may function independently in some	Total Credit Hours 2 years99
areas.	Bachelor's Degree Program
	- activity a Degree I logiani
Associate Degree Program	THIRD YEAR
FIRST YEAR	SEVENTH QUARTER
FIRST QUARTER	Courses Cr. Hrs.
Courses Cr. Hrs.	EET 730 Logic Systems Design/Lab
STECH 505 Elements of Engr Technology 4	Computer Elective
ENGL 550 Basic Composition 14	MATH 770 Calc. for Engr Tech 34

HSC 590 Strategies Hlth/Well3

MATH 770 Calc. for Engr Tech 34

16

EIGHTH QUARTER	
Courses	Cr. Hrs.
EET 720 Pulse Circuit Design/Lab	4
HPES Activity Course	1
MATH 785 Matrix Alg & Num Methods	4
MET 630 Manufacturing Techniques	
MET 630L Manufacturing Techniques Lab	
Science Elective	
	17
NINTH QUARTER	
	Cr. Hrs.
EET 710 Networks/Lab	4
EET Elective (700/800 Level)	4
Courses EET 710 Networks/Lab EET Elective (700/800 Level) ECON 624 Economics & Social Stats 1	4
Humanities Elective	4
Social Studies Elective	4
	20
FOURTH YEAR	
TENTH QUARTER	
Courses	Cr. Hrs.
EET 745 Microprocessor Systems 2/Lab	4
EET Elective (700/800 Level)	4
CET 800 Building Systems	4
ENGL 743 Prof/Tech Comm	
HPES Activity Course	
	18
	Cr. Hrs.
EET 810 Electrical Systems Design	4
EET Elective (700/800 Level)	4
HPES Activity Course	1
MET 700 Physical Measurements	4
MGT 725 Fundamentals of Management	17
TWELFTH QUARTER	17
	Cr. Hrs.
Courses EET 820 Power Transmission	4
Humanities Elective	4
MGT 789 Operations Management 1	
Technical Elective (700/800 level)	4
	16
Total Credit Hours 4 Years	203

MECHANICAL ENGINEERING TECHNOLOGY

Associate Professor Krygowski (Program Coordinator); Assistant Professor Zenouzi.

The mechanical engineering technology (MET) program is designed as a "two-plus-two" program. Students may earn an Associate in Applied Science degree after two years of full-time study. With this degree, they may begin a career in industry. If desired, the associate degree graduate can continue for two more years of full-time study, at which time the bachelor's degree is awarded.

Associate Degree Program

The associate degree program introduces the student to the principles and practices of machine design, manufacturing processes, and energy conversion. Students are also given a firm foundation in communications, mathematics and science. Upon completion of the associate degree, graduates may find employment as engineering technicians in a wide variety of industries. They assist engineers in the design, drafting, testing, and support of mechanical products, or of the industrial equipment and processes used to manufacture consumer products.

Bachelor's Degree Program

Students who have earned the associate degree may elect to complete the bachelor's degree on either a full- or part-time basis. Courses in the bachelor's degree program further develop technical, communication, and managerial skills. Upon successful completion of the course work, graduates are awarded the Bachelor of Applied Science degree, and are prepared for greater levels of responsibility and greater career advancement as engineering technologists.

Associate Degree Program

FIRST YEAR FIRST QUARTER

Courses	Cr. Hrs.
MATH 513 Intensive Intermediate Algebra	4
STECH 505 Elements of Engr Technology	4
CHEM 501 Introduction to Chem. 1	4
CHEM 510L Introduction to Chem. Lab 1	1
DDT 605 CAD Technology 1	4
	17

SECOND QUARTER

Courses	Cr. Hrs.
MATH 520 Trigonometry	4
MET 515 Mechanics 1	4
ENGL 550 Basic Composition 1	4
Social Studies Elective	4
	16

THIRD QUARTER

Courses	Cr. Hrs.
MATH 570 Calc. for Engr. Tech. 1	5
MET 516 Mechanics 2	4
CET 604 Properties/Strength of Materials	
ENGL 551 Basic Composition 2	
The second of th	17

SECOND YEAR FOURTH QUARTER

TOOKITTOOKITEK	
Courses Cr. Hrs.	
MET 615 Fluid Mechanics	
MET 615L Fluid Mechanics Laboratory	
CET 607 Solid Mechanics4	
MET 630 Manufacturing Techniques3	
MET 630L Manufacturing Techniques Lab 1	
PHYS 502 Fundamentals of Physics 2 3	
PHYS 502/L Fundamentals of Phys Lab	
16	ă

FIFTH QUARTER		NINTH QUARTER	
Courses	Cr. Hrs.	Courses	Cr. Hrs.
MET 605 Thermodynamics	4	MATH 785 Matrix Alg./Num. Methods	4
MATH 670 Calc for Engr Tech 2	4	MET 720 Mechanisms	4
MET 606 Machine Design 1	4	MET 715 Fluid Power Systems	4
DDT 606 CAD Technology 2		PHYS 503/L Fund. of Phys 3/Lab	4
HSC 590 Strategies Hlth/Well		HPES Activity Course	
SERVICE SCHOOL STREET, ST. CO. L. C.	19		17
SIXTH QUARTER		FOURTH YEAR	
Courses	Cr. Hrs.	TENTH QUARTER	
MET 610 Heat and Power Cycles	4	Courses	Cr. Hrs.
MET 607 Machine Design 2	4	CET 800 Building Systems	4
SPCH 651 Comm for Bus and Profession	s3	MGT 725 Fund. of Management	
Social Studies Elective	4	MET 820 Machine Systems	4
	15	MET 810 Manufacturing Sys. Analy	
Total Credit Hours 2 Years	100	HPES Activity Course	
			17
Bachelor's Degree Program		ELEVENTH QUARTER	
THIRD YEAR		Courses	Cr. Hrs.
SEVENTH QUARTER		MGT 789 Operations Management 1	4
Courses	Cr. Hrs.	MET Elective (700/800 Level)	4
MATH 770 Calc for Engr. Tech 3		Humanities Electiv	4
EET 625 Electrical Systems 1		Social Studies Elective	4
ECON 624 Economics & Social Stats 1			16
ENGL 743 Prof./Tech. Comm			10
	17	TWELFTH QUARTER	
	Elanoria.	Courses	Cr. Hrs.
EIGHTH QUARTER	1212	MET 870 Applic. Finite Elements	4
Courses	Cr. Hrs.	MET 860/L Robotics Technology/Lab .	4
Computer Elective	4	Humanities Elective	4
EET 725 Electrical	Systems 2		12
4		La de la companya de	
MET 700 Physical Measurements		Total Credit Hours 4 years	196
HPES Activity Course			
MET 710 Tool Design	4		
	17		

The College of Fine and Performing Arts

George McCloud, Dean



The College of Fine and Performing Arts consists of the Department of Art, the Department of Communication and Theater, and the Dana School of Music.

The Art Department is accredited by the National Association of Schools of Art and Design and the Dana School of Music is a member of the National Association of Schools of Music. The National Association of Schools of Theatre accredits the theater program.

The degrees granted are the Bachelor of Arts (B.A.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), and, in conjunction with the College of Education, the Bachelor of Science in Education (B.S. in Ed.). Majors are offered in applied music (performance), art history, music history and literature, speech communication, studio art, telecommunication studies, theater, music theory, or composition; or (in conjunction with the College of Education) in art education, music education, speech education or drama/theater education.

The activities of the college are conducted primarily in the Fine and Performing Arts Center, Bliss Hall. This structure houses the administrative offices of the College as well as classrooms, studios, laboratories and performance areas serving most of the curricular and co-curricular programs in art, speech communication/theater, and music. Additional activities are held in the John J. McDonough Museum of Art, The Butler Institute of American Art, Stambaugh Auditorium, Meshel Hall, and Kilcawley Center.

The College holds as its major objective the highest quality of instruction, including pre-professional training in areas such as studio art, applied music, speech communication, telecommunications, and theatre; the training of teachers; and the offering of a wide variety of courses to non-majors from all areas of the University.

The major programs in the College constitute an excellent basis for a liberal education. Even if you do not necessarily wish to pursue a major, you should consider taking courses in art, music or communication and theater to develop yourself personally and to compliement whatever major you do choose.

Another important objective of the College is to provide the University community maximum opportunity for experiencing the fine arts.

Degree Requirements

High School Preparation

Please refer to the "High School Preparation" section on p.8 of this Bulletin.

Music majors will need to have sufficient musical performance ability to undertake college-level music courses. Voice majors will benefit from taking French, German, and/or Italian in high school.

Requirements for the B.F.A., B.M., and B.A. Degrees

	Quarter Hours Of Credit		
Basic Courses	B.F.A.	B.M.	B.A.
English 550, 551, Basic Composition 1, 2	8	8	8
Health Science 590, Health Education	3	3	3
Human Performance and Exercise Science Activity Courses	3	3	3
Area Courses			
Humanities	8-18	8-18	16
ture courses in English or foreign language, philoso- phy and religious studies; or history and/or apprecia- tion courses in the College of Fine and Performing Arts. Social Studies	16-22	16-22	20
Courses in two or more of the following subjects: economics, geography (excluding Geog. 503, 603, 630, and 730, which are applicable to the science requirement), history, political science, psychology, sociology, black			
studies 600, and social science. Science/Mathematics	12-22	12-22	16
This requirement includes a minimum of 8 hours of science.	12-22	12-22	10
Foreign Language	0	0-24 †	8-20**

Professional Courses

These are listed under the appropriate department or school curricula.

Fine and Performing Arts students pursuing the B.S. in Ed. degree should consult the College of Education section of this catalog.

[†]This requirement is for voice majors only. Part of it may be met by two units of high school study in French, Italian, or Germa n, in which 16 hours are required (eight hours in each of the two languages not previously studied).

[&]quot;The eight-hour requirement assumes the continued study of the same language in which two units of high school credit were earned. If a different language is studied, or if more than two units of high school credit were earned, the requirement is different. See Foreign Language Requirement for the B.A. and B.S. Degree on p. 67 of this Bulletin.

Additional Degree Requirements

- Upper-division status (including completion of any specified preparatory units lacking at entrance)
- · Major and minor requirements
- Course-level requirements
- · Point index requirement
- · Residency requirement
- Completion of quarter hours required for the degree
- · Application for graduation

Courses of Instruction

Course descriptions can be found in a separate section in the back of this *Bulletin*.

DEPARTMENT OF ART

Professors Babisch, Bright, Glasser, Maddick, Mitchell, Moseley, Russo (Chair), Walusis, Zona; Associate Professors Chan, Kornbluth; Assistant Professors Krasner, Moring, Petit, Sarro.

The Department of Art offers courses which satisfy major requirements in art for the degrees of Bachelor of Fine Arts, Bachelor of Arts and Bachelor of Science in Education.

For the Bachelor of Fine Arts degree, the programs in studio art are designed to familiarize the student with the basic concepts in art and the language of visual form. Concentration is on the development and involvement of the student with the processes and practices of art. A minimum of 186 quarter hours is required for the B.F.A. degree. A foundation portfolio review is required at the completion of the foundation sequence. In addition, B.F.A. students are required to exhibit in a senior show at the John J. McDonough Museum of Art. The curricula for studio art are listed below. †

For the Bachelor of Arts degree, the curriculum in art history is listed below. The Art History major is required to complete a minimum of 49 quarter hours in art history beyond the 500 level, plus 8 hours of studio art electives.

Students majoring in art who wish to qualify for licensure in art K-12 are required to complete a minimum of 87 quarter hours, at least 20 of them in art history. These students, after completing two years of study with a point average of at least 2.40, may apply for admission to the College of Education. (Other requirements for admission are listed under the College of Education section.) No minor is required for the special certificate.

Bachelor of Fine Arts Curricula

The areas of studio art emphasis for the B.F.A. degree are: general fine art, art and technology, graphic design, painting, photography, printmaking and spatial arts.

The general requirements for this degree are listed at the beginning of the College of Fine and Performing Arts section.

Please note that a \$20.00 lab fee is charged for many studio classes and a \$35.00 lab fee is charged for any computer-intensive class.

All studio majors should take ART 800 in the term closest to graduation to prepare for the senior show.

STUDIO ART: ART & TECHNOLOGY EMPHASIS

Requ	ired Courses: Cr. Hrs.
500	Intro to Visual Art1
501	Drawing 1 4
502	Design 1 4
503	Design 2 4
504	Design 3 4
521	Survey 1 4
522	Survey 2 4
523	Survey 3 4
600	Theory 4
601	Drawing 2 4
602	Drawing 3 4
606	Painting 1 4
612	Silk Screen4
650	Digital Imaging4
725	Ceramics 14
730	Sculpture 1
780	Photo 1 4
791	Special Topics in Art History:
	Introduction to Art & Technology4
845	Business Skills 4
800	Studio Problems10
	Subtotal
At lea	st 52 credit hours from below: Graphic Design 1
655	Graphic Design 1 4
656	Typography4
657	Desktop Publishing4
705	Drawing 4 4
721	Lithography4
722	Photo Silk Screen4
730	Sculpture 1
731	Sculpture 24
735	Silk Screen 24
750	Digital Imaging 34
751	Digital Imaging 44
758	Informational Graphics4
781	Photography 2
782	Photography 3
783	Photography 4
784 790	Photography 5
790	Special Topics: Basic Digital Photography
	basic Digital Photography4

^{*}Not all emphases or programs are available in the evening. Students seeking a degree in art through an evening program should consult with the department chair to determine if it is possible.

790	Special Topics:	522	Survey of Western Art 2	
	Video Imaging 4	523	Survey of Western Art 3	4
790	Special Topics:	600	Theory of Art	
	Light, Sound & Motion4	601	Drawing 2	
790	Special Topics:	602	Drawing 3	
, , ,	Interactive/Immersive Environments 4	606	Painting 1	
012				
812	Sculpture 3	612	Silk Screen	
824	Photo Silk Screen 24	650	Digital Imaging	
860	3-D Computer Graphics4	655	Graphic Design 1	
870	Advanced Printmaking 5+5	656	Typography 1	
871	Time-Based Com. Graph4	657	Desktop Publishing for the Design	er 4
880	Photography 64	725	Ceramics	
881	Multi-Media4	730	Sculpture 1	
700/	800 level Art History courses4	728	Illustration	
	Total cr. hrs. in major135 +	749	History of Graphic Design	
	10tai Ci. 1115. 11t 11tajoi	755	Graphic Design 2	
STI	JDIO ART: GENERAL FINE	, 00	PORTFOLIO REVIEW	
		756	Typography 2	
AK	T STUDIO EMPHASIS			
Cour	ses Cr. Hrs.	757	Identity Systems	
500	Introduction to the Visual Arts1	758	Informational Graphics	
501	Drawing 1	780	Photography 1	
502	Design 1 4	782	Photography 3	4
503	Design 2	830	Pre-Press Production	
504		841	3-Dimensional Graphics	4
	Design 3	842	Publication Design	4
521	Survey of Western Art 14	Profe	essional Practices:	
522	Survey of Western Art 24		Studio Problems (3+3)	
523	Survey of Western Art 34	OP	Studio 1100ienis (3+3)	6
650	Digital Imaging4			0
600	Theory of Art4	840	Graphic Design Internship (3+3)	
601	Drawing 2 4	845	Business Skills for the Artist	
602	Drawing 3 4	846	Senior Portfolio/Seminar	
604	Watercolor Painting3		History Elective (two 700/800 level).	
606	Painting 1 4	ENC	GL 743 Professional and Tech. Comm.	5
611	Woodblock/Mono Print4			140 ⁺
612	Silk Screen4	NOT	E: If a student is not proficient in typ	ping, CIS
655	Graphic Design 1		Typewriting/Keyboarding, 2 q.h.) is	
701	Life Drawing4			
		SIL	JDIO ART: PAINTING	
703	Painting 2	FM	PHASIS	
705	Drawing 4			
723	Weaving 1 3	Cour		
725	Ceramics 1 4	500	Intro to Visual Art	
726	Ceramics 2 4	501	Drawing 1	4
730	Sculpture 14	502	Design 1	4
770	Jewelry 14	503	Design 2	4
780	Photography 14	504	Design 3	
800	Studio Problems10	521	Survey of Western Art 1	
808	20th Century Art to 1945 4	522	Survey of Western Art 2	
809	20th Century Art from 1945	523	Survey of Western Art 3	
		650	Digital Imaging	
Art H	listory electives (700/800 level)4	600		
Studi	o Art electives (700/800 level)16		Theory of Art	
	137†	601	Drawing 2	
-		602	Drawing 3	
STU	JDIO ART: GRAPHIC DESIGN	604	Watercolor Painting	
EM	PHASIS:	606	Painting 1	
		611	Woodblock & Monoprinting	4
Cour		612	Silk Screen	
500	Intro to Visual Arts1	701	Life Drawing	
501	Drawing 1 4	703	Painting 2	
502	Design 1 4	705	Drawing 4	
503	Design 2 4	725	Ceramics 1	
504	Design 34	, 40	Columnos I	1

This includes the requirements of 21 q.h. for a minor.

730	Sculpture 14	503	Design 2
790	Special Topics: Painting10	504	Design 3
800D	Studio Problems/Painting (5+5) 10	521	Survey of Western Art 1
803	Painting 35	522	Survey of Western Art 2
804	Painting 4 5	523	Survey of Western Art 3
805	Painting 5 5	650	Digital Imaging4
808	20th Century Art to 1945 4	600	Theory of Art
809	20th Century Art from 19454	601	
	Art electives (700/800 level)9	602	Drawing 2
Studio	133	606	
	133		Painting 1
STU	DIO ART: PHOTOGRAPHY	611	Woodblock & Monoprinting
	TT L CTC	612	Silk Screen4
EIVII	PHASIS	701	Life Drawing4
Cours		705	Drawing 4
500	Intro to Visual Art1	721	Lithography4
502	Drawing 1 4	722	Photo Silk Screen4
502	Design 1 4	725	Ceramics 1
503	Design 2 4	OR	4
504	Design 3 4	730	Sculpture 1
		734	Woodblock & Monoprinting 2
521	Survey of Western Art 14	735	Silk Screen 2
522	Survey of Western Art 2	780	Photography 14
OR	4	821	Lithography 24
515	Survey of Non-Western Art	824	Photo Silk Screen 2
523	Survey of Western Art 34	800F	Studio Problems/Printmaking10
600	Theory of Art4	808	20th Century Art to 1945 4
601	Drawing 2 4	809	20th Century Art from 19454
606	Painting 14	870	Advanced Printmaking (4+4)8
612	Silk Screen	Studi	o Art Electives (700/800 level)
			133
650	Digital Imaging4		
655	Graphic Design Fundamentals4	50.00	IIIIII ADIL CDATIAL ADIC
		016	JDIO ART: SPATIAL ARTS
722	Photo Silk Screen4		
722 725			PHASIS
	Photo Silk Screen4		PHASIS ses Cr. Hrs
725	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4	EM	PHASIS ses Cr. Hrs
725 730	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4	EM!	PHASIS ses Cr. Hrs Intro to Visual Art
725 730 747 748	Photo Silk Screen	Cours 500	PHASIS ses Cr. Hrs Intro to Visual Art
725 730 747 748 780	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4	Cours 500 501	PHASIS ses Cr. Hrs. Intro to Visual Art 1 Drawing 1 4 Design 1 4
725 730 747 748 780 781	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4 Photography 2 4	Cours 500 501 502	PHASIS ses Cr. Hrs Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4
725 730 747 748 780 781 782	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4 Photography 2 4 Photography 3 4	Cours 500 501 502 503	PHASIS ses Cr. Hrs Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4
725 730 747 748 780 781 782 783	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4 Photography 2 4 Photography 3 4 Photography 4 4	Cours 500 501 502 503 504 521	PHASIS ses Cr. Hrs Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4
725 730 747 748 780 781 782 783 784	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4 Photography 2 4 Photography 3 4 Photography 4 4 Photography 5 4	Cours 500 501 502 503 504 521 522	PHASIS ses Cr. Hrs. Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4
725 730 747 748 780 781 782 783	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4 Photography 2 4 Photography 3 4 Photography 4 4	Cours 500 501 502 503 504 521 522 523	PHASIS ses Cr. Hrs Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4
725 730 747 748 780 781 782 783 784	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4 Photography 2 4 Photography 3 4 Photography 4 4 Photography 5 4	Cours 500 501 502 503 504 521 522 523 600	PHASIS ses Cr. Hrs Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4 Theory of Art 4
725 730 747 748 780 781 782 783 784 790	Photo Silk Screen 4 Ceramics 1 4 Sculpture 1 4 History of Still Photography to 1925 4 History of Still Photography from 1925 4 Photography 1 4 Photography 2 4 Photography 3 4 Photography 4 4 Photography 5 4 Special Topics/Photo 4 Studio Problems/Photography 8	Cours 500 501 502 503 504 521 522 523 600 601	PHASIS ses Cr. Hrs. Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4 Theory of Art 4 Drawing 2 4
725 730 747 748 780 781 782 783 784 790 800E 808	Photo Silk Screen	Cours 500 501 502 503 504 521 522 523 600 601 602	PHASIS ses Cr. Hrs. Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4 Theory of Art 4 Drawing 2 4 Drawing 3 4
725 730 747 748 780 781 782 783 784 790 800E 808 OR	Photo Silk Screen	Cours 500 501 502 503 504 521 522 523 600 601 602 606	PHASIS ses Cr. Hrs. Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4 Theory of Art 4 Drawing 2 4 Drawing 3 4 Painting 1 4
725 730 747 748 780 781 782 783 784 790 800E 808 OR	Photo Silk Screen	Cours 500 501 502 503 504 521 522 523 600 601 602 606 611	PHASIS ses Cr. Hrs Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4 Theory of Art 4 Drawing 2 4 Drawing 3 4 Painting 1 4 Woodblock & Monoprinting 4
725 730 747 748 780 781 782 783 784 790 800E 808 OR	Photo Silk Screen	Cours 500 501 502 503 504 521 522 523 600 601 602 606 611 OR	PHASIS ses Cr. Hrs Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4 Theory of Art 4 Drawing 2 4 Drawing 3 4 Painting 1 4 Woodblock & Monoprinting 4
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725 730 747 748 780 781 782 783 784 790 800E 808 OR 809 824 845 880 885	Photo Silk Screen	Cours 500 501 502 503 504 521 522 523 600 601 602 606 611 OR 612 701 705 725 726 730 731 800 808	PHASIS ses Cr. Hrs. Intro to Visual Art 1 Drawing 1 4 Design 1 4 Design 2 4 Design 3 4 Survey of Western Art 1 4 Survey of Western Art 2 4 Survey of Western Art 3 4 Theory of Art 4 Drawing 2 4 Drawing 3 4 Painting 1 4 Woodblock & Monoprinting 4 Silk Screen 4 Life Drawing 4 Drawing 4 4 Ceramics 1 4 Ceramics 2 4 Sculpture 1 4 Sculpture 2 4 Studio Problems (Ceramics or Sculpture)10 20th Century Art to 1945 4
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^{*}This includes the requirements of 21 q.h. for a minor.

811	Ceramics 4	4/8
812	Sculpture 3	5/10
Studi	io Electives (700/800 level)	10
Art	1inor	21
		140/141

Either 811 or 812 must be repeated once (for a total of 8/10 hours).

Bachelor Of Arts Curricula

See Degree Requirements at the beginning of the College of Fine and Performing Arts section. For the art history major, specific courses are required within the humanities and social studies areas (see departmental curriculum sheet). To meet the foreign language requirement, students must successfully complete Intermediate 2; an equivalent number of credits at lower levels is not an acceptable substitute.

ART HISTORY

C	C- II
Cours	
515	Survey of Non-Western Art 1 4
521	Survey of Western Art 14
522	Survey of Western Art 24
523	Survey of Western Art 34
630	Methods for the Art Research Paper 1
	of the following:4
706	Renaissance Art
707	17th/18th Century American Art
708	Baroque and Rococo Art
813	Northern Renaissance Art
ONE	of the following:4
713	19th Century European Art
719	19th Century American Art
744	African-American Art
747	History of Still Photography to 1925
748	History of Still Photography from 1925
808	20th Century Art to 1945
809	20th Century Art from 1945
ONE	of the following:4
714	Ancient Art 1
715	Ancient Art 2
ONE	of the following:4
741	Chinese and Japanese Art
742	African Art
745	Pre-Columbian Art
806	Indian Art
ONE	of the following:4
831	Early Christian/Byzantine Art
832	Early Medieval Art
833	Late Medieval Art
850	Seminar in Art History4
890	Problems in Art History4
	istory Electives (700/800 level)8
Studio	Art Electives
0.0000000000000000000000000000000000000	61

Bachelor Of Science in Education Curricula

See General Requirements at the beginning of the College of Education section.

Licensure in Art Education, K-12

REQUIRED COURSES: 500, 501, 502, 503, 504, 521, 522, 523, 650, 600, 601, 602, 604, 606, 611 or 612, 618 or 655, 662, 725, 730, 762, 763, 770, 780, 801, 822 or 723, 808 or 809; 8 hrs. of Art History Electives. (ART 801 must be taken concurrently with EDUC 843).

DEPARTMENT OF COMMUNICATION AND THEATER

Professors Castronovo, Henneman, Hugenberg, Kougl, O'Neill, Owens (Chair), Robinson; Associate Professor LaLumia; Assistant Professors Hagin, Mathews, Murphy, Nolan, Shanabarger.

The Department of Communication and Theater offers coursework which satisfies major requirements for the degrees of Bachelor of Arts, Bachelor of Fine Arts, and, in conjunction with the College of Education, Bachelor of Science in Education.

Bachelor of Arts

The Bachelor of Arts degree for speech communication or telecommunication studies requires 60 credit hours within the department. Communication majors may emphasize speech communication or theater. For further information about the department, including a meeting with a faculty member who will discuss the requirements with you, contact the department office, located in Bliss Hall, Room 2000.

SPEECH COMMUNICATION

The BA degree in speech communication has two areas of study, emphasizing either Speech Communication or Theater.

Speech Communication Emphasis

The speech communication emphasis provides students with the knowledge and communication skills necessary in today's job market. Students learn to communicate effectively with others in one-to-one situations and in small groups. Effective communication skills in these two situations are identified by corporate recruiters, employers, and alumni as necessary for all college graduates. The student emphasizing speech communication is especially prepared to enter today's competitive work force. The overall goal of study in the speech communication emphasis is to challenge students interested in studying the many forms of human communication—its processes, outcomes, and effects.

Communication is a discipline involving the study of symbolic behaviors and critical thinking in many contexts. Through courses and internships, the program combines a strong liberal arts background with a professional focus.

Students graduating with a BA Degree in Speech Communication with an emphasis in speech communication will:

- understand communication theory and how to translate this theory into successful communication practice
- · communicate effectively in a variety of settings
- function knowledgeably and critically as communication consumers and practitioners
- have competence in critical thinking and problem solving
- be aware of the ethical issues involved in human communication

Students emphasizing speech communication are required to take the following courses:

COMM 500 Intro to Speech

COMM 500	Intro to Speech
	Communication 1 q.h.
COMM 530	Communication Theory 1 4 q.h.
COMM 550	Public Speaking 4 q.h.
COMM 640	Theories of Rhetoric 4 q.h.
COMM 653	Small Group Communication . 4 q.h.
COMM 656	Interpersonal Communication 4 q.h.
COMM 657	Organizational
	Communication 1 4 q.h.
COMM 754	Argumentation 4 q.h.
COMM 798	Understanding Communication
	Research 5 q.h.
COMM 899	Senior Project 2 q.h.
TCOM 581	Survey of American Mass
	Media 4 q.h.
THTR 560	Introduction to Theater 4 q.h.
	16 q.h. of elective
	course work 16 q.h.
	Total 60 q.h.

Theater Emphasis

The Theater emphasis provides a sound academic approach and extensive practical training in the techniques of theater. Students work closely with their instructors in the classroom as well as in practical and/or laboratory settings. This is a sound, basic liberal arts program, designed to provide students with a broad general education with special opportunities to develop skills in theater. As a liberal arts degree with an emphasis on theater training, it is fully accredited by NAST, The National Association of Schools of Theatre.

TELECOMMUNICATION STUDIES

A major in the telecommunication studies curriculum provides in-depth knowledge and intellectual challenge in electronic communication. Students receive practical orientation to the skills and techniques of broadcasting. Further, they explore contemporary theories and problems which are central to telecommunications media, as well as examine new communication media.

From a liberal arts perspective, the telecommunication studies curriculum is designed to aid the student in pursuit of careers not only in broadcasting but also in recently expanding avenues of communication such as non-commercial broadcasting, corporate communications, industrial communications, cablecasting, and independent production. Internships are available in media organizations to students of superior academic achievement.

TEACHING LICENSURE

Students wishing to teach on the secondary level may seek licensure in either the Integrated Language Arts or Drama/Theater P-12. License may be completed as part of either a Bachelor of Arts degree, plus the education requirements, or the Bachelor of Science in Education degree. For the Integrated Language Arts License, consult the curriculum sheet for the appropriate 800-level methods course. For the Drama/Theater P-12 License, the appropriate methods course is Theater 800. For further information about licensure requirements, contact an academic advisor in the College of Education. Curriculum sheets are available in the College of Education and in the department office.

Bachelor of Fine Arts

THEATER

The Bachelor of Fine Arts program is designed to provide intensive theater training, preparing students for careers in the professional or academic theater. It is fully accredited by NAST, the National Association of Schools of Theatre, and admission to degree studies is available by audition/interview only. Within the program, the student may follow one of two tracks, the first emphasizing production/performance and the second emphasizing musical theater. Students admitted to the BFA program will combine a basic foundation of general studies with an extensive performance-oriented protocol of course work (acting, directing, design and dance) and participation in the co-curricular activities of University Theater.

Admissions to the BFA program is based upon auditions and interviews conducted by the Theater faculty. Retention in the program is contingent upon an annual progress review presented by each student.

Curriculum guides detailing the production/performance and musical theater tracks of the BFA program are available in the department office.

Professional Societies

Student Communication Association

The YSU Chapter of the Student Communication Association is affiliated with the National Communication Association (NCA). Students are active in sponsoring on-campus communication events, attending communication conferences, and taking individual and group field trips to learn more about the role of communication in contemporary society.

Alpha Psi Omega

The University Theater is a member of Alpha Psi Omega, the National Honorary Dramatics Fraternity. Students may become members of the local chapter by (1) achieving the prescribed cumulative grade average, and (2) earning a prescribed number of points through participation in dramatic activities. Membership requires sophomore standing.

Pi Kappa Delta

Students who are active participants in the Forensics program may apply for membership in Pi Kappa Delta, the National Honor Society for students involved in extracurricular speech activities.

THE DANA SCHOOL OF MUSIC

Professors Edwards (Director), Funk, Gelfand, Gould, Largent, Leonardi, Raridon, Rollin, Slocum, Turk; Associate Professor Rudnytsky; Assistant Professors Andrew, Ausmann, Buch, Crist, Gage, Mosher, Oltmanns, Perkins, Schaft, Tosh, Umble, Wilcox; Instructors Engelhardt, Krummel.

The Dana School of Music began in 1869 as Dana's Musical Institute in Warren, Ohio. It was merged with Youngstown College in 1941.

The School complements the general objectives of the University by providing intensive professional training in music based on a thorough understanding of the fundamental skills and theory upon which all music rests, providing an opportunity for the non-music major to develop a background of musical knowledge.

The requirements for entrance and for graduation are in accordance with the published regulations of the National Association of Schools of Music, of which the Dana School of Music is a memher.

The curricula may be divided into five components: music education, music theory, music history, performance, and liberal arts. Courses are available leading to the degree of Bachelor of Music with the major in piano, organ, voice, standard string or wind instruments, percussion, composition and music education. In addition, it is possible to obtain the degree of Bachelor of Arts with majors in music history, music theory, and applied music.

In cooperation with the College of Education, the music education program prepares students for certification as music teachers in the public schools and also provides other courses necessary for general elementary teaching certificates. Music education students have a variety of opportunities for obser-

vation and practice teaching through excellent cooperation between the University and all area schools.

Credit in music is allowed in varying amounts toward other degrees granted by the University.

Facilities

The Dana School is one of three departmental units in the College of Fine and Performing Arts. The School is housed in Bliss Hall, which provides 80 practice rooms, 30 faculty studios, 8 classrooms, rehearsal rooms and a recital hall with a seating capacity of 237. Additional use is made of Stambaugh and Powers auditoriums.

Equipment

Equipment includes 32 Steinway pianos, 68 studio pianos, harpsichords by Dowd, two Schlicker pipe organs, three Flentrop pipe organs, consorts of Renaissance wind and brass instruments, and a comprehensive collection of standard band and orchestral instruments.

Many University-owned instruments are available for use by students enrolled in related courses. There is no charge for use of these instruments, although failure to comply with check-in deadlines will result in a \$5.00-a-day fine for each instrument.

Multimedia Center

Bliss Hall Multimedia Center offers students the opportunity to work with state-of-the-art music computer software and hardware, including advanced music notation, music sequencing (composition/arranging) and automatic accompaniment applications. The Center features Macintosh and IBM workstations, each fully MIDI-equipped with Roland synthesizer modules, Roland and Yamaha keyboards and a networked laser printer.

Electronic Music Laboratory

The Dana Electronic Music Laboratory is equipped with sophisticated hardware and software offering the advanced student of music technology the opportunity to experience such applications as hard-disk recording, sampling, digital editing, and advanced sequencing. Additionally a complete analog music synthesis area offers students fundamental experiences in analog electronic music techniques and composition.

Libraries

The school's extensive libraries of band, orchestral, and choral music represent musical periods from the Renaissance to the present. Maag Library contains books, printed music, records, CDs, videos, and CD ROMs.

Scholarships and Loans

The Dana School of Music offers a wide range of scholarships, which are awarded, after competitive auditions, on the basis of talent and academic achievement. Applications should be submitted to the Director of the Dana School of Music. For other scholarships, see Loans and Scholarships in the Scholarships and Financial Aid section.

Musical Activities

The Dana School of Music supplements the concerts of the Monday Musical Club and the Youngstown Symphony Orchestra with the Dana Concert Series. This series brings to the University and to the public artistic solo and ensemble programs featuring faculty members and guest artists, composers, and musicologists.

The School has numerous major performing ensembles: the Dana Chorale, the University Chorus, the Wind Ensemble, the Concert Band, the Marching Band, Dana Symphony Orchestra, Opera Workshop; the Madrigal Singers; the Jazz Ensemble; Woodwind, Brass, String and Percussion Ensembles; the Chamber Orchestra; and the Collegium Musicum and Composer's Ensemble.

Student Activities

Alpha Nu chapter of Sigma Alpha Iota, international professional music fraternity for women, is chartered to the Dana School of Music.

Music students may participate in all Youngstown State University student activities. Of special interest to music students are the student chapters of the Ohio Collegiate Music Educators Association, Early Music Society, Kappa Kappa Psi (honorary band fraternity), New Music Society, Dana Opera Society, and the Jazz Society. The School and the Youngstown Chapter of the American Guild of Organists jointly sponsor a Guild student group.

Fees

See the Fees and Expenses section of this *Bulletin*.

Application and Admission Examinations

An applicant for admission to the Dana School of Music must satisfy the general requirements for admission to the University (see the Admission section).

Applicants are required to pass entrance auditions in their performance area and to take placement examinations in music theory and piano. These auditions and examinations are on announced dates preceding the commencement of classes in the fall.

Admission to Courses for the Degree of Bachelor of Music

The applicant's high school courses should include the preparatory courses specified under High School Preparation on p. 8 of this *Bulletin*.

Musical Proficiency

It is expected that the applicant will have developed a certain proficiency in one or more branches of applied music before entering the University, as certain standards in technique and repertory must be met. Qualifications are determined by the placement tests mentioned above; the student not qualifying for the first regular course in a major branch of applied music must take preparatory work until ready to undertake the regular courses.

The Dana School of Music theory placement examination is used to determine theory proficiency. Those scoring less than the 50th percentile will be assigned to Music 520, while those scoring above the 50th percentile will be assigned to Music 530.

Prospective composition majors must present evidence of ability to handle the materials of music by placing at or above the 70th percentile of the Dana School of Music theory entrance examination. Proficiency on a musical instrument sufficient for admission to the freshman level of applied music must be demonstrated before the appropriate applied faculty.

Admission from Other Institutions

The general policy is stated in the Academic Policies and Procedures section. Advanced standing in musical performance and in music theory is granted tentatively and must be validated by examinations.

Requirements for the Degree Bachelor of Music

It is the student's responsibility to see that all the graduation requirements for the degree sought are satisfied. For the Bachelor of Music degree, these consist of:

Pre-college or preparatory study, of two kinds:

- A. Academic. The specific courses are listed on p. 8 of this *Bulletin*. These courses are normally taken in high school. Deficiencies must be overcome prior to completing 90 quarter hours at YSU.
- Musical. An entrant lacking suitable proficiency must develop it before undertaking the required college-level music courses.
- University requirements. Non-music courses and other requirements to be completed in the University are listed in the Degree Requirements chart on p. 132.

 Degree requirements. Curricula leading to music degrees require from 186 to 201 quarter hours of credit and are designed to be completed in four academic years.

Double Major: Music Performance and Music Education

Students who wish to complete a major (Bachelor of Music degree) in an instrument or in voice, theory, or composition, and also a major in music education, should consult the director of the Dana School of Music.

CURRICULA

Performance Major

Acceptance into a performance area is contingent upon an audition. The student not qualifying for Music 501 or 504 may take the relevant course 500 until the deficiency is corrected.

Advanced standing in performance may be granted tentatively after an examination given by members of the faculty. The final classification is made at the end of the first quarter of resident study.

Enrollments in applied music are contingent upon the approval of the director of the Dana School of Music, with priority given to full-time music majors and music minors participating in major ensembles.

Teacher Assignment. Assignment of students to teachers is made by the area coordinator. Requests for change of teacher should be addressed to the coordinator in writing. A student's choice of teacher will be respected as far as possible, but final assignment rests with the director of the School of Music.

Lessons. Students registered for 4 q.h. courses receive individual instruction and one 50-minute seminar weekly. They are required to practice three hours daily. Students registered for 2 and 3 q.h. courses receive individual instruction and one 50-minute seminar weekly; they are required to practice two hours daily. Students registered for A, B and C applied courses receive individual instruction and are required to practice one hour daily.

No credit will be given in a performance course if the student misses more than three lessons in any one quarter. Lessons missed due to legal holidays or school closings will not be made up. In case of prolonged illness the lessons may be made up at the discretion of the teacher.

Recitals. Recognizing that performing before an audience plays a vital role in musical development, the Dana School offers its students many opportunities to appear in public as a way to foster that development. Attendance at 30 recitals is mandatory in the first two years.

Convocation. The assistant director of the School arranges weekly programs of lectures, student and

faculty performances. Attendance at 36 convocations is mandatory in the first two years.

Concerto/Aria Concert. An annual concert by the Dana Symphony Orchestra features student soloists chosen by competition.

Degree And Non-degree Recitals. Each candidate for the degree Bachelor of Music must present a senior recital in partial fulfillment of the graduation requirements; performance majors must present a one-hour recital; music education majors must present a half-hour recital. Performance majors must also present a half-hour junior recital. Outstanding students may present non-degree recitals, subject to certain conditions (for particulars consult the coordinator of the Dana Concert Series). Planning for all these recitals should include selection of varied and balanced repertory, preparation of properly detailed copy for the printed program and program notes, and consideration of performance aspects such as attire, stage deportment, and ways to attract an audience. A recital hearing will be held no later than 21 days prior to the projected recital date. During that time a student who plans to present a degree recital must be prepared to perform the recital program for faculty approval.

Examinations. During examination week of each quarter performance faculty members convene to determine whether or not students may proceed to the next higher proficiency level (performance course number). Frequency of required examinations differs among the various performance areas (for specifics consult the syllabus of the performance area concerned). Transfer students are examined at the end of their first or second quarter of study, as established by the individual performance area. Students presenting an approved degree recital are granted a waiver of examination for the quarter of the recital. Students may be retained in the same proficiency level with a grade of C or lower or with a grade of PR. Students who fail to meet the standards of the examining faculty may be required to reduce the number of quarter hours' credit for which they register in subsequent quarters; or they may be required to withdraw completely from the course sequence.

Each applied area (keyboard, brass, etc.) may vary the above to meet certain needs. Consult with area coordinator for details.

Jazz or Applied/BA Major

The following courses differ only in degree from those listed under Performance Major according to the credit hours earned. A high standard of proficiency is expected. For the jazz major, junior and senior recitals are required.

501, 502, 503. See Performance Major 2+2+2 q.h.

604, 605, 606. See Performance Major

3+3+3 q.h.

704, 705, 706. See Major/P	erformance
	3+3+3 q.h.
804, 805, 806. See Major/P	erformance
	3+3+3 q.h.

Music Education Major

The following courses differ only in degree from those listed under Performance Major according to the credit hours earned. Concentration in the development of basic technics relative to teaching in the elementary and secondary school systems. A high standard of proficiency is expected. Senior recital required.

501, 502, 503. See Performance Major		
	2+2+2	.h.
601, 602, 603. See Performance Major		
	2+2+2 9	h.
701, 702, 703. See Performance Major		
	2+2+2 9	.h.
801, 802, 803. See Performance Major		
	2+2+2 9	h.

Music Minor

The following courses are for the student who has a requirement of study on a secondary instrument or voice or who does not meet the standards required in the major courses. No seminar is required. Initial enrollment is contingent upon successful completion of an audition.

500 A,B,C.	1+1+1 q.h.
600 A,B,C.	1+1+1 q.h.
700 A,B,C.	1+1+1 q.h.
800 A,B,C.	1+1+1 q.h.

ENSEMBLES

In order to obtain experience in the performance of music written for instrumental and vocal groups, students are required to participate in ensembles as follows:

All vocal and instrumental majors must be in a major ensemble each quarter they are full-time students. The director of the School of Music may waive ensemble participation in exceptional cases, and during the student-teaching quarter.

There are two types of ensembles in the school of music—major ensembles and chamber ensembles. Major ensembles rehearse a total of four hours per week and chamber ensembles for two hours.

The major ensembles are:

Cour	se Number	Cr. Hrs.
002	Dana Chorale	.0-1 q.h.
004	University Chorus	.0-1 q.h.
005	Concert Band	0-1 q.h.
006	Marching Band	0-1 q.h.

007	Wind Ensemble	0-1	q.h.
008	Symphony Orchestra		
The ch	amber ensembles are:		
003	Dana Madrigal	0-1	q.h.
009	Percussion Ensemble		
010	String Ensemble		q.h.
012	Opera Workshop		q.h.
013	Contemporary Ensemble		q.h.
015	Dana Early Music Ensemble		q.h.
016	Woodwind Ensemble	0-1	q.h.
017	Brass Ensemble	0-1	q.h.
018	Horn Choir		q.h.
019	Trombone Ensemble	0-1	q.h.
020	Tuba Ensemble	0-1	q.h.
021	Brass Chamber Ensemble	0-1	q.h.
022	Trumpet Ensemble	0-1	q.h.
023		0-1	q.h.
024	Composer's Ensemble	0-1	q.h.
026			q.h.
028	Chamber Winds	0-1	q.h.
029	Guitar Ensemble	0-1	q.h.
030	Jazz Combo	0-1	q.h.
035	Saxophone Quartet	0-1	q.h.
040	University Band	0-1	q.h.
041			q.h.

Ensemble courses are open to all students in the University who are qualified for them and any ensemble course may be repeated any number of quarters. Three hours of marching band credit may be substituted for three hours of the general requirement in physical activity classes.

Requirements in addition to the above but unique to each ensemble:

- For students pursuing the jazz emphasis curriculum, the Jazz Ensemble is considered the major ensemble. 023 Jazz Ensemble meets for three hours per week.
- Opera workshop 012 culminates in the production of one or more operas. Credit is given in accordance with the amount of work chosen by the student, ranging from one to three quarter hours.
- Madrigal Singers 003 is a highly select ensemble which presents numerous concerts and rehearses three hours per week for 1 q.h. credit.
- Woodwind ensemble may include quartets, quintets, and various other combinations of instruments. 1 q.h. each.
- Composers' Ensemble: Performance of works by student composers or other works which will assist student composers in the development of an original, creative style. Meets two hours per week. 1 q.h.

CURRICULUM FOR PERFORMANCE DEGREES

The major in music comprises three components:

 General University Requirements (common to all degrees).

II. Core music requirements.	CURRICULUM FOR PACHELOR OF
II. Core music requirements. III. Requirements unique to each area of empha-	CURRICULUM FOR BACHELOR OF
sis.	MUSIC IN COMPOSITION
I. General University Requirements	 General University requirements common to all performance degrees
Courses Cr. Hrs.	Courses Cr. Hrs.
Composition 550, 551	Composition 550, 551 8
Social Studies	Social Studies elective
HSC 590 and 3 HPES activities	HSC 590 and 3 HPES activities6
	Math/Science (including Physics 608) 12
Math/Science (Including Physics 608)	Humanities (See MUSHL 770, 771, 772)
Humanities (see MUSHL 770, 771, 772)	Philosophy and music elective 24
(courses must be taken from at least two	Language 501, 502, 503 or equivalent 12
departments)	
II. Core Music Requirements	II. Music requirements common to both compo-
Keyboard musicianship 580-682 (for non-keyboard	sition concentrations
majors) Accompanying 690-695 (for keyboard	Courses Cr. Hrs.
majors) 6	Music Theory 530-75022
Applied major 501-80942	Music History 770-77212
Music Theory 530-750	Composition 501-80630
Music History 770, 771, 772	Junior/Senior recitals N/C
Music Literature 518, 519	Major ensemble
Junior/Senior Recitals	Theory 831 and 8326
Junior/ Semor Recitals IV/C	Music History elective
III. Requirements unique to area of emphasis	Theory electives9
1. Piano	Music Literature 518, 519
Chamber Music 890, 891, 8923	made Exterior 010/017 minimum o
Duo-Duet 890, 891, 892	III. Requirements in addition to the above but
	unique to both composition concentrations
Voice class/applied voice	
Piano pedagogy 858, 859	1. Keyboard concentration in composition
Theory/History electives	
(elective choices must represent both areas)	Cui III.
Music electives	Piano 501-703
Ensemble 6	Secondary applied 5012
Conducting 716, 7174	Applied classes
2. Organ	Music electives10
Piano 500A-600C	2. Non-keyboard concentration in composition
Ensemble6	
Piano pedagogy2	
Music Theory/History electives15	Keyboard 580-682
(elective choices must represent both areas)	Applied Music 501-701
Voice class/applied voice3	Applied classes
Conducting 716, 717 4	Music electives
Music electives16	CURRICULUM FOR
3. Instrumental	ACCOMPANYING DEGREE
Major Ensemble	ACCOMPANTING DEGREE
(guitar majors/guitar ensemble)	I. General University Requirements
Chamber Ensemble	Courses Cr. Hrs.
Conducting 716, 717	Composition 550, 551 8
	Social Studies elective
Theory/History electives	HSC 590 and 3 HPES activities6
(elective choices must represent both areas)	Math/Science (including Physics 608)
Pedagogy2	
Music electives16	Humanities (see MUSHL 770, 771, 772) (courses
4. Voice	must be taken from at least two departments) 16
Major ensemble	II. Core Music Requirements
Chamber ensemble3	Courses Cr. Hrs.
Theory/History electives12	Keyboard musicianship 580-682 (for non-keyboard
(elective choices must represent both areas)	majors) Accompanying 690-695 (for keyboard
(elective choices must represent both areas) Pedagogy2	majors) Accompanying 690-695 (for keyboard majors)
Pedagogy	majors) 6
Pedagogy2	

Music History 770, 771, 772	12	HSC 590 and 3 HPES activities
Junior/Senior Recitals		Social Studies
III Requirements unique to area of empha	cie	Including Psych. 560 and 709 16
III. Requirements unique to area of emphasis		Speech 654
Applied major 501-804		Humanities (see MUSHL 770, 771, 772) (courses
Ensemble		must be taken from at least two
Voice class/applied voice		departments)
Music Theory/History electives		II. Core Music Requirements
Duo-Duet 887, 888, 889		Courses Cr. Hrs
Chamber music 890, 891, 892		
		Applied Major (501-802)
Piano pedagogy		Music Theory 530-750
German, French, Italian (501)		Music History 770, 771, 772
Conducting 716, 717		Conducting 716, 717
Music electives	. 13-19	Music Education 511, 815, 823 and elective 1
CURRICULUM FOR JAZZ DEGRE	ES	Keyboard Musicianship 580-682 (for non-keyboard majors)
I. General University Requirements		Accompanying 690-695 (for kybd. majors) 6
		Survey of Music Literature 518, 519
	r. Hrs.	Computer applications to music
Composition 550, 551		Senior Recital N/C
Social Studies elective HSC 590 and 3 HPES activities	Markey A. S.	III. Requirements unique to area of emphasis
Math/Science (including Physics 608)		1. Instrumental
Humanities (See MUSHL 770, 771, 772)		Courses Cr. Hrs
(courses must be taken from at least two	0	Major ensemble 11
departments)		Methods/applied classes (pedagogy)
acparation, minimum		Marching band techniques
II. Core Music Requirements		Instrumental literature
	r. Hrs.	2. Voice
Keyboard musicianship 580-682 (for non- key	board	Courses Cr. Hrs
majors) Accompanying 690-695 (for		Methods/applied classes4
keyboard majors)		Pedagogy 8802
Music Theory 530-750		Show choir techniques
Music Literature 518, 519		Choral literature
Music History 770, 771, 772		Diction 2
Junior/Senior Recitals	. N/C	Major ensemble11
		3. Keyboard
III. Requirements unique to area of empha	SIS	
C	. II.	Courses Cr. Hrs
	r. Hrs.	Voice class/applied
Applied major		Methods/applied classes4
Jazz ensemble		Pedagogy 858, 859 4
Jazz combo		Ensemble 6
Jazz Fundamentals 525	2	Instrumental literature or choral literature 2
Arranging 712, 713, 714	9	Marching band techniques or
Survey of Jazz 616	4	show choir techniques2
Improvisation 666-868		Music elective2
Pedagogy		IV. School of Education Licensure Requirements
Jazz Keyboard 780-782		
Music Theory/History electives	6	501 Introduction to Education
Conducting 716	2	700 Foundations of Reading
		702 Instruction Media
CURRICULUM FOR MUSIC		704 Professional Lab
EDUCATION DEGREES		706 Principles of High School Teaching
I. General University Requirements		706L Principles of High School Teaching Lab 3
		708 Education and Society 4
	r. Hrs.	710 Educational Measurement and Guidance . 4
Composition 550, 551	8	730 Exceptional Children in the
Math /Science		Regular Classroom2
(including Intermediate Algebra 5 503+504) (any math 513 or above) Physical Control of the Contr		844 Student Teaching Music K-1215
Sound, Biological or	14	
Physical Science elective	12	

CURRICULUM FOR BACHELOR OF ARTS DEGREE

I. General University Requirements	
Courses	Cr. Hrs.
Composition 550, 551	8
Social Studies	
HSC 590 and 3 HPES activities	6
Math/Science (including Physics 608)	16
Humanities (See Music 770, 771, 772) (c must be taken from at least two depa	
Language	8 to 20
Minor field	21
II. Core Music Requirements	
Courses	Cr. Hrs.
Keyboard musicianship 580-682 (for no majors) Accompanying 690-695 (for majors)	
Music Theory 530-750	22
Music Literature 518, 519	6
Music History 770, 771, 772	12
Conducting 716 or 717 (choice)	2

III. Requirements unique to area of emphasis:

1. Music History

• •	viable visitif	
	Courses	Cr. Hrs.
	Applied instrument/voice	12
	Music elective	9
	Music History/Literature electives	s15
	Music theory elective	
	Free elective	
	Ensemble	6
2. /	Applied Music	
	Courses	Cr. Hrs.
	Applied instrument/voice	24
	Theory/History electives	9
	Music elective	2
	Free electives	8
	(Keyboard/Guitar majors may el semble)	ect any en-
	Major ensemble	12
	Senior Recital	
3. I	Music Theory	
	Courses	Cr. Hrs.
	Applied instrument/voice	12
	Ensemble	
	Music history elective	6
	Music theory elective	
	Music elective	9

The College of Health and Human Services

John J. Yemma, Dean



In support of the University mission to provide a wide range of educational opportunities in higher education, the College of Health and Human Services assumes a dual role. The College offers associate, baccalaureate, and graduate degree programs. Consequently, the College exhibits characteristics of a professional health college as well as that which provides programs in human services, and whose programs are designed to enhance the employment potential of its graduates in professional or social service careers.

The College offers traditional baccalaureate programs that deal directly with human health and well-being. It also offers a number of two-year associate degree programs that blend together theoretical principles, practical application of concepts and skill development.

Through a two-plus-two arrangement in the College, many of these associate degree programs can be used as the basis for upward academic growth to a baccalaureate degree. The College offers a minor in public health.

Accreditation

The Commission on Accreditation of Allied Health Education Programs accredits medical laboratory technology, emergency medical technology, respiratory care, and medical assisting. The histologic technician program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences. The Bachelor of Science in Nursing program is accredited by the National League for Nursing and approved by the Ohio Board of Nursing Education and Nurse Registration. The Commission on Dental Accreditation accredits the dental hygiene program. The social work program is accredited by the Council on Social Work Education. The dietetic technology program, the coordinated program in dietetics, and the didactic program in dietetics are approved by the American Dietetic Association. The physical therapy program is accredited by the Commission on Accreditation in Physical Therapy Education.

Organization/Majors

The College of Health and Human Services consists of seven departments: Criminal Justice, Health Professions, Human Ecology, Human Performance and Exercise Science, Military Science, Nursing, Physical Therapy, and Social Work. In cooperation with the College of Education, Health Sciences provides a health major, Human Performance and Exercise Science provides a physical education major, and Human Ecology provides a vocational home economics major. Graduate work is offered by the Criminal Justice and Human Ecology departments. The Department of Nursing offers a master's degree in nursing, and the college offers a Master in Health and Human Services degree. The seven departments are listed below with their associate (A) and baccalaureate (B) offerings.

Department of Health Professions

Allied Health (B)

Community & School Health (B)

† Dental Hygiene (A) Emergency Medical

Emergency Medical Technology (A) Histotechnology (A)

Medical Assisting Technology (A)

† Medical Laboratory Technology (A)

Medical Technology (B)
 Respiratory Care (B)

Department of Criminal Justice

Criminal Justice (B)

Police Science Technology (A)

Department of Human Ecology

Pre-Kindergarten Associates (A)

Dietetic Technology (A)

Merchandising: Fashions & Interiors (B)

Food and Nutrition (B)

Home Economics Services (B)

Hospitality Management (A)

" Vocational Home Economics Education (B)

Department of Human Performance and Exercise Science

Exercise Science (B)

** Physical Education (B)

Physical Education (B)

Department of Military Science

ROTC Programs are offered. See pages 163-65.

Department of Nursing

† Nursing (B)

Department of Physical Therapy

† Physical Therapy (B)

Department of Social Work

Social Work (B)

Social Services Technology (A)

Nursing Home Administration (B)

[†]Restricted admission; see department for further informa-

"In cooperation with the College of Education, for the B.S. in Ed. degree. Students whose needs are not completely met by existing conventional programs may wish to investigate and apply for the Individualized Curriculum Program (see the Academic Policies and Procedures section).

ROTC students are allowed certain modifications of the requirements, as explained in the Military Science section.

It is the student's responsibility to satisfy all the graduation requirements for the degree sought. These consist of:

- 1. The pre-college or preparatory courses for each degree as covered in the Academic Policies and Procedures section.
- 2. The courses and other requirements to be completed in the University as explained in the Academic Policies and Procedures section.
- The specific curriculum requirements of a given program.

Course descriptions can be found in a separate section in the back of this *Bulletin*.

DEPARTMENT OF HEALTH PROFESSIONS

Professors Harris, Boyd; Associate Professors Akpom, Boehm, Burger, Delost, Feld, Harig, Mikanowicz, Mistovich (Chair), Vendemia; Assistant Professors Juruaz, Scott; Instructor Benner.

The department offers associate and baccalaureate degree programs for future members of the health care delivery and health education team. Associate degree programs are offered in dental hygiene, emergency medical technology, medical assisting technology, medical laboratory technology, and histotechnology. Baccalaureate programs are offered in allied health, community health, school health, medical technology, and respiratory care. Details on program requirements appear under the specific program heading.

Admission to all programs except medical assisting technology, community health, and school health is on a restricted basis, since only a limited number of students can be accommodated. Detailed information on admission criteria and closing dates for application is available in the Department of Health Professions, College of Health and Human Services Dean's Office, or the Admissions Office.

A graduate program leading to a Master of Health and Human Services with emphasis in either health promotion or administration for health and human services professionals is also available. Refer to the Graduate School catalog for degree program details.

Bachelor of Science in Applied Science degree in Allied Health

The department offers a baccalaureate program leading to the degree Bachelor of Science in Applied Science with a major in Allied Health. This program is intended to serve paramedical professional health associate degree graduates who wish to upgrade their academic credentials to include the baccalaureate degree. Major components of the program for dental hygiene, emergency medical technology, or respiratory care graduates are:

Associate Degree in D.H., E.M.T.

or R.C.	96-110 q.h.
General Allied Health Courses	24-29 q.h.
Advanced Discipline Courses	15-18 q.h.
Minor in Biology, Chemistry, Manage	ment,
Education or other	21 q.h.
University General Requirements	20-28 q.h.
Total	186-194 q.h.

Graduates of regionally and professionally accredited associate degree programs in dental hygiene, emergency medical technology, and respiratory care will be admitted to the baccalaureate program as juniors. Graduates of non-accredited programs will be provisionally admitted and placed at a level determined by an evaluation of their academic transcripts.

Graduates with an associate degree in a medical assisting technology, medical laboratory technology, or in a medical/health related discipline (for example, radiological technology, physical therapy assistant, or dietetics) will be admitted to the multidisciplinary track of the BSAS in Allied Health. Major components of the program are:

Associate Degree in Health Related

Discipline	96-110 q.h.
Required Allied Health Courses	27 q.h.
Selected Allied Health Courses	
Student Selected Minors	21 q.h.
University General Requirements	20-28 q.h.
Total	186-196 a.h.

Pre-admission counseling is required for students seeking entry to the B.S.A.S. in Allied Health. For

greater detail on program content or admissions, students should contact the Department of Health Professions.

COMMUNITY AND SCHOOL HEALTH PROGRAMS

Associate Professor Akpom (Program Director) Mikanowicz; Assistant Professor Scott.

The community and school health program offers two majors: the Bachelor of Science in Education (B.S. in Education) and the Bachelor of Science in Applied Science (B.S.A.S.) in community health. The program also offers a 21 credit minor in community health; an additional teaching field in health education; and the Health Education Methods course for elementary education majors. The community and school health program contributes to the University's General Education Requirements by offering HSC 590 Strategies for Health and Wellness. The community and school health program participates in the Northeast Ohio Universities College of Medicine (NEOUCOM) by offering the B.S./M.D. Community Health course, and the M4 Community Medicine Clerkship.

A graduate program leading to the Master of Science in Health and Human Services degree with emphasis in health promotion or health and human services administration is also available. Refer to the *Graduate Bulletin* for details.

The B.S.A.S. in community health prepares the student to become a Certified Health Education Specialist (CHES). Graduates are prepared to carry out the areas of responsibility required by CHES certification, which are: to assess individual and community health needs; to plan and implement effective health education and health promotion programs; to coordinate and manage the provision of health education and promotion services; to effectively communicate health and health education needs, concerns and resources; and to conduct program evaluation.

The program integrates classroom and experiential community-based learning in many of its courses. Community health graduates are employed in public health agencies, volunteer and private health and community organizations, hospitals and other health and care settings, local, state and national governmental agencies, and business and industrial settings. A minor, consisting of at least 21 credits in another program of study is required for the community health major. Useful minors include: social work, nutrition, exercise science, criminal justice, environmental studies, business information systems, sociology, and psychology.

The B.S. in Education enables graduates to receive certification for school health teaching kindergarten through twelfth grade. Students seeking this certification must apply for upper-division status in the College of Education upon completion of 90 credit hours. Students in this major should also consult with the College of Education when choosing an additional teaching field. For those students pursuing an *additional* teaching field in health education, 45 credit hours are required, which leads to certification for school health teaching in grades 7-12.

B.S.A.S. DEGREE PROGRAM: ENGL 550, 551, COMM 550, PHIL 600, 825, BIOL 551, 552, 560, PSYCH 560, SOCIO 500, 700, HSC 590, three hours of physical education activity. Additional general university requirements include 8 hours in the humanities, and 4 hours in the social sciences. Core requirements in the major include: HSC 596, 601, 604, 606L, 691, 692, 700, 731, 755, 756, 791, 792, 799, 827, 828, 891, 892, 899, FNUTR 551, COMM 653, MGT 725/ALTH 810, and a computer literacy course and an elementary statistics course.

B.S. in EDUCATION: ENGL 550, 551, COMM 654, 8 hours in the humanities area, BIOL 551, 552, 560, any MATH 512 or above, PSYCH 560, 709, 755, 756, SOCIO 500, HSC 590, three hours of physical education activity. Core requirements in the major include: EDUC 501, 700, 702, 704, 706, 706L, 708, 710, 730, 845, HSC 596, 601, 604, 680, 691, 692, 721, 731, 755, 756, 791, 794, 827, 892, 899, FNUTR 551, CHEM 505.

DENTAL HYGIENE

Associate Professors Betz, Harig, Vendemia (Program Director); Assistant Professor Juruaz.

The two-year program in dental hygiene leads to the Associate in Applied Science degree. The program is designed to prepare dental hygienists for work in private practice, in school systems, dental health programs, health agencies, hospitals, research programs, or public health settings.

At the end of the second year in the program, students are eligible to take state and national board examinations. Upon successful completion of these comprehensive written and clinical examinations, the student may apply for a license to practice dental hygiene in the state as a registered dental hygienist.

The registered dental hygienist is a licensed professional who provides dental hygiene treatment and related preventive services. Clinical skills of the hygienist include taking medical and dental histories; administering radiographic surveys; making study models; performing extra-oral and intra-oral examinations which include cancer screenings; dietary management; dental charting; preliminary periodontal evaluations; scaling and root planing; polishing; patient education; placing sealants and administering fluoride therapy. Many states permit the hygienist to perform additional duties such as administering anesthesia and placing restorative materials.

The dental hygienist also functions as a dental health educator and is responsible for the preventive dental health program in private dental practices as well as in other settings. The hygienist teaches patients proper oral health care in order to reduce dental diseases and disorders.

The hygienist's role in service to the community may include increasing public awareness of dental health by coordinating National Dental Health Month in the community, serving as a resource person to school systems, providing screenings to various children or local groups, and making visits to nursing homes, hospitals and/or schools for the mentally retarded or handicapped.

Students are admitted to the dental hygiene program only once a year. The admission policy is available in the Department of Health Professions.

Current students applying to the dental hygiene program must submit a completed application form to the College of Health and Human Services dean's office by March 1 to be considered for direct entry to the program for the following fall.

High school, transfer, and former students must apply for admission to YSU by December 31. The University must receive all admission credentials (official transcripts, etc.) directly from the issuing institution by January 31.

In addition to history, U.S. government and social sciences, freshman applicants must have high school credit in the following subjects with grades of "C" or higher and a GPA of 3.2 (on a 4.0 system): algebra I, algebra II or geometry, chemistry and biology.

Freshman applicants who have not graduated from high school but have passed the General Education Development (GED) test must also have completed algebra I, algebra II or geometry, biology, and chemistry with a grade of "C" or higher and a GPA of 3.2 (on a 4.0 system) in these subjects.

Students accepted to the program must have completed Anatomy and Physiology of Humans 1 and 2 prior to fall quarter of their first year. Current, former, and transfer students must meet all the requirements for freshman admission, and have a minimum program grade point average of 2.5 (on a 4.0 system). Meeting minimum requirements does not assure acceptance into the dental hygiene program.

Dental Hygiene Curriculum

SUMMER Courses Cr. Hrs. BIOL 551 Physiology and Anatomy of Humans 14 BIOL 552 Physiology and Anatomy of Humans 24 8

FIRST YEAR
FIRST QUARTER
Courses Cr. Hrs.
DENHY 501 Dental Hygiene 13
DENHYH 501L Clinical Dental Hygiene 1 2
DENHY 520 Dental Anatomy2 DENHY 520L Dental Anatomy Lab
CHEM 505 Chemistry for the
Allied Health Sciences 14
ENICI 550 Pagic Composition 1
16
SECOND QUARTER
Courses Cr. Hrs. DENHY 500 Dental-Medical Emergencies 2
DENHY 500 Dental Medical Emergencies 2
DENHY 502 Dental Hygiene 2
DENHY 530 Dental Radiology2
DENHY 525 Oral Histology and Embryology 3
CHEM 506 Chemistry for the
Allied Health Sciences 2 4
SOCST/HUMAN Elective3
19
THIRD QUARTER
Courses Cr. Hrs.
DENHY 503 Dental Hygiene 3
DENHY 503L Clinical Dental Hygiene 3
DENHY 530L Dental Radiology Laboratory 1
DENHY 535 General and Oral Pathology 3
BIOL 560 Paramedical Microbiology5
BIOL 560 Paramedical Microbiology
BIOL 560 Paramedical Microbiology
FNUTR 551 Normal Nutrition 14 SECOND YEAR
FNUTR 551 Normal Nutrition 14 SECOND YEAR FOURTH QUARTER
FNUTR 551 Normal Nutrition 14 SECOND YEAR FOURTH QUARTER Courses Cr. Hrs.
FNUTR 551 Normal Nutrition 1
FNUTR 551 Normal Nutrition 1
FNUTR 551 Normal Nutrition 1
SECOND YEAR FOURTH QUARTER
SECOND YEAR FOURTH QUARTER
SECOND YEAR FOURTH QUARTER
SECOND YEAR FOURTH QUARTER
SECOND YEAR FOURTH QUARTER
SECOND YEAR FOURTH QUARTER
FNUTR 551 Normal Nutrition 1
FNUTR 551 Normal Nutrition 1
SECOND YEAR FOURTH QUARTER
SECOND YEAR
SECOND YEAR
SECOND YEAR
SECOND YEAR
SECOND YEAR FOURTH QUARTER
SECOND YEAR
SECOND YEAR FOURTH QUARTER
SECOND YEAR FOURTH QUARTER

DENHY 606L Clinical Dental Hygiene 6	4
DENHY 626L Dental Public Health	
Practicum 2	1
DENHY 641 Ethics and Jurisprudence	1
SOCIO 500 Fundamentals of Sociology	4
COMM 550 Public Speaking	4 17
Total Credit Hours	110

EMERGENCY MEDICAL TECHNOLOGY

Associate Professor Mistovich; Instructor Benner (Program Director).

Emergency medical technology programs are designed to train persons to provide emergency prehospital care to people experiencing health crises. The goals of these programs are on three different levels: Emergency Medical Technician Basic; Paramedic Certification; and the Associate in Applied Science degree.

The Emergency Medical Technician Basic Certificate is a prerequisite for admission to the emergency medical technology program in addition to University and department admission requirements.

The Emergency Medical Technician Paramedic Certificate can be attained after successfully completing four quarters of study. The course of study provides the student with knowledge about the recognition, assessment, and supervised practice of emergency medical care in the hospital and in advanced life-support situations. It meets and exceeds all United States Department of Transportation national standard paramedic curriculum objectives and is accredited by the Commission on Accreditation of Allied Health Educational Programs and the Ohio Department of Public Safety-Division of EMS (3-2-004).

The Associate in Applied Science degree is awarded following the completion of the advanced training program with clinical paramedical experiences. The course of study affords the practitioner application of organizational and managerial principles in various emergency services. Forty percent of all teaching and clinical rotations are physician-instructed and/or precepted.

For the certificates, admission requirements and procedures are the same as those applicable to the University and the Department of Health Professions with the addition of a minimum age of 18 years, a current driver's license, and an interview by a selection committee. The student must be EMT-B certified. A physical examination to attest good health is required. Admission into the Associate in Applied Science degree program is restricted. Please refer to the admission policies.

Emergency Medical

Technology Curriculum	
FIRST YEAR	
FIRST QUARTER (FAI	L)
Courses BIOL 551 Physiology & Anatomy 1 EMTEC 506 Principles of Trauma EMTEC 507 Emergency Medical Techniques 1 EMTEC 507L Emergency Medical	Cr. Hrs. with Lab 4
Techniques 1 Lab EMTEC 509 Intro. to Emergency Medical Technology	2
	14
SECOND QUARTER (WIN Courses MATEC 605 Introduction to Pharma BIOL 552 Physiology & Anatomy 2 of EMTEC 515 Medical Conditions & Management Tech. EMTEC 515L Emergency Medical Techniques 2 Lab	Cr. Hrs. acology
FOURTH QUARTER (SUM	IMER)
Courses EMTEC 605 Emergency Medical Special Topics EMTEC 605L Emergency Medical Special Topics Lab EMTEC 606 Clinical Experience 2 EMTEC 608 ALS Field Internship 2	
Total for EMT — Certificate Level	
SECOND YEAR FIFTH QUARTER (FAL Courses	
PSYCH 560 General Psychology CHEM 505 Chemistry for the Allied Health Sciences 1 EMTEC 604 Advanced Pathophysio	4 logy
for EMT EMTEC 641 Advanced Assessment a Management Techniques † Technical Elective	3

SIXTH QUARTER (WINTER)
Courses Cr. Hrs.
SOCIO 500 Fundamentals of Sociology4
CHEM 506 Chemistry for the Allied
Health Sciences 2 4
EMTEC 650 Research Methodology for EMS 3
ENGL 550 Composition 1
SEVENTH QUARTER (SPRING)
Courses Cr. Hrs.
COMM 550 Public Speaking4
* SOCSC or HUMAN Elective 4
EMTEC 660 Multiskilled EMS Practitioner 3
EMTEC 661 Advanced Clinical and
Field Internship Experience3
14
Total Credit Hours105

MEDICAL ASSISTING TECHNOLOGY

Associate Professor Feld (Program Director)

*Elective must be approved by the EMTEC Program Coordi-

The medical assisting technology program is a two-year program leading to the Associate in Applied Science degree. The MATEC Program meets the standards developed by the American Association of Medical Assistants (AAMA) and is accredited by Commission on Accreditation of Allied Health Education Programs (CAAHEP). Upon graduation, the student may apply for the certification exam given by the AAMA. Successful completion of the written exam brings the designation as a Certified Medical Assistant (CMA).

At completion of the program, graduates are eligible to sit for the AAMA Certification Exam. The curriculum provides graduates with the skills necessary to perform dual roles as administrative and/ or clinical technical assistants in private physician offices, clinics, or hospital outpatient departments. The administrative skills include: public relations, receptionist activities, record management, secretarial skills, bookkeeping, insurance and coding clerk, banking, payroll and managerial responsibilities. Clinical skills include: preparing the patient for examination and procedures, taking medical histories and patient assessment, operating and maintaining medical equipment, collecting specimens, performing laboratory tests, and teaching and counseling patients. Admission to the program is not restricted, but high school prerequisites include biology, chemistry, algebra 1, algebra 2 or geometry, and business typing (personal typing does not substitute).

A grade of C or better is required in all MATEC and OIS courses. A 2.0 overall G.P.A. must be maintained to continue in the program. Prior to scheduling the externship, the student records will be reviewed by the department to determine if all previ-

ous courses in the program have been satisfactorily completed and all deficiencies have been made up.

The student must have a physical examination report with a negative tuberculin-screening test and serology test and hepatitis B vaccination prior to MATEC 620, MATEC 680 and the externship.

Medical Assisting Technology Curriculum

General University Requirements
Courses Cr. Hrs.
ENGL 550, 551 Basic Composition 1, 2
PSYCH 560 General Psychology4
SOCIO 500 Fundamentals of Sociology4
SOCSC Elective4
CHEM 505 Chemistry for the Allied
Health Sciences 14
BIOL 551, 552 Physiology & Anatomy 1, 2 8
BIOL 560 Para-Medical Microbiology
HSC 590 Health Education3
*HSC 601 First Aid & Emergency Care3
HSC 590 Health Education
OR
*EMTEC 501, 501L Emergency
Med. TechAmb. & Lab4
44
Major Requirements
Courses Cr. Hrs.
MATEC 501 Medical Terminology
MATEC 502 Medical Law & Ethics
MATEC 600 Medical Insurance Forms
MATEC 602 Medical Diagnostic & Procedural Coding
Procedural Coding
MATEC 605 Intro. to Pharmacology MATEC 610 Intro. to Disease Processes
MATEC 611 Clinical Procedures Lab
MATEC 612 Medical Records Management 3 MATEC 614 Medical Office Procedures
MATEC 620 Advanced Clin. Procedures
MATEC 620L Advanced Clin. Procedures Lab 1
MATEC 620L Advanced Cint. Procedures Lab 1 MATEC 680 Lab Proced. for Medical Office 2
MATEC 680L Proced. for Med. Off. Lab
MATEC 692 Medical Assisting Externship 4
**OIS 575 Word Processing and Document
Preparation
OIS 506 Information Processing Skills

OIS 613 Microcomputer Applications4
OIS 675 Advanced Document Preparation 4
AHLTH 810 Management for the Health Care
Professional4
ACCT 602 Financial Accounting4
65
Total Credit Hours

MEDICAL LABORATORY TECHNOLOGY

Associate Professors Delost (Program Director) and Boyd.

The medical laboratory technology program is a two-year program leading to the Associate in Applied Science degree in medical laboratory technology.

The medical laboratory technician works in a supportive role in a hospital, private laboratory, clinic, public health facility, or pharmaceutical laboratory, performing a variety of clinical tests under appropriate supervision. These tests may be used by qualified physicians for the determination of the presence and extent of disease, as well as for their etiological implications about the cause of the disease.

The MLT Program meets the standards developed by the American Society of Clinical Pathologists and the American Society of Clinical Laboratory Science through the National Accrediting Agency for Clinical Laboratory Sciences, and accredited by the Committee of Allied Health Education and Accreditation.

Admission to the program is restricted. Copies of the admission policy are available in the Department of Health Professions.

All course work in the MLTEC Program must be completed with a minimal grade of C. Students must maintain an overall GPA of 2.5 and a GPA of 2.5 in all MLTEC courses. Students receiving a total of 10 hours or more of grades of D or F in MLTEC, biology, chemistry, or math will be dismissed from the program. Students are permitted a total of 3 course repetitions for the purpose of recalculation. Readmission into the program is based on GPA and availability of space in the class. Only those students who have completed the first five quarters of the program with a minimum GPA of 2.5 will be placed into clinical internship. Students accepted into the program must take a physical examination and provide records of their immunizations. The hepatitis vaccine is strongly recommended for each new student.

Medical Laboratory Technology Curriculum

FIRST YEAR FIRST QUARTER (FALL)

Courses	Cr. Hrs.
CHEM 515 General Chemistry I	
with Lab	4

^{*}Current CPR and Red Cross First Aid Certification or Ohio State EMT-A Licensure. Substitute of 4 credit hours of elec-tive course work required.

^{**}Typing courses will depend on typing background.

BIOL 509 Principles of Biology 1	
with Lab	
with Lab4	
with Lab	
Technology	3
MLTEC 501L Introduction to Medical	
Technology Laboratory	
1	6
SECOND QUARTER (WINTER)	
Courses Cr. Hrs	
CHEM 516 General Chemistry 1	
with Lab4	
with Lab	4
PIOI FEO Physical and Anatomy 2	
with Lab4	
MLTEC 502 Methodology 1	2
MLTEC 502L Methodology 1 Lab	1
METEC 302L Methodology 1 Lab	-
	0
THIRD QUARTER (SPRING)	
Courses Cr. Hrs	
CCIC FOO C	
CIS 613 Microcomputer Applications	1
MLTEC 503 Medical Laboratory	x
Methodology II	1
Methodology II	•
METEC 505E Medical Laboratory Methodology II	
with Lab	4
BIOL 611 Principles of Biology 3 with Lab	ŧ
BIOL 702 Microbiology with Lab	F
BIOL 702 Microbiology with Lab	6
	6
FOURTH QUARTER (SUMMER)	
FOURTH QUARTER (SUMMER) Courses Cr. Hrs	
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1	
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1	
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1	
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1	1
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1	1
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology ALTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4	1
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1	1
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology ALTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4	1
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER	1 1 3 1
FOURTH QUARTER (SUMMER) Courses	1 1 1 5
FOURTH QUARTER (SUMMER) Courses	1 1 1 5
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab 5 SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled	1 1 1 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays Laboratory 1	1 1 3 1 4 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3	6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab 5 SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3 MLTEC 729 Clinical Hematology 4 MLTEC 729L Clinical Hematology Lab 3	
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology Lab 3 MLTEC 729L Clinical Hematology Lab 3 MLTEC 604 Methodology 4	1 1 3 1 1 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology Lab 3 MLTEC 729L Clinical Hematology Lab 3 MLTEC 604 Methodology 4	1 1 3 1 1 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab 5 SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3 MLTEC 729 Clinical Hematology 4 MLTEC 729L Clinical Hematology Lab 3	1 1 3 1 1 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology Lab 3 MLTEC 729L Clinical Hematology Lab 3 MLTEC 604 Methodology 4	1 1 3 1 1 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology Lab MLTEC 604 Methodology 4 3 MATEC 501 Medical Terminology 4	1 1 3 1 1 5 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 4 Immunoassays Laboratory 1 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology 4 3 MLTEC 604 Methodology 4 3 MATEC 501 Medical Terminology 4 SIXTH QUARTER (WINTER) Courses Cr. Hrs	1 1 3 1 1 5 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays Laboratory 1 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology Lab MLTEC 604 Methodology 4 3 MATEC 501 Medical Terminology 4 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703 Clinical Immunology 2	1 1 3 1 1 5 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology Lab MLTEC 604 Methodology 4 3 MATEC 501 Medical Terminology 4 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703 Clinical Immunology Lab MLTEC 703L Clinical Immunology Lab	1 1 3 1 1 5 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 4 PSYCH 560 General Psychology 4 MLTEC 601 Methodology 3 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology Lab MLTEC 604 Methodology 4 3 MATEC 501 Medical Terminology 4 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703 Clinical Immunology Lab MLTEC 703L Clinical Immunology Lab	1 1 3 1 1 5 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 PSYCH 560 General Psychology MLTEC 601 Methodology 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology 3 MLTEC 729L Clinical Hematology 3 MLTEC 701 Medical Terminology 4 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703 Clinical Immunology 4 MLTEC 703L Clinical Immunology 2 MLTEC 704L Clinical Internship 1 MLTEC 787 Diagnostic Microbiology	1 1 3 1 1 5 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 PSYCH 560 General Psychology MLTEC 601 Methodology 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 3 MLTEC 729 Clinical Hematology MLTEC 729 Clinical Hematology 3 MLTEC 604 Methodology 4 MATEC 501 Medical Terminology 4 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703 Clinical Immunology 4 MLTEC 703L Clinical Immunology Lab MLTEC 704L Clinical Immunology Lab MLTEC 704L Clinical Internship 1 MLTEC 787 Diagnostic Microbiology with Lab 4	1 1 3 1 1 5 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 PSYCH 560 General Psychology MLTEC 601 Methodology 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 729 Clinical Hematology 5 MLTEC 729L Clinical Hematology 4 MATEC 501 Medical Terminology 4 MATEC 501 Medical Terminology 7 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703L Clinical Immunology Lab MLTEC 703L Clinical Immunology Lab MLTEC 704L Clinical Immunology Lab MLTEC 704L Clinical Internship 1 MLTEC 787 Diagnostic Microbiology with Lab 4 HSC 590 Strategies of Health Wellness 3	1 1 3 1 1 6 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 PSYCH 560 General Psychology MLTEC 601 Methodology 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 729 Clinical Hematology 5 MLTEC 729L Clinical Hematology 4 MATEC 501 Medical Terminology 4 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703L Clinical Immunology 4 MLTEC 705L THES MLTEC 705L THE	1 1 3 1 1 6 6
FOURTH QUARTER (SUMMER) Courses Cr. Hrs ENGL 550 Composition 1 PSYCH 560 General Psychology MLTEC 601 Methodology 3 MLTEC 601L Methodology 3 Lab SOCST Elective 4 SECOND YEAR (FALL) FIFTH QUARTER Courses Cr. Hrs MLTEC 700 Diagnostic Labled Immunoassays 3 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 700L Diagnostic Labled Immunoassays 4 MLTEC 729 Clinical Hematology 5 MLTEC 729L Clinical Hematology 4 MATEC 501 Medical Terminology 4 MATEC 501 Medical Terminology 7 SIXTH QUARTER (WINTER) Courses Cr. Hrs MLTEC 703L Clinical Immunology Lab MLTEC 703L Clinical Immunology Lab MLTEC 704L Clinical Immunology Lab MLTEC 704L Clinical Internship 1 MLTEC 787 Diagnostic Microbiology with Lab 4 HSC 590 Strategies of Health Wellness 3	1 1 3 1 1 6 6

SEVENTH	QUARTER	(SPRING)
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Courses	Cr. Hrs.
MLTEC 705L Clinical Internship 2	5
MLTEC 706 Medical Laboratory Seminar	2
ENGL 551 Composition 2	4
MLTEC 707 Special Topics MLTEC	3
And the second s	14
Total Program Hours	110
Total Number of Clinical Hours	480

NOTE: Courses must be taken in proper sequence. Students who fail to do so or who must repeat a course may invalidate their chances of normal progression and clinical scheduling.

Medical Laboratory Internship Guidelines

Admission to the medical laboratory program DOES NOT guarantee admission to the internship. In a medical laboratory, MLTs are expected to function with a maximum degree of effectiveness in professional attitudes, patient relations, and integrity. The capacity for competent performance at each level must be assured for each student before they will be assigned to an internship, since the work frequently deals with life and death situations. Students must maintain a minimal overall GPA of 2.5 and maintain at least a 2.5 GPA in all MLTEC courses.

Upon successful completion of the program the student becomes eligible to receive the Associate in Applied Science degree with a major in medical laboratory technology and take any national certification examination to become certified as MLT(ASCP) or CLT(NCA).

HISTOTECHNOLOGY

Associate Professors Delost (Program Director) and Boyd.

The associate degree in histotechnology is available as an alternative track in the medical laboratory technology program.

Admission to the program is restricted and interested students must apply by March 1 to the academic advisors in the College of Health and Human Services.

The first four quarters of the program are didactic and laboratory courses taught on the YSU campus. The final three quarters consists of the clinical practicum which is held at affiliated laboratories.

The histologic technician plays an important role in the detection of cancer cells. Once a sample tissue is taken from a patient, the technician prepares very thin sections of body tissues for microscopic examination.

With the information learned from the section of tissue biopsy, the physician can determine if disease is present, if it has spread and the best course of treatment for the patient.

Cr. Hrs.

The histologic technician works with fragile, delicate instruments as well as knives, chemicals and glass slides. He or she must value precision and have good hand-eye coordination and manual dexterity.

To insure that laboratory workers are competent and able to perform high quality laboratory tests, the Board of Registry of the American Society of Clinical Pathologists gives a national certification exam. Students take this exam after meeting their academic and laboratory education requirements. The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

Histologic technicians have an unlimited choice of practice settings. Hospitals, for-profit laboratories, clinics, nursing homes, public health facilities, business and industry currently have positions open for qualified histologic technicians. Other opportunities for histologic technicians are in industrial research, veterinary pathology, marine biology and forensic pathology.

Histotechnician Lab Curriculum

All biology, chemistry and MLTEC courses must be completed with a minimum grade of 'C'.

Students are permitted to repeat a maximum of 8 hours of coursework. Any student receiving over 8 hours of 'D' or 'F' in biology, chemistry, MLTEC or histotechnology courses will be dismissed from the program.

FIRST QUARTER (FALL)

Courses	Cr. Hrs.
MLTEC 501 Intro. to Medical Technology	3
MLTEC 501L Into. to Medical Technology	Lab 1
ENGL 550 Composition 1	4
BIOL 509/509L Principles of Biology 1/La	b4
CHEM 505/505L Chemistry for Allied	
Health Sciences/Lab	4
	16

SECOND QUARTER (WINTER)	
Courses	Cr. Hrs.
MATEC 501 Medical Terminology	4
BIOL 510/510L Principles of Biology 2/Lab	4
BIOL 611/611L Principles of Biology 3/Lab	4
CHEM 506/506l Chemistry for Allied	
Health Sciences/Lab	4
	16

THIRD QUARTER (SPRING)

Courses	Cr. Hrs.
BIOL 713 Histology	4
BIOL 702/702L Microbiology	4
OR	
BIOL 787/787L Diagnostic Microbiology	2+2
MATEC 502 Medical Law and Ethics	4
SOCSC Elective	4
	16

FOURTH QUARTER (SUMMER)

Courses Cr. Hrs.
ENGL 551 Composition 24
SOCSC Elective 4
CSIS 500 Computer Literacy4
OR
BIS 613 Microcomputer Applications 4
HSC 590 Health Education 3
HSC 590 Health Education3
SECOND YEAR
FIFTH QUARTER (FALL)
Courses Cr. Hrs.
MLTEC 610 Histotechnician Practicum 1 12
12
SIXTH QUARTER (WINTER)
Courses Cr. Hrs.
MLTEC 620 Histotechnician Practicum 2 12
12
37
SEVENTH QUARTER

MEDICAL TECHNOLOGY

Courses

Associate Professors Delost (Program Director) and Boyd.

MLTEC 630 Histotechnician Practicum 3 12

Total Program Hours99

The Medical Technology Program is a four-year program leading to a Bachelor of Science in Applied Science degree with a major in Medical Technology. Admission to the program requires a minimal GPA of 2.8. Copies of the admission policy are available in the Department of Health Professions.

The medical technologist is a specialized member of the health care profession performing a variety of tests in hospital and private laboratories, clinics, armed forces, federal health agencies, pharmaceutical houses, and research programs.

The myriad of procedures performed or supervised by the medical technologist are used by physicians to determine the presence or absence and extent of disease and types of treatment to be employed.

Since the work frequently deals with situations which require precision, dependability, and a strong sense of responsibility, students must have an aptitude for an interest in the physical and biological sciences.

The program exceeds the minimum requirements of the National Accrediting Agencies for Laboratory Science.

The program is designed to ensure a thorough understanding of the biological and physical science and to present to the student the artful applications of scientific principles that are practical in the clinical laboratory. Upon successful completion of three years of the program at the University and a year in a hospital school accredited by the Committee on Allied Health Education through the National Accrediting Agency of Laboratory Science, students become eligible to take any national certification examination to become certified as MT (ASCP), CLS(NCA), and receive a Bachelor of Science in Applied Science degree with a major in Medical Technology.

MEDICAL TECHNOLOGY CURRICULUM

FIRST YEAR
Courses Cr. Hrs.
MLTEC 501 Introduction to
Medical Technology4
CHEM 515, 516, 517
BIOL 509, 510, 611
ENGL 550, 551
HPES Activity Course
BIOL 551, 552
HPES 590 Health Education3
48
SECOND YEAR
Courses Cr. Hrs.
CHEM 719, 720, 72112
CHEM 603, 60410
MATH 6015
MLTEC 700 Diagnostic Labled Immunoassays 4
BIOL 702 4
MLTEC 787 Diagnostic
Microbiology and Laboratory4
PHYS 501
Electives (See Note A)
THIRD YEAR
Courses Cr. Hrs.
CHEM 785, 785L, 786, 786L, 7138
PHYS 502, 502L, 503, 503L8
HPES Activity Course
MLTEC 703 Clinical Immunology3
MLTEC 729 Clinical Hematology5
Electives (See Note A)
Electives (See Note B)4
46

FOURTH YEAR

The courses listed below are limited to students admitted to the Professional Study Year at an accredited Hospital School of Medical Technology. 48 credit hours will be awarded for successful completion of the 12 month internship.

tion of the 12 month internship.	
Courses	Cr. Hrs.
MLTEC 810 Clinical Experience 1	(12 q.h.)
(Clinical Microbiology and Lab)	
(Clinical Immunology and Lab)	
MLTEC 820 Clinical Experience 2	(12 q.h.)
(Urinalysis and Lab)	
(Immunohematology and Lab)	
MLTEC 830 Clinical Experience 3	(12 q.h.)
(Clinical Mycology)	
(Clinical Parasitology)	

(Clinic	al Chemistry and Lab)
(Topics	in Laboratory Education)
	0 Clinical Experience 4 (12 q.h.) al Hematology and Lab)
(Coagu	ulation)
	in Laboratory Management)
(Specia	al Topics in Medical Technology)
Total Cred	it Hours48
Note (A):	The electives should be courses which satisfy the university requirements for upper-division credit, social studies, and humanities.
Note (B):	Suggested science elective: Biol. 836 or Biol. 837 or Biol. 838 or Chem. 730.
Hours Req	uired for Graduation:
Academic	
Non-Acad	emic 6
Total	
Medical	Technology Internship

Medical Technology Internship Guidelines

Students applying for internships must have completed at least 140 quarter hours. Their transcripts must be evaluated by an advisor in College of Health and Human Services before applying. It is suggested that the student make an appointment for the evaluation at the beginning of the junior year to ensure that all of the requirements for the internship and graduation are fulfilled.

Students who qualify for the internship can pick up the list of hospital affiliations, application forms, and information regarding the internship in the Department of Health Professions.

The University cannot guarantee admission into the fourth year of hospital clinical internship since it is restricted. Students are selected by the professional affiliated schools which are very competitive and, therefore, are encouraged to maintain a 3.0 minimum G.P.A.

Students should notify the program director immediately upon their acceptance by a professional school.

RESPIRATORY CARE

Professor Harris (Program Director); Associate Professor Boehm.

Respiratory care is an allied health profession concerned with the diagnostic evaluation, treatment, and management of patients with cardiopulmonary disorders. The respiratory care practitioner (RCP) is proficient in the therapeutic administration of medical gases and aerosols, intermittent and continuous mechanical ventilation, broncho-pulmonary hygiene, basic and advanced cardiac life support techniques, non-invasive patient monitoring, pulmonary function evaluation, arterial blood gas analysis, airway management procedures and pulmonary rehabilitation techniques. A licensed RCP

must also be knowledgeable regarding various assessment techniques and patient education models. These skills are used with neonatal, pediatric, and adult patients in acute, subacute, and home care settings.

To function effectively as a member of the multidisciplinary health care team, the RCP must have a sound understanding of the physiological and psychological needs of the patient, the role of the various therapeutic interventions in the patient care plan, and development of broad-based skills to more effectively contribute to the overall care of the patient. Theory and laboratory experiences are provided prior to the student's entry into the clinical education phase of the program.

Respiratory Care Technology Four-Year Therapist Curriculum

FIRST YEAR
FALL QUARTER
Courses Cr. Hrs.
MATEC 501 Medical Terminology4
CHEM 505 Chemistry for the
Allied Health Sciences 14
BIOL 551 Physiology and Anatomy 1 4
Elective4
16
WINTER QUARTER
Courses Cr. Hrs.
CHEM 506 Chemistry for the
Allied Health Sciences 24
BIOL 552 Physiology and Anatomy 2 4
ENGL 550 Composition 1
16
SPRING QUARTER
Courses Cr. Hrs.
SOCIO 500 Fundamentals of Sociology4
MATEC 502 Medical Law and Ethics4
RESPC 501 Introduction to Respiratory Care 4
HSC 590 Health Education3
SECOND YEAR
FALL QUARTER
Courses Cr. Hrs.
RESPC 520 Respiratory Care Assessment 3
MATEC 605 Introduction to Pharmacology 4
BIOL 560 Paramedical Microbiology5
COMM 550 Public Speaking
WINTER QUARTER
Courses Cr. Hrs.
ENGL 551 Composition 24
PHIL 530 Critical Thinking4
RESPC 502 Introduction to RESPC Equipment 4
SOCIO 703 Sociology of Aging4
SPRING QUARTER
Courses Cr. Hrs.
BIS 613 Microcomputer Applications4
RESPC 503 Respiratory Procedures 1 4
RESPC 620 Respiratory Care Assessment 2 4

PHYS 506 Physics for Health Sciences4 16
SUMMER QUARTER Courses Cr. Hrs.
RESPC 621 Cardiopulmonary Disease Activity 4 Activity
THIRD YEAR
FALL QUARTER
Courses Cr. Hrs.
AHLTH 705 Pharmacotherapeutics
for Health Care Practitioners
RESPC 701 Respiratory Procedures 2
Respiratory Care4
RESPC 699 Intro to Respiratory Care Clinics 1 16
WINTER QUARTER
Courses Cr. Hrs. RESPC 708 Clinical Specialties for Resp. Care 4 RESPC 740 Cardiopulmonary Neurodiagnostics 2 RESPC 700 Clinical Practice 1
SPRING QUARTER
Courses Cr. Hrs. AHLTH 806 Research Methodology 4 RESPC 725 Mechanical Ventilation 2 4 RESPC 702 Clinical Practice 2 5 RESPC 730 Cardiopulmonary Stress Testing 3
16
SUMMER QUARTER
SUMMER QUARTER Courses Cr. Hrs. RESPC 750 Rehabilitative/Preventative Care 3 RESPC 760 Clinical Practice 3
SUMMER QUARTER Courses RESPC 750 Rehabilitative/Preventative Care3 RESPC 760 Clinical Practice 3
SUMMER QUARTER Courses RESPC 750 Rehabilitative/Preventative Care3 RESPC 760 Clinical Practice 3
SUMMER QUARTER Courses Cr. Hrs. RESPC 750 Rehabilitative/Preventative Care3 RESPC 760 Clinical Practice 34 FOURTH YEAR FALL QUARTER Courses Cr. Hrs.
SUMMER QUARTER Courses Cr. Hrs. RESPC 750 Rehabilitative/Preventative Care 3 RESPC 760 Clinical Practice 3
SUMMER QUARTER Courses Cr. Hrs. RESPC 750 Rehabilitative/Preventative Care3 RESPC 760 Clinical Practice 34 FOURTH YEAR FALL QUARTER Courses Cr. Hrs. RESPC 731 Respiratory Service Management3 RESPC 825 Clinical Practice 4
SUMMER QUARTER Courses RESPC 750 Rehabilitative/Preventative Care
SUMMER QUARTER Courses Cr. Hrs. RESPC 750 Rehabilitative/Preventative Care
SUMMER QUARTER Courses Cr. Hrs. RESPC 750 Rehabilitative/Preventative Care
SUMMER QUARTER Cr. Hrs.
SUMMER QUARTER Courses Cr. Hrs. RESPC 750 Rehabilitative/Preventative Care
SUMMER QUARTER

DEPARTMENT OF CRIMINAL JUSTICE

Professors Pierce, Waldron; Associate Professor Conser (Chair); Assistant Professors Frissora, Greaves, and King.

Youngstown State University offers two undergraduate programs in criminal justice: a two-year program in criminal justice leading to the degree Associate in Applied Science and a four-year program leading to the degree Bachelor of Science in Applied Science with a major in criminal justice. The four-year degree is built upon a core-track concept with emphasis (track) areas in law enforcement administration, corrections, legal processes in justice and security/safety (loss prevention) administration.

The department also offers minors in three emphasis areas: general criminal justice, law enforcement administration, and corrections.

A certificate in private security and public safety is also available. A departmental advisor should be consulted about the requirements.

In each undergraduate area and certificate program, a grade of C or better must be received in each required criminal justice course.

A graduate program leading to the Master of Science degree in criminal justice with emphasis in police administration, correctional administration, and program planning and evaluation is also available. Refer to the *Graduate Bulletin* for details.

Admission Policy

Admission to the criminal justice undergraduate programs is restricted because of the department's expectations and course requirements that include various writing assignments and the learning of legal, theoretical, and managerial concepts. New students will be admitted to the "pre-criminal justice" major in the College of Health and Human Services. When students have completed all pre-college course work and a minimum of 32 hours of selected course credit with a YSU GPA of 2.5 or better, they will be accepted into the department as a major. Students entering the University must complete the following courses before being admitted to the Department of Criminal Justice.

ENGL 550	English Composition I4
SOCIO 500	Fundamentals of Sociology 4
PSYCH 560	General Psychology4
CRJUS 500	Introduction to Criminal Justice 4
Math/Science	ce Elective4
Humanities	Elective4
	es Elective4
CRJUS 601 c	or 602 or 6034
	32

A former or external transfer student must enter the University as "pre-criminal justice" and apply for admission to the major when the above criteria (or their equivalences) are satisfied.

Retention Policy

The Department of Criminal Justice expects its majors and students enrolled in its courses to engage in legal, ethical, professional, and civil behavior which respects the rights of all persons. Disruptive and inappropriate behavior (as defined in department, college, or University policy) may lead to removal from, or non-acceptance into, the department as a major or as an enrolled student in one of its courses.

Associate in Applied Science Degree

The associate degree in criminal justice is considered appropriate for persons preparing for employment in many municipal, state and private police agencies as well as persons considering employment in local, state, federal, and private correctional facilities. The associate degree also is a stepping stone for those students who plan to go on for a bachelor's degree. The associate degree in criminal justice has two tracks, a police track and a correction track. The program requires 96 quarter hours, with 43 hours in general degree requirements, 24 hours in criminal justice core courses, 12 hours in the selected track and 10 hours in criminal justice electives. The remaining hours can be taken as general electives. Transfer students must take at least 20 quarter hours of criminal justice course work at Youngstown State University. The associate degree in criminal justice curriculum follows the course descriptions in the bulletin.

Associate degree is built upon core/track concept with emphasis (track) areas in police and corrections. Core courses for an associate degree include CRJUST 500, 601, 602, 603, 630, and 719. Emphasis area in police requires any 12 credit hours from CRJUS 648, 714, 714L, 722, and 765. Emphasis area in corrections requires any 12 credit hours from CRJUS 701, 702, 702L, 703, and 735. In addition, student must take 10 credit hours of electives in the Department of Criminal Justice.

Bachelor of Science in Applied Science Degree

All Bachelor of Science in Applied Science students must complete a minimum of 55 quarter hours of criminal justice courses of which 20 quarter hours or more must be taken from upper-division courses.

Transfer students must complete a minimum of 20 hours in criminal justice courses at YSU. All majors must complete the core requirements: CRJUS 500, 601, 602, 603, 630, 710, 712, 715, 719 plus one emphasis area. Each major must also complete the courses required in the emphasis area selected.

The purpose of each emphasis area is as follows:

The program in law enforcement administration is designed for persons preparing for employment in municipal, state, and private agencies; federal law enforcement agencies; administrative positions in municipal or state agencies; or as instructors in police education programs. Courses required: CRJUS 714, 714L, 722 and 870.

The program in corrections is offered for students preparing for a career in probation, parole, or institutional services with either adults or juveniles. Courses required: CRJUS 701, 702L, 703 and 875.

The program in legal processes in justice is designed for students preparing for law school, court administration, paralegal work or legal research positions. Courses required: CRJUS 621, 720, 722, 825 and 890.

The program in security / safety (loss prevention) administration is offered to students preparing for a career in private security or the protection of assets in corporate, retail, or industrial settings. Courses required: CRJUS 648, 700, 748 and 848.

Minors — A minor consisting of 21 hours must also be selected. The student must choose a minor from a department other than Criminal Justice. The general catalog and departmental advisors should be consulted for minor requirements. The department requires that a minimum of 12 hours be completed from upper-division courses.

A grade of C or better must be received in each required criminal justice course in order to satisfy the departmental requirements for the degree.

Police Science Technology Curriculum

GENERAL DEGREE REQUIREMENTS
Courses Cr. Hrs.
English: 4 ENGL 550 Composition 1 4 ENGL 551 Composition 2 4 *HSC 590 Health Education 3
Humanities: ENGL or HUMAN literature courses (600 or above); literature in FNLG, PHIL or RELIG HIST and/or Appreciation in ART, SPCH and Drama, or MUSIC; and BLKST 2
Science: ASTRO, BIOL, CHEM, GEOL, Physical GEOG, or PHYS
Social Studies: Electives in two or more of the following departments: ECON, GEOG, HIST, POLIT, SOCIO, PSYCH, & BLKST 1
DEPARTMENT REQUIREMENTS (CRJUS) (course in parenthesis indicates prerequisite) 500 Introduction to Criminal Justice

601 Law Enforcement in the U.S. (500) 4

	602 American Criminal Courts	(500) 4
630 Criminology	603 Corrections in America	(500) 4
	630 Criminology	4
/19 Criminal Law (602) 4	719 Criminal Law	

Select 12 hours Minimum from one of the following tracks:

POLICE	OR	CORRECTIONS
648 4		701 (603) 4
714 (601) 4		702 (603)3
714L (601) 1		702L (603) 3
722 (602) 4		703 (701) 4
765 4		735 4
(SOCIO 500,		
PSYCH 560, and		
12 q.h. in CRJUS)		
CRJUS Electives		10
TOTAL CRIMINA	AL JUSTI	CE HOURS 46

Sixteen hours in Criminal Justice must be taken at YSU.

Total Academic Hours	
	3
Total Hours for Degree	96

MUST have a 'C' or better in EACH REQUIRED Criminal Justice course. MUST have an overall YSU point average of 2.00 to be eligible for graduation. Make sure you have the proper prerequisites for all courses you wish to take. ENGL 550 and 551 must be completed within the first 90 hours of coursework. A student with high school deficiencies must enroll in at least one course in either area during each quarter until deficiencies are completed.

See modifications for ROTC students under Department of Military Science..

DEPARTMENT OF HUMAN ECOLOGY

Professor Varma; Associate Professors Campbell, Hassell; Assistant Professors Bernstein, Nissen, Pavia (Chair).

The Department of Human Ecology offers six programs: associate degree programs in pre-kindergarten associate, dietetic technology and hospitality management each leading to the Associate in Applied Science degree; baccalaureate programs in food and nutrition (dietetics), human ecology services, and merchandising: fashion & interiors, pre-kindergarten education, hospitality management, each leading to the Bachelor of Science in Applied Science degree; and (in conjunction with the College of Education) a bachelor's program in family and consumer sciences education, leading to the Bachelor of Science in Education degree with the major in family and consumer sciences.

Non-majors may elect human ecology courses for general educational purposes.

For any degree, associate or baccalaureate, the student must satisfy the general University requirements (See Academic Policies and Procedures) as well as the particular requirements for the special field or fields. Curriculum sheets for all programs are available at the department office or from faculty advisors.

PRE-KINDERGARTEN ASSOCIATE

This associate degree program leads to Associate Certification in Pre-Kindergarten Education. Graduates are qualified to teach in, or manage, licensed daycare and preschool programs, and are eligible for associate pre-kindergarten teacher certification. All of the coursework is applicable to the bachelor's pre-kindergarten program, and most of it can be applied toward a bachelor's degree in family and consumer science. Within the framework of their required courses, students complete 300 hours of clinical/field work as required by the State Department of Education.

FIRST YEAR

Pre-Kindergarten Associate Curriculum

Courses Cr. Hrs. CHFAM 531 Infant and Toddler Care3 CHFAM 532 Preschool Child Care4 FNUTR 543 Personal Nutrition2 HMEC 550 Home Economics Profession 2 ENGL 550 Composition 14 ENGL 551 Composition 24 SOCIO 500 Fundamentals of Sociology 4 BIOL 505 Biology and the Modern World 4 PSYCH 560 General Psychology4 HSC 590 Health Education3 HPES 623 Physical Educ for the Preschool Child 3 Humanities Elective3-4 PSYCH 755 Developmental Psych I 4 Total Credit Hours50-51 SECOND YEAR Courses CHFAM 631 Parent Involvement 4 CHFAM 663 Professional Lab Experience 4 CHFAM 664 Management of Child Care 4 CHFAM 672 Nutrition and the Young Child 4 CHFAM 706 Preschool Laboratory3 CHFAM 716 Infant Laboratory3 CHFAM 731 Individual and Family Devel. 4 EMCE 630 Creative Processes in Learning and Teaching4 SPCH 705 Speech Problems of Children 3 MUSED 722 Music in Early Childhood 3 SCWK 726 The Black Family4 SPED 731 Education of Young Handicapped Children4 ART 761 Art Strategies for Preschool and Kindergarten Teachers 4 Total Credit Hours48

TOTAL CREDIT HOURS98-99

PRE-KINDERGARTEN EDUCATION

NOTE: This program will be phased out over the next three years because of new state licensure standards and the new program in early childhood education.

A student seeking the bachelor's degree must complete all courses in the prekindergarten associate program, specified general education courses and upper-division professional education courses including HMEC 771, CHFAM 833, and 866, PSYCH 709, SPCH 854, and one quarter of full time student teaching.

In addition all students are required to complete a 30 quarter hour area of concentration. Because of the wide range of choices available in this component, students should seek assistance from academic advisors in the Human Ecology Department.

In addition to the course work, the prospective teacher must pass the general knowledge, subject matter and professional knowledge portions of the National Teacher's Examination to become eligible for provisional teacher certification.

Validation of Certificates

Persons certified for teaching kindergarten/primary, elementary, family and consumer science, and/or special education may obtain validation for pre-kindergarten teaching by completing 30 quarter hours of prescribed courses including pre-kindergarten student teaching.

DIETETIC TECHNOLOGY

The associate degree program is approved by The American Dietetic Association. Graduates of the program who successfully write the Registration Examination for Dietetic Technicians are entitled to use the initials "DTR", to signify professional competence.

Graduates of this program are qualified to work as technicians under the supervision of a registered dietitian (R.D.) in dietary departments of hospitals and nursing homes, and are also employable in commercial food-service systems. A suggested schedule is provided at the end of this section. Many courses can be applied toward the B.S. in A.S. degree with a major in Food and Nutrition (Dietetics).

Dietetic Technology Curriculum

TIKOT ILAK	
Courses	Cr. Hrs.
ENGL 550 Basic Composition 1	4
ENGL 551 Basic Composition 2	4
CHEM 505 Chemistry for Allied	
Health Sciences 1	4
HMEC 550 Home Economics Profession	
TIMEC 330 Home Economics Profession	

FIRST VEAR

FNUTR 551 Normal Nutrition 14
FNUTR 551L Nutrition Laboratory
SOCIO 500 Fundamentals
PSYCH 560 General Psychology4
HSC 590 Health Education3
FNUTR 606 Food Science 1
FNUTR 606L Food Science 1 Lab
FNUTR 610 Organization and Management 4
BIOL 551 Anatomy & Physiology 4
BIOL 551 Anatomy & Physiology 4 BIOL 552 Anatomy & Physiology 2 4
Total Credit Hours49
SECOND YEAR
Courses Cr. Hrs.
ECON 610 Principles 1 4
FNUTR 609 Food Systems 1: Operations 4
FNUTR 609L Food Systems 1: Laboratory 2
FNUTR 618 Preclinical Skills
FNUTR 603 Diet Therapy4
FNUTR 603L Diet Therapy Lab1
PARTIED CHOLAL CO. T. I.
BIOL 604 Food Microbiology 4
ACCTG 602 Financial Accounting4
BIS 613 Microcomputer Applications 4
FNUTR 611 Food Systems 2: Production 2
FNUTR 611L Food Systems 2: Lab
FNUTR 628 Practicum3
FNUTR 650 Seminar in Dietetic Technology 1
Electives5
Total Credit Hours

FOOD AND NUTRITION (DIETETICS)

This baccalaureate program meets the Didactic Program of Dietetics (DPD) requirements of the American Dietetic Association, and graduates are eligible to apply for internships in clinical or general dietetics.

TOTAL CREDIT HOURS96

Upon completion of a fifth-year dietetic internship, or an approved pre-professional practice program, students may apply for the registration examination given by the American Dietetic Association. Successful completion of the written examination brings designation as a registered dietitian (R.D.).

In addition to the general University requirements, the courses required for the four-year Food and Nutrition program are: HMEC 550, 771, 802, 850; FNUTR 551, 551L, 603, 603L, 606, 606L, 609, 611, 611L, 618, 759, 760, 810, 810L, 858, 862, 862L, 872, 873, 874; CHFAM 731; CHEM 505/L, 506/L, 705; BIOL 551/L, 552/L, 604/L; SOCIO 500; ECON 610; PSYCH 560, 709; ANTHR 602; CSIS 500; ACCTG 602; MGT 725, 750, 804; FOUND 872.

Coordinated Program in Dietetics (CPD)

This program which prepares students for general dietetic practice and includes clinical as well as didactic study is accredited by The American Dietetic Association. Each student spends 900 hours in approved clinical sites during the two years of the CPD. Graduates are eligible to take the examination to become registered dietitians.

Admission to the CPD is restricted since only a limited number of students can be accommodated. Satisfactory completion of a minimum of 96 quarter hours (to qualify for junior status) is required before the student begins the program. Detailed information regarding criteria and procedures is available from the Department of Human Ecology. Students are admitted to the CPD only in fall, and start the program during fall quarter. The current closing date for applications and all credentials is the first Monday of April for the following fall quarter.

In addition to the general University requirements and those required for the four-year food and nutrition program are:

FNUTR 750, 759L, 760L, 858L, 860L, 872L, 874L, 885, and HMEC 802L.

FNUTR 862L is not required in the CPD Program.

The prescribed sequence of CPD courses, which must be followed by all students, is as follows:

JUNIOR YEAR FIRST QUARTER

Courses Cr. Hrs
FNUTR 750 Orientation to Dietetics1
FNUTR 759 Normal Nutrition 2 4
FNUTR 759L Normal Nutrition 2 Lab
MGT 725 Fundamentals4
HPES Activity 1
CHEM 705 Nutritional Biochemistry4
• 17
SECOND QUARTER
Courses Cr. Hrs.
FNUTR 760 Clinical Nutrition4
FNUTR 760L Clinical Nutrition Lab
MGT 750 Human Behavior in Organizations 4
FOUND 872 Statistical Methods in Education 3
HPES Activity 11 15
15
THIRD QUARTER
Courses Cr. Hrs
FNUTR 860 Advanced Clinical Nutrition 4
FNUTR 860L Advanced Clinical Nutrition Lab 3
FNUTR 810 Exp. Foods

FNUTR 810L Exp. Foods Lab1

MGT 804 Human Resource Management 1 4

HPES Activity1

Courses	A 10 TO 10 T
HMEC 802 Research Methods	2
HMEC 802L Research Methods Lab	
HUMAN Elective	4
TIOMEN DECENTE SAME	8
SENIOR YEAR	
FIFTH QUARTER	
	Hrs.
FNUTR 872 Maternal and Child Nutrition	4
FNUTR 872L Maternal & Child Nutrition Lab	
FNUTR 874 Community Nutrition	
FNUTR 874L Community Nutrition Lab	2
ENTITE 962 Earl and Culture	2
FNUTR 862 Food and Culture	12
	13
SIXTH QUARTER	
Courses	Hrs.
FNUTR 858 Foodservice Systems Mgt	6
FNUTR 858L Foodservice Systems Mgt Lab .	
FNUTR 873 Nutrition and Aging	
The fit of a real field and a fight of the fit of the f	16
SEVENTH QUARTER	
Courses	
HMEC 850 Contemporary Issues	2
FNUTR 885 Practicum in Dietetics	7
Electives	6-8
	15-17

FOURTH QUARTER

HOSPITALITY MANAGEMENT

The Hospitality Management Program provides students with the knowledge and skills needed to be successful and competent in this fast-growing field not only in the United States, but throughout the world.

Students may earn an associate degree and/or a bachelor's degree with a major in hospitality management. The Associate in Applied Science Degree (AAS) program provides experiences in all phases of hospitality management. The Bachelor of Science in Applied Science Degree (BS in AS) program encompasses all course work in the AAS program and exposes students to advanced management concepts in lodging, food and beverage, travel and tourism, or marketing and sales management.

In addition to general university requirements and the courses required in the AAS program listed below, the following courses are required for the BS in AS program: SOCIO 500 or PSYCH 560; ECON 610, 630, 624; BIOL 604; CHFAM 731; HOMEC 835, 850; MGT 725, 735, 750; FIN 720; PHIL 829; HMGT 719, 804, 896; and 24 q.h. in the concentration area selected by the student.

Hospitality Management Curriculum

FIRST YEAR	
Courses	Cr. Hrs.
HMGT 500 Hospitality Industry	4
MGT 511 Introduction to Business	3

CSIS 500 Data Processing Concepts4
or
CSIS 514 Business Computer Systems 1 4
FNUTR 543 Personal Nutrition2
ENGL 550 Composition 14
HMEC 550 Home Economic Profession2
FNUTR 552 Food Management2
FNUTR 552L Food Management Lab2
MKTG 703 Fundamentals of Marketing5
ACCTG 602 Financial Accounting4
MATH Elective4
HMGT 575 Travel and Tourism4
HMGT 612 Hospitality Fiscal Control 1
HMGT 600 Front Office Procedures
FNUTR 609 Food Systems 1: Operations 4
53
SECOND YEAR
Courses Cr. Hrs.
FNUTR 610 Organization and Management 4
FNUTR 611 Food Systems 2: Production 2
FNUTR 611L Food Systems 2: Production Lab 3
HMGT 619 Housekeeping and Maintenance 3
HMGT 725 Food and Beverage Management 4
ENGL 551 Composition 24
HSC 590 Health Education3
SPCH 652 Business & Professional Speaking 4
HMGT 745 Hospitality Marketing4
HMGT 690 Hospitality Internship
SOCIO 500 Fundamentals of Sociology
or
PSYCH 560 General Psychology4
MGT 604 Legal Environment of Business
JACT (20 Hamiltoline Committee
HMGT 620 Hospitality Security
HMGT 691 Hospitality Cooperative
Work Experience
Fotal Credit Hours

MERCHANDISING: FASHION & INTERIORS

Merchandising: Fashion & Interiors is an interdisciplinary program offered through the departments of Human Ecology and Marketing. Students complete a block of interdisciplinary courses, and general and professional courses for their specific degrees. The program has a strong academic base in economics, the sciences, communication and computers. All students will have the opportunity for field experiences in various levels and types of merchandising. The program in the Department of Human Ecology leads to a Bachelor of Science in Applied Science degree.

Merchandising: Fashion & Interiors prepares students for a variety of positions in manufacturing and retailing of apparel, furnishings, accessories and personal care products.

Interdisciplinary requirements are MERCH/ MKTG 525, 635, MGT 604, 725, MKTG 625, 703, 709, 731, 733, 809, 848, MERCH 705, 764, 780, ADVER 704, HMEC 835. Human Ecology Department requirements: HMEC 550, 771, 780, 850, FNUTR 543, CHFAM 731 and an emphasis in either interiors or fashion. For required emphasis courses, see the program coordinator.

VOCATIONAL FAMILY AND CONSUMER SCIENCES EDUCATION

The family and consumer sciences education major leads to a Bachelor of Science in Education.

Family and consumer sciences education is jointly administered by the College of Education and the Department of Human Ecology. The student should refer to the section of the catalog detailing requirements for the Department of Teacher Education. The student is a major in secondary education with a teaching field of family and consumer sciences. Academic advisors in the College of Education as well as the human ecology teacher educator in the Department of Human Ecology should be consulted regularly.

DEPARTMENT OF HUMAN PERFORMANCE AND EXERCISE SCIENCE

Professor Longmuir; Associate Professors Matanin, Mines, Walker (Chair); Assistant Professors Bosso, Cobb, Hemminger, Little, Neville

The goals of the Department of Human Performance and Exercise Science are to improve motor performance, develop health related lifetime fitness for the university community, and prepare students for related professions. These goals will be achieved by promoting and integrating scientific research related to human performance and exercise science as presented through focused programs of study and outreach services.

Students interested in majoring or minoring in physical education or exercise science should consult with an advisor in the Department of Human Performance and Exercise Science.

Required Courses

Three hours of credit in physical education activity are required for graduation. The following three-hour courses will also fulfill the three hours in physical activities: HPES 630, 631, 632. HPES 558 fulfills two of the three hours in physical activity. The form of activity is chosen by the student, however, it is strongly recommended that students select courses which promote lifetime wellness or the improvement of motor performance. Activity courses are listed in each quarter's Schedule of Classes.

It is suggested that students confer with their physicians prior to enrolling in activity classes. Students with physical disabilities are urged to see their phy-

sicians or the nurse in the Student Health Services office, Beeghly 200, and review activities which might be appropriate. Most activity classes can be adapted to one's personal abilities. Students are encouraged to discuss this with the instructor. If students have questions about how their personal doctor's recommendations may relate to the activity courses, the nurse in Student Health Services may be able to make suggestions. Students with disabilities are encouraged to focus on their physical abilities and consider the social and physical benefits that accrue from physical activity. If a student finds only one appropriate activity class, the student may request permission from the department chair (Beeghly 307) to take the same class three times for three credits. Otherwise the student will be expected to take three different courses.

Veterans who have served at least one full year can receive physical education credit for service. This is detailed under the heading "Veterans" in the *Undergraduate Bulletin*. The following military science courses may be used to meet the activity requirement: 510 1 Hr., 520 1 Hr., 530 1 Hr., 610 1 Hr., or 615 1 Hr.

Members of the men's or women's varsity teams may receive physical activity credit through enrollment in HPES 549, varsity competition. This class may be repeated one time per year for each sport you are participating in.

Students must provide their own clothing for activity classes, and this attire must be appropriate to the activity. In addition, students may bring their own lock and towel for use during activity classes. Most of the other equipment for physical education classes is available for use (an asterisk beside the catalog number indicates a lab fee will be charged). Students wishing to use their own racket, golf clubs, bow, etc. may do so but are advised to consult with the instructor before buying new equipment.

Physical Examinations

Since the following physical education activity courses may require strenuous physical activity, it is highly recommended that students consult with a physician prior to enrolling in the course to determine whether they have any physical limitations which might adversely affect their participation.

Professional Teacher Education Program

Youngstown State University is fully approved by the Ohio State Department of Education for the preparation of physical education teachers for public schools. The degree of Bachelor of Science in Education with a major in physical education leads to a Special Provisional Certificate (K-12).

Students interested in taking physical education as an additional teaching field must complete 50 quarter hours of specified course work leading to an Ohio High School Provisional Certificate.

Those students seeking teaching certificates in physical education must formally apply to the Department of Human Performance and Exercise Science when they have completed 75 hours of credit. Application forms and other information for formal admittance to the Department of Human Performance and Exercise Science may be obtained in the department office, Room 307, Beeghly Center.

Physical Education—B.S. in Education Curriculum Guide

For individual quarter advisement see assigned departmental advisor.

Students should average approximately 44 quarter hours per year.

FIRST YEAR

Courses	Cr. Hrs.
ENGL 550, 551	4 + 4
Humanities elective	4 +4
FOUND 501	4
Social Science elective	4
HPES 595	2
MATH (see advisor)	5
PSYCH 560	
HPES 567 (odd years)	2
HPES 568 (even years)	2
HPES 574 (odd years)	
HPES 575 (even years)	2
HPES 506 (odd years)	1
HPES 589	2
HSC 590	

SECOND YEAR

Courses	Cr. Hrs.
HSC 601	3
PSYCH 709	4
BIOL 551, 552	4 + 4
HPES activity elective	1
CDCLLCEI	4
PSYCH 755 or 756	4
1100 (00	4
HPES 661 (even years)	2
	3
	2
HPES 568 (odd years)	2
HPES 567 (even years)	
HPES 575 (even years)	2
	and the same of th
HPES 506 (odd years)	1
HPES 610 (even years)	1
Humanities/Sci./Soc. Stds. electi-	ve 4/5
THIRD VEAR	AND SHAPE OF THE SAME

THIRD YEAR

Courses	
FOUND 708	4
SEDUC 700	
SEDUC 704	3
FOUND 702	
SPED 730	2
Humanities/Sci./Soc. Stds. elective	4/5
HPES 851 (even)	3

HPES 765	2
HPES 795	4
HPES 767	4
HPES 780	3
HPES 876	4
HPES 671 (odd)	4
FOURTH YEAR	
Courses	Cr. Hrs.
HPES 750	3
HPES 852	3
HPES 878	4
HPES 855	4
HPES 860	4
HPES 895	3
HPES 896	4
SEDUC 706	4
SEDUC 846	15

Exercise Science—B.S. in Applied Science Curriculum Guide

The Department of Human Performance and Exercise Science offers a Bachelor of Science in Applied Science degree with a major in exercise science. This program prepares students for certification through the American College of Sports Medicine (ACSM) as exercise leaders and/or health fitness instructors. Graduates are employed as personal trainers, corporate fitness directors, clinical exercise specialists, and in other positions which provide exercise and fitness programs.

For individual quarter advisement see assigned departmental advisor.

FIRST YEAR

rikoi :	EAR
Courses	Cr. Hrs.
ENGL 550, 551	
BIOL 551, 552	4 +4
SOCIO 500	
HPES 537	1
HPES 555	
HPES 557	
HPES 589	2
HPES 595	
	2
MIN/EL (minor/elective)	
CHEM 505	
PSYCH 560	4
SECOND	
Courses	Cr. Hrs.
PHYS 506	1

Courses	Cr. Hrs.
PHYS 506	4
HPES 795	4
MIN/EL (minor/elective)	17
SOCIO 745	3
FNUTR 551	4
COMM 652	4
HSC 590	3
BIS 613	4
HSC 601	3
HSC 604	1

THIRD YEAR Cr. Hrs. Courses HPES 702 4 HPES 723 4 HPES 770 3 PSYCH 734 4 PHIL 825 4 MIN/EL (minor/elective) 18 FOURTH YEAR Cr. Hrs. Courses HPES 8032

HPES 803 2 HPES 805 4 HPES 810 3 HPES 855 4 HPES 860 4 HPES 887 12 HPES 896 + 896L 3 + 1 PSYCH 807 4 Humanities elective 4 MIN/EL (minor/elective) 4

Bachelor of Arts Degree Program in Physical Education

This program is for students seeking careers in physical education outside the public school setting. The Bachelor of Arts degree program offers a non-teaching degree in physical education. Students interested in sports marketing or sports management should consult with an advisor in the Department of Human Performance and Exercise Science Room 307, Beeghly Center.

DEPARTMENT OF MILITARY SCIENCE

This program is offered under a cross-enrollment agreement with the Kent State University.

Army ROTC (Reserve Officers' Training Corps) provides college-trained officers for the U.S. Army, the Army National Guard, and the U.S. Army Reserve.

ROTC expands a student's education by providing leadership and management experience. This training helps students develop self discipline, physical stamina, and poise-qualities basic to success in any worthwhile career. They earn commissions as second lieutenants in the U.S. Army (which includes the Active Army, Army National Guard, and Army Reserve) while earning their college degrees. Through ROTC, the Army gains officers with diverse educational backgrounds and contemporary ideas. At the same time, ROTC graduates have the chance to use their training in positions of leadership, and they enable the Army to relate to the thoughts and feelings of our ever-changing society. At present, over 80 percent of all second lieutenants for the U.S. Army come from ROTC programs nationwide.

Students who enroll in the advanced ROTC program are paid a subsistence allowance of \$150 a month for 10 months of each school year, and half of a second lieutenant's pay plus lodging, meals, and travel cost for six weeks of ROTC advanced camp training. Application is made through the Department of Military Science.

Lower-division (freshman and sophomore level) courses are open to all students and incur no military obligation.

Degree Requirements—Modifications for Military Science Students

Students enrolled in ROTC may make the following substitutions for the standard degree requirements with the approval of their academic major advisor:

- A. Military Science Courses 520, 530, 610, 615 each allow the student to omit one quarter hour of the physical education activity requirement.
- B. The following courses are possible substitutions for social studies area requirements contingent upon approval by the academic major advisor:

Courses	Cr. Hrs.
MS 502 Basic Leadership and Manager	ment 1
MS 601 American Military Leadership	
MS 701Organizational Leadership	3

C. The following courses may by taken as general electives with the major advisor's approval:

erar electives with the major advisor's approvar.
Courses Cr. Hrs.
MS 501 Introduction to Military Science1
MS 502 Basic Leadership and Management 1
MS 503 First Aid and Emergency Care3
MS 520 Introduction to Living Out-of-Doors1
MS 530 Survival and Mountaineering
Techniques1
MS 602 Individual Military Skills2
MS 603 Comparative Analysis of
U.S./Other Land Forces2
MS 610 Individual Weapons and
Marksmanship1
MS 615 Orienteering1
MS 604 Basic ROTC Summer Camp
(2-Year ROTC Students Only) 4+
MS 702 Advanced Leadership and
Management 13
MS 703 Advanced Leadership and
Management 23
MS 704 Advanced ROTC Summer Camp
MS 725 Individual Study4
MS 801 The Military Team3
MS 802 Seminar in Leadership and
Management 13
MS 803 Seminar in Leadership and
Management 23

[†]Credit for two-year program students not completing MS 500- and MS 600-level courses only

D. Academic major advisors may allow substitution as credit as indicated:

1. COLLEGE OF ARTS AND SCIENCES

- 3 Activity Hours for Health Education and Physical Education
- 7 Q.H. Social Studies
- 17 Q.H. General Electives

A minor is available in consultation with the academic advisor.

2. COLLEGE OF BUSINESS ADMINISTRATION

- 3 Activity Hours for Health Education and Physical Education
- 7 Q.H. Social Studies
- 10 Q.H. General Electives

3. COLLEGE OF EDUCATION

- 3 Activity Hours for Health Education and Physical Education
- 7 Q.H. Social Studies

Additional hours are available in consultation with academic major advisor.

COLLEGE OF ENGINEERING AND TECHNOLOGY

- 3 Activity Hours for Health Education and Physical Education
- 4 Q.H. for MS 601 History

Additional hours are available in consultation with academic major advisor.

5. COLLEGE OF FINE AND PERFORMING ARTS

3 Activity Hours for Health Education and Physical Education

Additional hours are available in consultation with academic major advisor.

6. COLLEGE OF HEALTH AND HUMAN SER-VICES (4-Yr. Curricula)

- 3 Activity Hours for Health Education and Physical Education
- 7 Q.H. Social Studies
- 14 O.H. General Electives

A minor is available in consultation with the academic major advisor.

Four-year Program

The four-year Army ROTC program is divided into two parts: the Basic Course and the Advanced Course.

The Basic Course is usually taken during the freshman and sophomore years. No military commitment is incurred during this time. After completing the Basic Course, students who have demonstrated officer potential and meet physical and scholastic standards are eligible to enroll in the Advanced Course. The Advanced Course is normally taken during the junior and senior years of college.

Advance Course Cadets attend a six week camp during the summer between their MS III and MS VI (junior and senior) years. In this camp students put into practice the leadership and tactical skills they have acquired in the classroom. Cadets are paid for camp attendance.

All students in the Advanced Course receive uniforms, pay for Advanced Camp, and a living allowance of up to \$1,500 each school year.

Before entering the Advanced Course, an individual signs a contract that certifies an understanding of the service obligation. This obligation may be fulfilled in a variety of ways depending on the individual's personal preference and the needs of the Army at the time of commissioning.

Scholarship graduates incur an eight-year obligation and are required to serve one of the following obligations: two years on active duty and four years in an Army Reserve or National Guard unit then two years in the Individual Ready Reserve (IRR); or three years on active duty and five years in the IRR; or four years on active duty and four years in the IRR; or eight years in Army Reserve or National Guard unit.

Nonscholarship graduates are required to serve one of the following obligations: two years on active duty and six years in the IRR; or three years on active duty and five years in the IRR; or four years on active duty and four years in the IRR; or six years in an Army Reserve or National Guard unit and two years in the IRR; or eight years in the IRR.

All commissionees incur a service obligation of eight years with service being either full time active duty or part time in the reserves. The mix of active and reserve duty is determined by the needs of the Army, the cadets performance and the type of contract the cadet signed (scholarship or nonscholarship, guaranteed Reserve Forces Duty or participation in the Simultaneous Membership Program of the Army Reserve/National Guard).

Two-year Program

The two-year program permits students who attended a junior college, transfer students, or those who did not take Military Science Basic Courses during their first two years of school, and students entering a two-year post graduate course of study to enter the ROTC Advance Course. Students can take advantage of this opportunity by successfully completing a paid six-week ROTC Basic Camp (MS 604), usually after their sophomore year, and enrolling in the ROTC Advanced Course, normally in their junior year. Except for this camp, the requirements for and obligations incurred in the two- and four-year programs are the same.

Opportunities for Veterans/Junior ROTC Graduates

Because military experience may serve as total credit for the ROTC Basic Course, most veterans and

students with three years of Junior ROTC (high school) are eligible for the ROTC Advanced Course without further instruction.

Army ROTC/Army Reserve/Army National Guard

Students can further broaden their college experience and earn extra income by combining ROTC with service in the Army Reserve or Army National Guard through the two-year Simultaneous Membership Program (SMP). If students qualify, and SMP vacancies are available, they may join the Army Reserve or Army National Guard unit as officer trainees and simultaneously enroll in the Army ROTC Advanced Course. In addition to annual subsistence allowance of up to \$1,500 received for Advanced ROTC, SMP participants are paid for their Reserve or Guard drills and summer training sessions.

Army Nurse Corps

To qualify for appointment in the Army Nurse Corps, the student must complete the ROTC program and obtain a baccalaureate degree in nursing. Students who meet all professional requirements will serve as Army nurses on Active Duty, in the Army National Guard, or in the Army Reserve.

Scholarship Programs

See ROTC Military Science (Gold Bar) Scholarships and Army ROTC Scholarships in Appendix B of this *Bulletin*.

Leadership Laboratory

A practical exercise period for both basic and advanced courses. Provides experience in practical military skills and the development of essential characteristics of leadership through progressive evaluation and counseling, MILSC 600L, MILSC 700L and MILSC 800L.

DEPARTMENT OF NURSING

Professor McCarthy (Chair); Associate Professors Fitzgerald, McDougal, Mosca, Schuster, Shipton, Zehr; Assistant Professors Bosely, Hoyson, Kuite, Phillips, Serroka, Wood; Instructors Aurilio, Defiore-Golden, Janosik, Inskeep, Lisko, McAllen, O'Dell, Wagner; Learning Resource Coordinator, Julius.

The Department of Nursing at Youngstown State University offers a Bachelor of Science in Nursing (BSN) degree, as well as a program in chronic-care nursing leading to the Master of Science in Nursing. The program is approved by the Ohio Board of Nursing and accredited by the National League for Nursing Accrediting Commission. The Commission (305 Hudson Street, New York, New York 10014; phone: (212) 989-9393) is a resource of information regarding tuition, fees, and length of pro-

gram. Graduates of the generic (non-RN) program are eligible to sit for the state licensure examina-

Admission Requirements for the Bachelor of Science in Nursing Program

Admission into the Bachelor of Science in Nursing (BSN) degree program is on a restricted basis, since only a limited number of students can be accommodated.

There is one generic and one Registered Nurse (RN) admission period each year. Students are admitted after completion of all pre-nursing course requirements. The current closing date for application and credentials is:

March 15 — For fall quarter admission of currently licensed RN students only.

July 15 — For winter quarter admission of generic students only.

Generic or non-RN applicants for the baccalaureate degree program must meet the following minimum requirements:

- General University precollege requirements for the Bachelor of Science degree with a "C" or better in the units of English and mathematics.
- Completion of pre-nursing courses with a "C" or better and an overall GPA of 2.50 in these courses.
- Cumulative GPA of 2.00 in all college work.
- Evidence of current CPR for Health Care Professionals Certification.
- Completed physical and dental forms, and immunization requirements.

RN applicants for the baccalaureate degree program must meet all of the above requirements in addition to being a registered nurse with a current license to practice nursing in Ohio.

Required pre-nursing courses for generic students include:

Biology 509, 611, 710, 792 and 702 or 787/787L

Chemistry 505 and 506

Psychology 560 and 757

English 550 and 551

Philosophy 530 or 600

Food & Nutrition 551

Sociology 500

Nursing 640 and 641

PSYCH 560, 755, and 756

Required pre-nursing courses for RN students include 52-56 q.h.:

BIOL 509, 611, and 710	8-12 hrs.
or BIOL 506, 507, and 710	
or BIOL 551 and 552	
BIOL 702 or BIOL 787 (or 560)	4 hrs.
CHEM 505 and 506	
or CHEM 502 AND 503	8 hrs.

12 hrs.

ENGL 550 and 551	8 hrs.
PHIL 530 or PHIL 600	4 hrs.
FNUTR 551	4 hrs.
SOCIO 500	4 hrs.

Admission to the University, meeting minimal program admission requirements, and completion of core pre-nursing courses does not guarantee admission into the nursing program. Pre-nursing students are encouraged to seek advisement on a regular basis from the pre-nursing advisor in the College of Health and Human Services.

Course Enrollment

All 600, 700, and 800 level nursing courses, except NURSG 640 and NURSG 641, are available only to students formally admitted into the BSN program.

Malpractice insurance is required for all clinical nursing experiences and is provided by the University when the student registers for the specified courses.

Nursing courses designated as "laboratory" are off-campus clinical courses and may include an on-campus laboratory skill component. Generally, one quarter hour of credit is earned for each three clock hours of on-campus laboratory skills instruction and for each two off-campus clock hours of clinical instruction. Nursing 643L, 645L, and 741L have three clock hours of on-campus instruction. All other laboratory courses consist of off-campus clinical instruction. Personal transportation is required for travel to off-campus clinical sites which are located in the five-county YSU service area.

Academic Requirements for the Bachelor of Science in Nursing Degree

Students are responsible for adhering to the prescribed BSN curriculum sequence including, but not limited to, course prerequisites and mandated sequencing of nursing courses. It is also the students' responsibility to see that all graduation requirements for the BSN degree are satisfied. It is recommended that students frequently seek guidance from their nursing faculty advisor. A copy of the BSN curriculum is available from the Department of Nursing.

After admission to the program, a grade of "C" or better is mandatory for all nursing theory, clinical, and laboratory courses; required non-nursing support courses; and required elective hours. Only one nursing or one non-nursing support course may be repeated (excluding required elective courses). A repeated course must be successfully completed with a grade of "A", "B", or "C" and all incompletes must be removed before progressing in the nursing curriculum. Grades of less than "C" in a second nursing or required non-nursing course will result in permanent dismissal from the nursing program.

A Bachelor of Science in Nursing degree will be granted to the student who has completed all the required baccalaureate nursing curriculum with a minimum grade point average of 2.00.

The Department of Nursing reserves the right to remove a student from the program when that student's performance in any nursing course is deemed to be unsafe as characterized by dangerous, inappropriate, irresponsible or unethical behavior which actually or potentially places a patient or his/her family in jeopardy. The department reserves the right to dismiss a student who for legal, academic, emotional, or physical reasons cannot be advised to continue in the program.

Current immunizations and CPR for Health Care Professionals certification are required of all nursing students. Students must adhere to a dress code which includes the wearing of specific nurse's uniform for nursing clinical courses.

Curriculum leading to the Bachelor of Science in Nursing Degree for Generic Students (Non-RN)

FIRST YEAR

FIRST QUARTER (pre-nursing)	
Courses	Cr. Hrs.
BIOL 509/509L Principles of Biology 1 CHEM 505/505L Chemistry for	4
Allied Health Science 1	4
ENGL 550 Composition 1	4
SOCIO 500 Fundamentals of Sociology	4 16
SECOND QUARTER (pre-nursing	g)
Courses	Cr. Hrs.
BIOL 611/611L Principles of Biology 3 CHEM 506/506L Chemistry for	4
Allied Health Sci 2	4
ENGL 551 Composition 2	
HPES Activity Courses †	1+1+1
	15
THIRD QUARTER (pre-nursing)	
Courses	Cr. Hrs.
BIOL 710/L or 705 Mammalian or Human BIOL 702/L or 787/L Microbiology or	
Diagnostic Microbiology / Lab	
PSYCH 560 General Psychology	4
PHIL 600 Introduction to Philosophy OR	
PHIL 530 Critical Thinking	
- Eddin South Control of the San	16
SECOND YEAR	
FIRST QUARTER (pre-nursing)	
Courses	Cr. Hrs.
FNUTR 551 Normal Nutrition 1	4
BIOL 792 Human Physiology 1/Lab	5
PSYCH 757 Developmental	
Psychology-Adult	4
NURSG 640 Introduction to Nursing	3

NURSG 641 Concepts and Theories

Nursing

	NURSG 844/L 8 hrs.
	NURSG 847/L 5 hrs.
4.	Additional academic courses to meet the following minimum requirements:
	Biology Minor—21 hours of biology
	Electives—12 hours
	HPES - 3 hours

201 total program hours for graduation with at least 70 hours upper division .

For the convenience of students working days, evenings, midnights, and 12-hour shifts, all required support and nursing courses are offered on Tuesdays- and-Thursdays daytime schedule.

FIRST YEAR FIRST QUARTER

FIRST QUARTER	
Courses	Cr. Hrs.
NURSG 642	4
NURSG 646	5
NURSG 833	
SECOND QUARTER	
Courses	Cr. Hrs.
PSYCH 757	4
NURSG 750	
THIRD QUARTER	
Courses	Cr. Hrs.
NURSG 743	3
COMM 550	
SECOND YEAR	
FIRST QUARTER	
Courses	Cr. Hrs.
NURSG 844	4
NURSG 844L	4
SECOND QUARTER	
Courses	Cr. Hrs.
PSYCH 613 or equivalent	3
NURSG 832	4
PHIL 825 (or 725)	4
THIRD QUARTER	
Courses	Cr. Hrs.
OIS 613	4
NURSG 847	1
NURSG 847L	4

[†]Statistics course options: PSYCH 613 Statistical Methods in Psychology, SOCIO 701; Social Statistics 1, CRJUS 710 Social Statistics 1, STATS 610 Introductory Statistics, FOUND 872 Statistical Methods in Education

DEPARTMENT OF PHYSICAL THERAPY

Associate Professor Vargas (chair), Professor McClelland; Assistant Professors Farr, Frampton (Academic Clinical Coordinator of Education), Landgraff, Bieber, Parrott.

The Department of Physical Therapy offers an upper-division professional curriculum in physical therapy which currently leads to a Bachelor of Science degree in physical therapy. The program received accreditation from the Commission on Accreditation in Physical Therapy Education in May 1998. This professional curriculum begins in June and extends over a two-calendar-year period.

Physical therapy provides a career option for men and women who want to become physical therapist practitioners and work with other health care professionals in the restoration of maximal functional capabilities of individuals of all ages temporarily or permanently disabled by illness, disease, trauma or congenital abnormalities. Physical therapists assume the roles of clinicians, educators, managers of physical therapy services, consultants and researchers in a variety of settings such as hospitals, outpatient facilities, rehabilitation and extended care facilities, home health agencies, public schools, colleges and universities, health maintenance organizations, governmental agencies and independent practices.

During the freshman and sophomore years, the students complete pre-professional course work that permits them to fulfill all prerequisite requirements and to attain a general education background in communication skills, humanities, behavioral and social sciences, natural sciences, and health and physical education.

The professional curriculum at Youngstown State University continues for eight consecutive quarters and includes courses in the basic sciences, physical therapy theory and procedures and applied clinical sciences. Clinical practicums are integrated into the didactic and laboratory components throughout the professional phase. These required clinical experiences, in assigned clinical settings—some of which may take the student out-of-state for up to ten weeks—provide supervised experience that ensures professional competency.

If accepted into the program, each student is responsible for all expenses related to clinical education including but not limited to tuition, transportation, housing, food, clothing, health and liability insurance, books, and personal and incidental expenses. Prior to participation in a clinical practical, students will be required to (1) obtain CPR certification (2) have a physical examination, including evidence of negative tuberculosis test results, and (3) provide documentation of current immunization for hepatitis B (or waiver form). Membership in the American Physical Therapy Association and attendance at state conferences are expected.

Admission Requirements

Candidates for acceptance to the physical therapy professional program must:

 Submit a physical therapy program application to the dean's office, College of Health and Human Services, prior to the deadline date of November 30 of the year prior to the year of anticipated admission. Non-Youngstown State University students transferring in must first obtain

- a YSU application and submit both applications to the YSU Office of Undergraduate Recruitment Admissions;
- Obtain a minimum of 3.0 cumulative grade point average and a 3.2 grade point average in all preprofessional science courses;
- Complete 88-90 quarter hours of pre-professional physical therapy courses at Youngstown State University as outlined in the first two years of the physical therapy curriculum or their equivalent with a minimum grade of "C";
- Complete prerequisites and all other general program requirements specified by Youngstown State University;
- Provide documentation of 100 clock hours (paid or volunteer) under the direct supervision of a licensed physical therapist(s). Forty hours must be from an acute-core or skilled-nursing facility, the remainder in other physical therapy clinical settings.
- Submit a total of three evaluations from supervising physical therapist(s) and academic faculty member(s) using the Applicant Evaluation form that is included in the physical therapy program application packet;
- 7. Complete a personal interview as stipulated by the Physical Therapy Admissions committee.

The selection/admissions process is competitive, and completion of these criteria does not assure that an applicant will be admitted to the program.

Physical Therapy Curriculum

FIRST YEAR FALL OUARTER (Pre-Professional P.T.) Courses Cr. Hrs. BIOL 509 Principles of Biology 14 [†]CHEM 505 Chemistry for Allied Science 1 4 ENGL 550 Composition 1 4 PSYCH 560 General Psychology4 Winter Quarter (Pre-Professional P.T.) BIOL 611 Principles of Biology 34 CHEM 506 Chemistry for Allied Health Sciences 24 ENGL 551 Composition 2 4 SOCIO 500 Fundamentals of Sociology4 Spring Quarter (Pre-Professional P.T.) PHYS 501 Fundamentals of Physics 14 PHIL 530 Critical Thinking4 COMM 550 Public Speaking4 Statistics course (PSYCH 613, or SOCIO 701, or STAT 601, or 717)3-5 SECOND YEAR Fall Quarter (Pre-Professional P.T.)

PSYCH 702 Abnormal Psychology 4

PHYS 502 Fundamentals of Physics 2 3

PHYS 502L Fundamentals of Physics 2 Lab 1 PHIL 825 Biomedical Ethics
Winter Quarter (Pre-Professional P.T.)
SOCIO 703 Aging and Society4
BIS 613 Microcomputer Applications4
BIOL 792 Human Physiology 14
BIOL 792L Human Physiology 1 Lab
Humanities/Social Studies Elective
17
Spring Quarter (Pre-Professional P.T.)
BIOL 710 Mammalian Anatomy (or BIOL 705) 4
BIOL 793 Human Physiology 24
BIOL 793L Human Physiology 2 Lab1
HPES 558 Physical Fitness for Life2
Activity 1
12
Subtotal 88-90

†May substitute with CHEM 515/L, 516/L, 517/L

An overall grade point average of 3.0/4.0 must be maintained throughout the Professional Phase. All courses in PHYTH, BIOL, CHEM, PHYSICS, and HPES must be completed with a minimum grade of "C". Students will be dismissed from the physical therapy program if they receive an "F" in any course or 6 hours of "D" grades in any PHYTH, BIOL, or HPES courses.

Students accepted into professional phase of the P.T. program must enroll in the following PHYTH, BIOL, and HPES courses as they are listed in sequence.

THIRD YEAR

C. C
Summer Quarter (Professional P.T.)
PHYTH 700 Physical Therapy3
*BIOL 868 Gross Anatomy 1 and Lab5
"HPES 896 Physiology of Exercise3
"HPES 896L Physiology of Exercise Lab
PHYTH 719 Essentials of P.T. Documentations 2
14
Fall Quarter (Professional P.T.)
*BIOL 869 Gross Anatomy 2 and Lab5
PHYTH 701 P.T. Procedures 1
PHYTH 701 P.T. Procedures 1
PHYTH 780 Kinesiology4
PHYTH 703 Pathology3
17
Winter Quarter (Professional P.T.)
**BIOL 829 Neuroanatomy5
PHYTH 790 P.T. Patient Interaction
PHYTH 702 P.T. Procedures 2
PHYTH 702L P.T. Procedures 2 Lab2
PHYTH 710 Physical Agents 1
PHYTH 710L Physical Agents 1 Lab1
17
Spring Quarter (Professional P.T.)
PHYTH 711 Physical Agents 23
PHYTH 711L Physical Agents 2 Lab
PHYTH 704 The Musculoskeletal System 3
PHYTH 830 Applied Physical Therapy 1 3

110

PHYTH 830L Applied Physical Therapy 1 Lab ... 2 PHYTH 808 Physical Therapy and Human Dev. 4 PHYTH 807 Cardiopulmonary P.T. and Wellness 3 FOURTH YEAR Summer Quarter (Professional P.T.) PHYTH 812 Physical Therapy Research Methods4 PHYTH 721 Clinical Education 1 (5 weeks) 4 Fall Quarter (Professional P.T.) PHYTH 805 The Neuromuscular System3 PHYTH 831 Applied Physical Therapy 2 3 PHYTH 831L Applied Physical Therapy 2 Lab ... 2 PHYTH 845 Physical Therapy Management 4 PHYTH 822 P.T. Profession and Society3 PHYTH 833 Integrated P.T. Special Topics 3 Winter Quarter (Professional P.T.) PHYTH 823 Clinical Education 2 (10 weeks) 8 Spring Quarter (Professional P.T.) PHYTH 824 Clinical Education 3 (10 weeks) 8 PHYTH 814 Physical Therapy Research Project .. 1

"Permission of physical therapy faculty necessary to register for these classes.

Subtotal

DEPARTMENT OF SOCIAL WORK

Professors DiGiulio (Chair); Professor Slivinske; Associate Professor Mosca; Assistant Professors Morawski, Pugh; Instructor Keller.

The baccalaureate degree with a major in social work prepares students for entry into beginning, generalist, professional social work practice. Social workers are employed in a variety of settings such as public and private welfare agencies, mental health centers, health care settings, educational systems, correctional institutions, and business and industry. The Social Work Program is accredited by the Council on Social Work Education. A baccalaureate degree in social work qualifies a person to apply for licensing in the state of Ohio.

Admission Policy

Neither admission to the University nor enrollment in social work courses as a pre-social work major guarantees full admission to the social work program. Full admission to the program is required to become a social work major and to gain access to upper-division social work classes. Pre-social work majors who are not formally admitted to the social work program will be unable to obtain a permit to register for Social Work 722 and subsequent social work courses for which Social Work 722 is a prerequisite.

To be admitted to the program as a social work major, pre-social work majors must meet the following requirements.:

- 1. An overall GPA of 2.5 or better;
- Completion of all University pre-college admission requirements;
- 3. Successful completion (C or better beginning Fall 1993) of the following courses according to sequencing: ENGL 550 and 551, BIOL 551 and 552, SOCIO 500 and 700, PSYCH 560, ANTHR 602, POLIT 604, SCWK 620, 622, 641, 642, 644.
- 4. Students must also complete and return the Social Work Program Admission Application. This form can be obtained in the Department of Social Work. The completed application must be returned to the Department of Social Work before the third week of the quarter preceding the term for which admission is requested.

A major in social work comprises a minimum of 84 quarter hours of professional foundation courses. In lieu of a minor, 32 quarter hours of support courses must also be completed. Majors must take SCWK 620, 622, 641, 642, 644, 718, 722, 736, 737, 750, 760, 820, 822, 823, 825 (18 q.h.), 826 (6 q.h.); and one special populations course from the following: 726, 727, 728, 730 or 731; plus the following support courses: SOCIO 500, 700; ANTHRO 602; BIOL 551, 552; POLIT 604, 720; and PSYCH 560.

Field Work Practicum Admission Policy

Each student must have completed all the above mentioned coursework for admission as well as SCWK 750, 760, 820; POLIT 720; and one special populations course from the following: SCWK 726, 727, 728, 730 or 731. SCWK 737, 822, and 823 may be taken concurrently with SCWK 825 and 826. These courses must be completed before the conclusion of the field practicum.

For more detailed information about admission to the social work program and field practicum, please refer to the Social Work Student Handbook and Field Work Manual available in the Department of Social Work.

SOCIAL SERVICES TECHNOLOGY

The Department of Social Work offers a two-year program in social services technology leading to the degree Associate in Applied Science.

The primary purpose of this program is to provide a formal two-year degree for those currently employed as social worker aides who wish to increase their professional qualifications, and for those who are entering the field of social work in the less complex positions.

The student must meet the general degree requirements and department course requirements as follows:

Courses Cr. Hrs. ENGL 550, 551 Basic Composition 1 & 2 8 Humanities Elective 4 BIOL 551, 552 Anatomy 8 SOCIO 500, 700 Fundamentals & Minority Groups Minority Groups 8 PSYCH 560 General Psychology 4 ANTRH 602 Introduction to Anthropology 4 POLIT 604 American Government 4 HSC 590 Health Education 3 Electives 10
Humanities Elective 4 BIOL 551, 552 Anatomy 8 SOCIO 500, 700 Fundamentals & 8 Minority Groups 8 PSYCH 560 General Psychology 4 ANTRH 602 Introduction to Anthropology 4 POLIT 604 American Government 4 HSC 590 Health Education 3 Electives 10
Humanities Elective 4 BIOL 551, 552 Anatomy 8 SOCIO 500, 700 Fundamentals & 8 Minority Groups 8 PSYCH 560 General Psychology 4 ANTRH 602 Introduction to Anthropology 4 POLIT 604 American Government 4 HSC 590 Health Education 3 Electives 10
SOCIO 500, 700 Fundamentals & Minority Groups
Minority Groups 8 PSYCH 560 General Psychology 4 ANTRH 602 Introduction to Anthropology 4 POLIT 604 American Government 4 HSC 590 Health Education 3 Electives 10
PSYCH 560 General Psychology 4 ANTRH 602 Introduction to Anthropology 4 POLIT 604 American Government 4 HSC 590 Health Education 3 Electives 10
PSYCH 560 General Psychology 4 ANTRH 602 Introduction to Anthropology 4 POLIT 604 American Government 4 HSC 590 Health Education 3 Electives 10
POLIT 604 American Government 4 HSC 590 Health Education 3 Electives 10
HSC 590 Health Education 3 Electives 10
Electives <u>10</u>
TO.
53
Department Requirements
for Social Services Technology
Courses Cr. Hrs.
SOCWK 620 Introduction to
Social Work (SOCIO 500)4
SOCWK 622 Social Work
Processes (SCWK 620) 4
SOCWK 641 American Social
Welfare (SCWK 620)4
SOCWK 642 Human Behav. & Soc Env. 1
(BIOL 551, SCWK 620, PSYCH 560) 4
SOCWK 644 Human Behav. & Soc. Env. 2
(SCWK 642)4
SOCWK 718 Human Behav. & Soc. Env. 3
(SCWK 644, BIOL 552) 4
SOCWK 722 Social Work Methods
(SCWK 622, SCWK 641, SCWK 644) 4
SOCWK 736 Social Work Methods 2
(SCWK 722) 4
SOCWK 695 Applied Social Work
SCWK Electives3
43
Total Credit Hours

NURSING HOME ADMINISTRATION

The Department of Social Work offers a Bachelor of Science in Applied Science degree in nursing home administration. The program prepares students to become specialized, self-critical, account-

able, licensed administrators in nursing and convalescent homes, retirement communities and related health care industries. The program has been approved by the State of Ohio Board of Examiners of Nursing Home Administrators. Graduates are eligible to sit for the national and state licensure examinations.

Required Courses:

MATEC 501/Medical Terminology FNUTR 551/Normal Nutrition I FNUTR 609/Food Systems I NURSG 640/Introduction to Nursing NURSG 641/Concepts and Theories of Self-Care I NURSG 740/Concepts and Theories of Self-Care II SOCIO 703/Aging and Society SCWK 730/Social Services and the Aged CSIS 514/Business Computer Systems or MGT 601/Microcomputer Applications in Business or MKTG 601/Microcomputer Applications ACCTG 602/Financial Accounting ACCTG 603/Managerial Accounting FIN 720/Business Finance MGT 725/Fundamentals of Management MGT 735/Communication for Management and or PSYCH 712/Survey of Industrial/ Organizational Psychology SCWK 736/Social Work Methods II or COMM 756/Interviewing SOCIO 701/Social Statistics I SOCIO 750/Research Methods or AHLTH 801/Special Topics in Allied Health or NURSG 749/Nursing Research AHLTH 803/Current Issues in Health Care HSC 893/Workshop in Health Education SOCIO 821/Internship in Sociology

Required Support Courses:

PSYCH 560/General Psychology SOCIO 500/Fundamentals of Sociology

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COURSES OF INSTRUCTION



Course-Numbering System and Abbreviations

Students should be familiar with the University's course-numbering system and its significance, and with the abbreviations used to indicate the amount of credit.

Upper-and Lower-Divisions

Courses numbered from 500 to 599 are designed for the freshman level; from 600 to 699, the sophomore level; from 700 to 799, the junior level; and from 800 to 899, the senior level. The freshman and sophomore levels constitute the lower-division, and the junior and senior levels the upper-division.

Sequences

Ordinarily, a comma between numbers (e.g., 501, 502, 503) indicates that the course sequence extends throughout the year, but that credit toward graduation is given for each course individually.

Abbreviations

The abbreviation "q.h." at the end of a course description stands for "quarter hours of credit." Thus, credit for a three-hour, three-quarter course is indicated by the notation "3+3+3 q.h.," meaning "three quarter hours of credit each quarter."

The abbreviation "NC" means "No Credit." Thus, "2 NC" indicates that the course offers no quarter hours of credit but that the course is counted as two hours for load and billing purposes.

"Prereq." stand for "Prerequisite." The prerequisite for a course is usually listed in the course description.

Honors courses are designated by the suffix "H."

The key for course area abbreviations can be found on page 327-328.

Courses are listed in alphabetical order by course prefix, as the courses appear in the quarterly Schedule of Classes. Exceptions to this are Foreign Languages, where each language is included under the heading FNLG; Labor Studies Technology (LSTEC), which will be found under MGMT—Management; and Applied Music classes, which are listed under MUSAC—Music, Applied Classes.

NEOUCOM stands for Northeastern Ohio Universities College of Medicine.

An asterisk (*) before the course title indicates that an additional fee will be charged for that course.

A&S—ARTS AND SCIENCES

700. Human Values in Medicine. A behavioral science and humanities perspective on individual and social issues which affect medical care delivery. In addition to classes, seminars, and workshops, it may include field projects, participation in health-related investigations and presentations, and personal development programs.

Credit toward fulfillment of the area requirements will be determined by the dean of the College of Arts and Sciences and will be based upon the selection of courses. May be repeated once. Prerequisite: PSYCH 560 and PHIL 600 or consent of dean. For current students.

750. Study Abroad. An individually-arranged program of foreign study. Programs can be of 3 general types: (1) study trips conducted by YSU faculty, (2) trips or residential programs sponsored by consortial universities, and (3) independent trips. For independent trips, YSU faculty will design appropriate educational objectives and evaluate students' performance in meeting these objectives. A written plan detailing these objectives must be approved by a faculty member of the Global Awareness Committee and the dean of Arts and Sciences prior to the commencement of the trip. For all three categories, credit toward fulfillment of major and area requirements will be determined by the dean(s) of the relevant school(s)/colleges(s), in consultation with the appropriate department chair(s). Note: Study abroad generally requires about one year's advance planning. Prereq.: Sophomore status.

1-20 a h

760. Washington Center Internship. Qualified students will work in selected public and private agencies in the Washington, D.C. area, thus providing access to government and community leaders and activities, and gaining experience by participating in projects, seminars, and courses. A final project report is required. Students must take an additional academic credit course at Washington Center. Additional details are available through the Department of Political Science. Credit may be applicable to the major. Grading for this course will be CR/NC. Prereq.: Junior or Senior standing, acceptance by the Washington Center, and permission of the chair of the major.

805. Integrated Social Studies Seminar. A study of selected topics integrating the concepts and methods of the social studies disciplines. May be repeated with a different topic. Prereq.: Senior standing in the Integrated Social Studies Curriculum with at least 60 hours of social studies courses and a minimum of one course in each discipline, or senior standing as a major in one of the social studies disciplines.

890. Internship. Integrate theory and practice through supervised learning experiences provided by an appropriate working professional and an Arts and Sciences faculty member. Students will submit a proposal of the internship, maintain a journal of experiences, and submit a final project paper. Students should expect to spend at least 4 hours/week per credit. Prereq.: junior standing with at least 8 q.h. of coursework in the discipline of the internship, and consent of the appropriate chair. May be repeated for maximum of 8 q.h. 2 to 4 q.h.

ACCTG—ACCOUNTING

Lower-Division Courses

- 503. Elementary Accounting. Certain principles, concepts, and terminology related to the accounting cycle. Includes an examination of procedures related to control of cash and payroll activities. Does not fulfill WCBA requirements. 4 q.h.
- 602. Financial Accounting. A study of the accounting cycle and generally accepted accounting principles including preparation of the financial statements. Prereq.: Sophomore standing. 4 q.h.
- *603. Managerial Accounting. A study of the accounting informational needs of management. Emphasis is placed on techniques of planning and control, Prereq.: "C" or better in ACCTG 602 and CSIS 514 or CSIS 500.

Upper-Division Courses

*703, *704, 705. Intermediate Accounting 1, 2, 3. A comprehensive study of the theories and concepts underlying financial accounting. Emphasis on income determination, asset valuation, measurement of liabilities, corporate equity accounting, and changes in financial position. Current issues in financial reporting and pronouncements of authoritative bodies are studied. Prereq. for ACCTG 703 is a "C" or better in ACCTG 603. Prereq. for ACCTG 704 is a "C" or better in ACCTG 703. Prereq. for ACCTG 705 is a "C" or better in ACCTG 704.

4+4+4 q.h.

707. Individual Income Taxes. Taxes for the individual and those who operate, or plan to operate, a small business, farm or hobby. Major emphasis will be placed on federal income tax laws for individuals. However, state and local income taxes will be included. The students will be working with current year tax forms. (Not available for credit to Accounting majors.) Prereq.: MGT 511 or ACCTG 602.

3 q.h.

*709. Accounting Information Systems. A study of systems analysis, design, and implementation within the context of an accounting information system. Topics will include a treatment of the business computing environment, security and control of information, the accounting information system as a component of the management information system, and a decision support and expert systems. Prereq.: "C" or better in CSIS 514 and ACCTG 704. 4 q.h.

- *711. Cost Accounting. Study of cost accumulation for products manufactured under job order or continuous manufacturing processes; also, cost behavior and profit-volume relationships; cost structures for control and motivation; and relevant costs for non-routine decision making. Prereq.: "C" or better in ACCTG 603.
- 712. Advanced Cost Accounting. Standard and differential costing will be studied in depth. Compilation and preparation of budget data for managerial and administrative purposes is included. Prereq.: "C" or better in ACCTG 711. 4 q.h.
- *721. State and Local Taxes. The theory applicable to state and local taxation concepts is reviewed in detail. Primary emphasis is on taxation principles in current use by state and local government units located throughout the United States. Case law is studied and some representative tax returns are prepared. Prereq.: "C" or better in ACCTG 603. 4 q.h.
- 745. Accounting for Engineers. Fundamentals of financial and cost accounting as applied to engineering. Prereq.: ISEGR 724. 4 q.h.
- 801. Advanced Accounting. Partnerships: formation, operation, and liquidation; installment sales; consignments; branch accounting; receivership; joint ventures; consolidations and mergers. Prereq.: "C" or better in ACCTG 705.
- *808. Auditing. Auditing theory, practice and procedures are introduced and related to actual problems encountered in practice. Prereq.: "C" or better in ACCTG 705, 709 and 711. 4 q.h.
- 809. Advanced Auditing. The application of quantitative methods to the solution of auditing problems; an examination of currently debated topics in auditing praxis. Prereq.: ACCTG 808. 4 q.h.
- *813. Federal Taxation of Individuals. Introduction to federal income tax laws pertaining to individuals. Emphasis on gross income and adjusted gross income, deductions, and sales, exchanges and basis of property. Prereq.: "C" or better in ACCTG 704 or FIN 835.
- *814. Federal Taxation of Business. Study of current federal income tax law applying to proprietorships, corporations, S corporations, and partnerships. Coursework includes fundamentals of researching tax law and preparing business tax returns. Prereq.: "C" or better in ACCTG 813. 4 q.h.
- 820. Governmental and Funds Accounting. Generally accepted accounting principles for not-for-profit and governmental organizations as established by the appropriately recognized, standard-setting bodies are discussed. Organizations include state and local governments, school districts, colleges and universities, hospitals, voluntary health and welfare organizations, and others. Prereq.: "C" or better in ACCTG 603.
- 840. Accounting Internship Program. Participatory accounting and professional business experience under the direction of University faculty mem-

bers and employees of firms participating in the program. The candidates will be employed full-time for the entire quarter in the offices of the participating firms. A written evaluation of the job experience is required by students and firms. Prereq.: Accounting major, junior standing, 2.75 Accounting average and 2.50 overall average and approval of internship committee.

851. Professional Practice in Accounting. This course provides students with Cooperative Education experiences in Accounting. Students may be assigned to public, corporate, or governmental entities on a quarter to quarter basis. May be for more than one quarter. Prereq.: Junior standing. 1 q.h.

ADVER—ADVERTISING

Upper-Division Courses

704. Principles of Advertising. A survey of advertising in the framework of modern business activities, the course explores advertising's role in business, advertising media, advertising messages, and planning and managing advertising campaigns. Prereq.: ENGL 551 and junior standing. 5 q.h.

705. Advertising Creative Strategy. A study and application of the creative process to copyrighting and graphic design in various media. Prereq.: ADVER 704.

*706. Advertising Media Planning and Buying. Planning, executing, and controlling of media buys are examined. Techniques of allocation of budget among print and electronic media are explored on national, regional, and local levels familiarizing the student with syndicated media resources. Prereq.: ADVER 704.

707. Advertising Management. Principles and problem-solving techniques relative to the management of advertising are examined. Emphasis is on skill development in appraising factors which affect advertising decisions on messages, media, and budgets by analyzing markets, consumer behavior, and competitive conditions. Lecture, discussions, and case analysis are used to convey the above information. Prereq.: ADVER 704.

*708. Advertising Research. Introduction to the major areas of research in advertising including measurement of campaign effectiveness, message effectiveness, and media effectiveness. The course acquaints the student with the basic principles, methods and techniques of advertising research including the principle sources of data used in the advertising industry. Prereq.: ADVER 704. 4 q.h.

*811. *Direct Marketing*. An in depth investigation of direct marketing including mail order and direct response advertising. Measurability, accountability, lists, and the integration of direct marketing into the total marketing efforts are explored. Prereq.: ADVER 704.

813. Electronic Media Advertising. The practices of the electronic media from an advertising standpoint are explored. Radio, television, cable, one-way interactive systems, and two-way interactive systems are investigated as advertising media. Media sales, writing, and production of commercials are discussed. Prereq.: ADVER 704. 4 q.h.

*814. Print Media Advertising. The practices of the print media from an advertising standpoint are explored. Magazines and newspapers from both national and retail advertisers' perspectives are examined. Media sales, writing, and production of advertisements are discussed. Prereq.: ADVER 704.

4 a.h.

823. Advertising Campaigns. The application of fundamental theories and practices garnered in all the previous advertising courses to a specific advertising problem, including the development and creation of a complete advertising campaign. Prereq.: ADVER 704, 705, 707, and 708. 4 q.h.

*831. Special Topics in Advertising and Public Relations. Topics will vary from quarter to quarter. Subject matter, number of credit hours, and prerequisites will be announced in advance of each topic. Not more than one Special Topic per quarter is permitted. Course may be taken twice with change of topic.

1-6 q.h.

850. Advertising Internship. Practical business experience is available to students in advertising under the direction of University faculty members, advertising department personnel in organizations, and public relations practitioners. The candidates will be employed a minimum of 20 hours per week during the quarter. Weekly campus conferences are required, and attendance at these conferences is mandatory. A written evaluation of the job experience is required by the student and the participating organization. Prereq.: ADVER 704, 705, 706, 707 and 708. 2.75 advertising and public relations average, 2.50 overall average, and approval of internship committee.

AHLTH-ALLIED HEALTH

704. Fundamentals of Pulmonary Rehabilitation. This course is designed to demonstrate the multidisciplinary nature of a rehabilitation program for patients with C.O.P.D. It will also present the key elements that should be present in a quality pulmonary rehabilitation program. Prereq.: RESPC 607 or permission of instructor.

705. Pharmacotherapeutics. Advanced concepts and integration of various drug interactions will be presented as applied to modern drug therapy. Analysis of drug regimens related to a broad spectrum of pathologic conditions will be discussed. Prereq.: MA 605 and BIO 552, or permission of instructor.

706. Practice Management for the Dental Hygienist. Management of dental hygiene care including appointment control, developing and maintaining recall systems, and insurance management. Dental marketing problem solving and the business relationship between dental patients and dental hygiene professionals will be discussed. Prereq.: DENHY 602L or permission of the instructor.

*708. Preventive Public Health Care. Application of current health care philosophies in disease prevention. In-depth case study of a specific public health problem and its prevention. Prereq.: Graduation from an associate degree health related program or permission of the instructor.

4 q.h.

709. *Periodontics*. The study of the periodontium and periodontal therapy as it relates to total case planning and the role of the dental hygienist. Prereq.: DENHY 603L or permission of instructor.

4 q.h

710. Gerodontology. An in-depth study of geriatrics as it relates to dental hygiene care and specific concerns of the elderly. An extramural experience with a geriatric patient will be included. Prereq.: DENHY 601 or permission of the instructor.

720. Emergency Medical Services Management. A review of EMS system design, staffing, chain of command, medical education, policies and procedures, record keeping, inter-agency relationships, community resources and involvement, and legal aspects relevant to private and public emergency medical services. Prereq.: EMTEC 601 or permission of the instructor.

*721. Pediatric Emergency Procedures. A study of the pathophysiology, symptomatology, advanced diagnostic and therapeutic techniques of medical and traumatic emergencies unique to the pediatric patient. Prereq.: EMTEC 601 or permission of the instructor.

740. Pathology of Infectious Disease. Pathology, prevention, transmission, and treatment of infectious disease; emphasis on nosocomial, opportunistic, and emerging bacterial, fungal, parasitic, and viral pathogens. Prereq.: BIOL 552 or 560 or permission of instructor.

801. Special Topics in Allied Health. The directed study and research of a special problem or issue related to the health field. The topic of interest will allow the student to participate in the investigation of aspects of administration, education, business, or research as these pertain to the particular health specialty. Prereq.: AHLTH 803 or permission of instructor. May be repeated for a total of 10 hours.

1-5 q.h.

*803. Current Issues in Health Care. Problems and issues facing the health care system including access to care, financing and rationing of services. A major project will be included. Prereq.: AHLTH 708 or permission of instructor.

804. Stress and the Health Care Practitioner. This course will examine the personal reactions of health care workers to patients, families, and their health care environment. Specifically, it will help the student identify stress and explore coping options. Other topics discussed include organizational systems, communication theory, conflict resolution, problem solving, and burnout. This course is recommended for individuals who have some work experience in the health care field. Prereq.: PSYCH 780 or permission of instructor.

805. Concepts in Health Care Education. University as well as hospital-based programs will be reviewed in regard to accreditation, clinical vs. didactic instruction, use of simulations, and evaluation techniques. Public health education and the role of the Allied Health professional will also be investigated. A major learning unit and/or research project will be required. Prereq.: AHLTH 803 or permission of instructor.

*806. Research Methodology for Health Sciences. Measurement and interpretation of health data and their application in the research process. Research design considerations, data collection methods and data analysis of health care research projects will be discussed. Prereq.: AHLTH 708 or permission of instructor.

*807. Epidemiology for the Health Care Practitioner. A study of the interrelationship of the host, agent, and environment in determining the causation, frequency, and distribution of disease. Prereq.: AHLTH 708 or permission of instructor. 4 q.h.

808. Environmental Concerns for the Health Care Practitioner. Industrial hygiene, hazardous and infectious waste, air and water quality, and sanitation policies in health care facilities. Pertinent federal, state, and local legislation included. Prereq.: AHLTH 708 or permission of instructor. 4 q.h.

810. Management Skills for the Health Care Supervisor. A study of the conceptual framework of supervision in Health Care Organizations with emphasis on managerial skills, formulation of policies, principles of budgeting, performance appraisals, and community relations. Prereq.: AHLTH 804 or instructor's permission.

*812. Advanced Cardiac Life Support. ECG interpretation, cardiovascular drug pharmacology, airway management and resuscitation techniques used in the management of cardiac emergencies. The course meets the objectives of the American Heart Association's Advanced Cardiac Life Support program for initial certification or recertification. Two hours of lecture and three hours of laboratory. Prereq.: AHLTH 705 or permission of instructor.

3 q.h.

*814. International Health Care Systems. Comparison and evaluation of medical services in select countries including their capacity to address major health problems. The role of the World Health Or-

ganization will also be investigated. Prereq.: AHLTH 803 or permission of instructor. 3 q.h.

816. Environmental Regulations for Health Care. Structure and function of local, state and federal agencies responsible for implementing environmental legislation. Emphasis will be placed on the duties and authority of different health and environmental agencies and specific legislation dealing with environmental impacts. Prereq.: AHLTH 708.

4 q.h.

820. Directed Individual Research. The individual study or research of a special problem or issue related to the health care field. Prereq.: Senior standing, AHLTH 801 and AHLTH 806. 2 q.h.

*825. Neonatal Resuscitation. Critical care skills as they apply to NRP certification. One hour lecture and two hours lab. Prereq.: AHLTH 812, Neonatal ICU and/or labor and delivery services experience, or consent of instructor.

2 q.h.

*830. Pediatric Advanced Life Support. Critical care skills as they apply to objectives of the American Heart Association's PALS program for initial certification or recertification. One hour lecture and two hours lab. Prereq.: AHLTH 812, pediatric critical care experience, or permission of instructor.

2 q.h.

*831. Introduction to Industrial Hygiene. Basic concepts of industrial hygiene including anticipation, recognition, and evaluation of environmental and safety hazards as they pertain to the workplace. Prereq.: AHLTH 708 or permission of instructor.

4 q.h.

835. Seminar in Health Care Diversity. Strategies of communication that enable the student to understand socioeconomic, political, ethnic, and religious diversity in health care. Prereq.: AHLTH 708 or permission of the instructor.

AMER—AMERICAN STUDIES

Lower-Division Course

601. American Identity. Study of American identity through historical, literary, artistic, material, media, and other sources. Emphasis on American pluralism and cultural debates over the meaning of American identity. May be applied to humanities requirements.

Upper-Division Courses

701. Approaches to American Studies. Survey of central issues and themes in American cultural studies, with emphasis on interdisciplinary approaches and cultural diversity. May focus on a theme chosen by the instructor, such as nature and culture, work, or class in America. May be repeated once with a different topic. May be applied to either humanities or social science credits, depend-

ing upon the discipline of the instructor(s). If taken with AMS 601, must be taken for social science credit.

4 q.h.

801. American Studies Research Seminar. Capstone seminar. Focuses on development and implementation of research proposal and current American Studies research related to topics chosen by students for their senior projects. Prereq.: AMS 701 and permission of instructor (based on approval of your degree plan by the Advisory Committee).

4 a.h.

802, 803. Perspectives on America. A study of the American scene from differing points of view cultural, political, social, economic. Prereq.: Senior standing. Required of seniors majoring in American Studies; open to other seniors with consent of teachers.

3 + 3 q.h.

810. Independent Project on American Culture. Work with faculty advisor on senior projects. A total of 4 hours is required for completion of the major. Prerequisite: AMS 801 and permission of instructor. Variable credit, 1-4 hours. May be repeated with permission of coordinator. 1-4 q.h.

ANTHR—ANTHROPOLOGY

Lower-Division Course

602. Introduction to Anthropology. An exposition of the past and present horizons of anthropology, with specific attention to the emergence of humans, pre-history, and human social and cultural systems.

4 q.h

Upper-Division Courses

701. Cultural Anthropology. A cross-cultural comparison of the cultural norms that regulate society, emphasizing the functional prerequisites for the existence of society and individual demands on society. Prereq.: ANTHR 602.

702. Archaeology. An introduction to the methods and subject matter of archaeology in its reconstruction of Paleolithic and prehistoric cultures as inferred from artifacts. Prereq.: ANTHR 602.

4 q.h.

703. Biological Anthropology 1: Human Evolution. The physical origins and development of the human species as a member of the primate order and the biological bases of human behavior disclosed by human paleontology and archaeology. May be used to satisfy the University science area requirement. Prereq.: ANTHR 602. 4 q.h.

704. Biological Anthropology 2: Human Variation. The distribution of the human species into variant physical types and the casual adaptations of these varieties in relation to evolutionary human ecology. May be used to satisfy the University science area requirement. Prereq.: ANTHR 602.

710. Social Anthropology. The origin, diffusion, and continuity of primitive social institutions with their relation to contemporary social phenomena. Prereq.: ANTHR 602. 4 q.h.

750. Language and Culture. Language structure as an instrument in human behavior and social institutions with emphasis on cross-cultural and intercultural communication. Prereq.: ENGL 551 or equivalent, and ANTHR 602 or equivalent. Listed also as ENGL 750.

753. Anthropological Linguistics. An introduction to elementary linguistic theory from an anthropological viewpoint with practical work in phonetics, phonology, morphology, syntax, and transformational grammar. Prereq.: ANTHRO 602 or 750.

4 q.h.

760. Topics in Old World Ethnography. An indepth examination of the ethnography, cultural contributions, and achievements of Old World peoples, which may include the cultures of Europe, Africa, the Middle East, Asia, or Australia and Oceania. May be taken up to four times for credit if topic is different. Prereq.: ANTHR 602 or permission of instructor.

761. Topics in Native American Ethnography. An in-depth examination of various topics in Native American ethnography. Topics vary by quarter and may include South American Indians, Native American civil rights, the reservation system, and others. May be taken three times for credit if topic is different. Prereq.: ANTHR 602 or consent of instructor.

765. Maya, Aztec, and Inca Cultures. The origins, cultures, and achievements of the classic civilizations of the New World. Prereq.: ANTHR 602.

4 ah

775. North American Indians. The culture and achievements of the North American Indians. Prereq.: ANTHR 602. 4 q.h.

*778. Archaeological Techniques. Practice in archaeological field methods, including surveying, mapping, excavation, and artifact analysis. Ordinarily offered in summer. 220 contact hours per quarter. Prereq.: ANTHR 702.

*781. Archaeological Laboratory Techniques. Site reconnaissance, artifact analysis and preservation, microware analysis, analysis of faunal remains, coprolite analysis, archaeological report writing, etc. Some lab work may be required. Prereq.: ANTHR 702 or permission of instructor.

790. Aging in Cross-cultural Perspective . Examines the phenomenon of aging from a cross-cultural perspective with particular emphasis on cultural evolution and its impact upon the status, roles and cultural values associated with aging and the aged. Prereq.: ANTHR 602 or permission from instructor.

800. Undergraduate Research. Research participation under the direction and guidance of a full-service faculty member. Designed to acquaint the advanced student with special research problems associated with various aspects of the discipline. May be repeated to a maximum of 6 quarter hours. Prereq.: Permission of instructor and junior standing.

801. History of Anthropological Thought. An analysis of the theories and methodology of the major contributors to contemporary anthropological thought, such as the evolutionist, diffusionist, functional, and multi-linear schools. Prereq.: ANTHR 602.

815. Primitive Religion. A survey of anthropological approaches to the **stu**dy of religion, illustrated by a critical consideration of past and present contributions to the field. Study of selected religious systems, areally and topically. Prereq.: ANTHR 602.

817. Cultural Resource Management. The reconnaissance, identification, evaluation, preservation, and recording of prehistoric and historic cultural resources. Students will be familiarized with federal, state and local laws. Some field work may be required. Prereq.: ANTHR 702 or permission of instructor.

822. North American Prehistory. The prehistoric development of North American Indian cultures from the Arctic to Northern Mexico. Prereq.: ANTHR 702. 4 q.h.

824. Old World Prehistory: Special Topics. An examination of the pre-historic development of Old World (Africa, Europe, Far East, Middle East, and Oceanic cultures). May be taken twice for credit if topic is different. Prereq.: ANTHR 702. 4 q.h.

*825. New World Archaeology: Special Topics. An in-depth examination of the archaeological evidence of the development of New World cultures from early prehistoric to late post-industrial times. Topics vary by quarter and may include historical archaeology, industrial sites archaeology, Southwestern prehistory, Ohio prehistory, South American prehistory, and others. May be taken twice for credit if topic is different. Some topics may include fieldwork. Prereq.: ANTHR 702 or consent of instructor.

4 q.h

877. Method and Theory in Archaeology. Past and contemporary theory and methodology in archaeology, with emphasis on recent innovations in the U.S. and Europe. Prereq.: ANTHR 712 or 702.

4 q.h

879. Primate Ethology. Survey of the behavioral patterns of contemporary primates, emphasizing the relationships with the behavior patterns of early and modern homosapiens. Prereq.: ANTHR 602 and either 16 q.h. in the major or junior standing. 4 q.h.

*884. Human Paleontology. A detailed survey of the fossil evidence for human evolution, including techniques of measurement and description of human skeletal remains. May be used to satisfy the University science area requirement. Prereq.: ANTHR 703 or 704.

ANCIENT LANGUAGES AND LITERATURE

See Greek; Latin; Philosophy and Religious Studies.

ART-ART

Lower-Division Course

- 500. Introduction to the Visual Arts. An introduction and orientation course for the disciplines of studio art, art education, and art history. The course concentrates on departmental programs, policies, practices, and facilities. Emphasis is placed on various aspects of artistic education leading to a successful career in the visual arts.
- *501. Drawing 1. A foundation course concerned with developing perceptive and motor skills in fundamental media. Problems, restricted to the two-dimensional format, that stress the visual organization of line, shape and value. One hour lecture and five hours lab per week.

 4 q.h.
- *502. Design 1. An investigation of the structural properties of two-dimensional shape for the beginning student. Four hours lab and two hours lecture.
- *503. *Design 2.* An exploration of fundamental color relationships as a basis for visual organization. Two hours lecture and four hours lab per week. Prereq.: ART 502.
- *504. Design 3. Three-dimensional experiments with various materials. Use of the formal elements in three dimensional design. Eight hours lab per week. Prereq.: ART 503.
- 515. Survey of Non-Western Art 1. A survey of the arts of Africa, Oceania and the Pre-Columbian Americas. 4 q.h.
- 516. Survey of Non-Western Art 2. Survey of the art of the Far East including India, China, Korea, Japan and Southeast Asia. 4 q.h.
- 521. Survey of Western Art I. Art in western cultures from pre-historic to late Roman (4th century AD). Includes architecture, painting, and sculpture. Introduces key concepts, methods, and vocabulary for the historical study of art.

 4 q.h.
- 522. Survey of Western Art 2. Western art from Early Christian (3rd century AD) to late Gothic (15th century). Includes architecture, painting, sculpture, and the luxury arts. Introduces key concepts, methods, and vocabulary for the historical study of art.

- 523. Survey of Western Art 3. Art in Europe and the United States from the early Renaissance (13th century AD) to the present. Includes architecture, painting, and sculpture. Introduces key concepts, methods, and vocabulary for the historical study of art.
- *550. Digital Imaging for the Artist 1. Explores the nature of computing as an artistic medium through the investigation of object-oriented and paint software on the IBM platform. Students interact with the computer creatively while gaining a fundamental knowledge of conceptual and technical issues. Introduction of digital imagery in other artistic disciplines. Two hours lecture, four hours lab. Prereq.: ART 501 and ART 503.
- 600. Theory of Art. The theories and philosophical implications of form in the visual arts, with emphasis on contemporary thought.

 4 q.h.
- *601. Drawing 2. A continuation of Drawing 1 with more emphasis on spatial organization. Wider attention to process and technique as well as pictorial content. One hour lecture and five hours lab per week. Prereq.: ART 501 and 502.
- *602. *Drawing 3.* Course work intended to provide a wider and more unusual format in the drawing process. Students will be introduced to concepts and philosophical ideas. Use of color dynamics and different experimental materials as well as increased scale and gestural action. One hour lecture and five hours lab per week. Prereq.: ART 601. 4 q.h.
- 603. Appreciation of Contemporary Art: A Humanities Approach. A slide/lecture approach to the visual arts of this century, with the ideas that influenced them and the impact made on related humanities fields. Satisfies the University's area requirement in the humanities.

 4 q.h.
- *604. Watercolor Painting. Opaque, transparent, and inventive procedures with watercolor. Emphasis is on expressive use of the medium and development of personal style. One hour lecture and five hours lab per week. Prereq.: ART 601 or 602.

4 q.h.

- *606. Painting 1. Exploration of old and new techniques. The student is encouraged to see significantly rather than imitatively, and to develop an explorative interest in techniques. Eight hours lab. Prereq.: ART 601 or 602.
- *611. Woodblock & Mono Printing. Experimenting with woodblock and mono printing techniques. One hour lecture and seven hours of lab. Prereq.: ART 601 or ART 602. 4 q.h.
- *612. Silk Screen. Printmaking experiments using various silk screen techniques. Eight hours lab. Prereq.: ART 601 or 602. 4 q.h.
- 630. Methods for the Art Research Paper. Basic methods for library research in art. Includes narrowing paper topics; using textbook notes and bibliographies, The Encyclopedia of World Art, The Art

Index, annotated bibliographies; writing footnotes and endnotes; writing preliminary and final bibliographies; Youngstown Area resources. Prereq.: ART 521 or 522 or 523.

*650. Digital Imaging for the Artist 2. Continues to explore the processes involved in digital image making with a strong emphasis on typography and type-image relationships. Students will acquire an increased sensitivity to the media through further exploration of object-oriented and paint software, building toward an aesthetic and innovative use of the technology. Two hours lecture, four hours lab. Prereq.: ART 550, 656, 657.

*655. Graphic Design 1. The basic concepts of graphic design theory including layout and organization of space, the elements of visual communication (typography, images), the use of graphic tools excluding the computer, and the process of presentation from thumbnails through comprehensives. Must achieve a 'B' grade or better to progress in core. Two hours lecture, four hours lab. Prereq.: ART 501, 502, and 503.

*656. Typography 1. The basic concepts of letterforms including classification, anatomy, legibility, readability, and specification. Study incorporates use of headlines, subheads, text and visual dynamics. Must achieve a 'B' grade or better to progress in core. Two hours lecture, four hours lab. Prereq.: ART 550 or equivalent, ART 655. 4 q.h.

*657. Desktop Publishing for the Designer. Introduction to the computer as a design tool with emphasis on image capturing and manipulation, type usage, and page layout. The design focus will be on the interaction between type and images. Two hour lecture, four hours lab. Prereq.: ART 550, 656. 4 q.h.

*662. Art Appreciation for Classroom Teachers. Focus on the visual arts as related to students majoring in education and the ways the visual arts can be taught to children. Emphasis on aesthetics, criticism, history and the creation of art. Four hours lecture and two hours lab per week.

680. Basic Photography. A basic non-lab, lecture and critique course emphasizing essential photographic camera skills, techniques, and aspects of visual organization, vocabulary, and seeing photographically. Students must provide 35mm camera and film for class assignments and pay to have color slide film and b&w negative film processed commercially. Some demonstrations will be provided. Prereq.: ART 502 or consent of instructor.

Upper-Division Courses

*701. Life Drawing. Students will develop sound composition based upon accuracy of observation of the human figure. Understanding of proportion and the detailed study of skeletal and muscular systems will be addressed. One hour lecture and five hours lab per week. Prereq.: ART 601. 4 q.h.

*703. Painting 2. Continuation of individual exploration of techniques and development of personal tendencies. Ten hours of lab. Prereq.: ART 606.

*705. Drawing 4. A continuation of Drawing 3 with more complexity in pictorial relationships. Further expansion of conceptual solutions and more personalized imagery. Attention to more indepth exploration of the drawing process. One hour lecture and five hours lab per week. Prereq .: ART 602.

4 q.h.

706. Renaissance Art. Italian painting, sculpture, and architecture from 1300 to 1575. Examines the work of Michelangelo, Leonardo da Vinci, and others in relation to the history and philosophy of the time. Prereq.: ART 523 or consent of the instructor.

707. Seventeenth and Eighteenth Century American Art. Covering all aspects and media of painting, sculpture, architecture, and the decorative arts of the 17th and 18th centuries. Prereq.: ART 523 or consent of the instructor.

708. Baroque and Rococo Art. Art and architecture of the 17th and early 18th centuries, an era of world exploration and scientific investigation. The works of such artists as Bernini, Velazquez, and Rembrandt are included. Prereq.: ART 523 or consent of the instructor.

709, 710, 711. History and Appreciation of Art and Music 1, 2, 3 (General). Illustrated lectures on art and music to develop the cultural growth of the nonart and non-music student. Art and music forms, comparisons of compositional styles, and discussion of the developments, influences, and experiments of the important periods to date. No prior training in art or music required. (Not intended for art majors.) Listed also as MUSIC 709, 710, 711. Satisfies the University's area requirement in the humanities. 4+4+4 q.h.

713. Nineteenth Century European Art. European painting and sculpture of Neo-classicism, Romanticism, and Realism. Includes Impressionism and related movements. Art as part of social and political developments, and the foundations of modern formalism. Prereq.: ART 523 or consent of the instructor. 4 q.h.

714. Ancient Art 1. Art of the ancient Near East (Mesopotamia, Egypt, Aegean). Includes painting, sculpture, and architecture. Prereq.: ART 521 or consent of instructor.

715. Ancient Art 2. Art of Ancient Greece and Rome. Includes painting, sculpture, and architecture. Prereq.: ART 521 or consent of the instructor.

719. Nineteenth Century American Art. Covering all aspects and media of painting, sculpture, architecture and the decorative arts of the 19th century. Prereq.: ART 523 or consent of the instructor.

- *721. Lithography. Concentrated printmaking techniques from a flat stone or metal plate. Eight hours lab. Prereq.: ART 601 or 602. 4 q.h.
- *722. Photo Silk Screen. Experiments in various photo silk screen methods of printmaking. Two hours lecture and six hours lab per week. Prereq.: ART 612.
- *723. Weaving 1. Exploration of simple beginning weaving techniques on a four-harness loom. Emphasis on the actual making of yarns on the spinning wheel and dyeing with natural dyes. Off-loom techniques such as basketry, macrame, simple and inkle loom weaving, finger weaving, and shaped loom weaving (such as circles and triangles). Six hours lab. Prereq.: ART 502 or 503 or permission of instructor.
- *725. Ceramics 1. Introduction to handbuilding methods, low-fire glaze application, pit-firing, and firing procedures. Two hours lecture, four hours lab per week. Prereq.: ART 504, 601.
- *726. Ceramics 2. Continuation of handbuilding methods; introduction to wheel-thrown ceramics. Two hours lecture, four hours lab per week. Prereq.: ART 725. 4 q.h.
- *728. *Illustration*. Visual expression through various media, both electronic and traditional. Emphasis is on problem-solving through the exploration of technique, creative process and the development of personal styles. Two hours lecture, four hours lab. Prereq.: ART 602, 657.
- *730. Sculpture 1. Problems dealing with form in space. Experiments with wood, plaster, or stone techniques. Eight hours lab per week. Prereq.: ART 504. (W)
- *731. Sculpture 2. Problems dealing with form in space. Exploration and application of various contemporary materials, techniques and ideas. Eight hours lab per week. Prereq.: ART 730. 4 q.h.
- *734. Woodblock & Mono Printing 2. Continued experimentation with relief and monotype printmaking techniques. Eight hours lab per week. Prereq.: ART 611.
- *735. Silk Screen 2. Continued experimentation using various silk screen techniques. Eight hours lab per week. Prereq.: ART 612. 4 q.h.
- 742. African Art. Study of African tribal art forms and their relationship to the historical period in which they were created. The impact and influence of African art on the development of contemporary Western art trends. Prereq.: BLKST 601 or ART 515 or consent of instructor. Satisfies the University's area requirement in the humanities. 4 q.h.
- 744. African-American Art. A survey of Black American art history from the 17th century through the 20th century. Prereq.: BLKST 601 or ART 515 or consent of instructor. Satisfies the University's area requirement in the humanities.

- 745. Pre-Columbian Art. The art of the Ancient Americas before the coming of Europeans. The course concentrates on cultures of Mesoamerica and the Andes, such as the Maya, Inca, and Aztec, placing artistic developments in the context of religious belief and cultural change. Prereq.: ART 515, 521, a course in cultural anthropology, or consent of the instructor.
- 746. Native North American Art. The art and architecture of the native peoples of North America. Includes archaeological sites and living artistic traditions, stressing the relationship between art and society. Prereq.: ART 515 or 521, a course in cultural anthropology, or consent of the instructor.

- 747. The History of Still Photography to 1925. A lecture course in the history of still photography from its beginning to 1925, with emphasis on the evolution of photography as a fine art. Three hours lecture and one hour group museum experience per week. Prereq.: ART 523.
- 748. Still Photography 1925 to Present. A lecture course in the history of still photography from 1925 to the present. Emphasis is placed on the evolution of photography as a fine art. Three hours lecture and one hour group museum experience per week. Prereq.: ART 523.
- 749. History of Graphic Design. A chronological survey of graphic design from ancient to modern times. An emphasis will be placed on specific designers who influenced the field as well as the relationship between visual communication and historical/cultural events. Prereq.: ART 523. 4 q.h.
- *750. Digital Imaging for the Artist 3. A higher level of artistic expression will be achieved by exploring a variety of applications. Through a combination of advanced projects in montage, three-dimensional modeling, color analysis, and storyboarding, the student will develop a personalized and experimental approach to the media. Topics such as animation, broadcast design, and multimedia will be presented. Two hours lecture, four hours lab. Prereq.: ART 650. 4 q.h.
- *751. Digital Imaging for the Artist 4. The student will continue developing a personalized and experimental approach to the media through an independent project. Further investigation on the combination and integration of electronic media into other artistic disciplines. Two hours lecture, four hours lab. Prereq.: ART 750. 4 q.h.
- *755. Graphic Design 2. Type and image. A continuation of the design principles of Art 655, Graphic Design 1, with emphasis on the integration of type with photography and illustration in visual communication. Includes study of informational systems. Must achieve a 'B' grade or better in this class to proceed in core. Two hours lecture, four hours lab. Prereq.: ART 657, 728, 780.

*756. Typography 2. Expressive typography. The creative use of type in visual communications. Emphasis on interpretive, symbolic and metaphoric solutions to typographic problems. 'B' or better grade required to progress in core. Two hours lecture, four hours lab. Prereq.: ART 755.

*757. Identity Systems. Concentrated development of logos and their applications within identity systems. Emphasis on clear, creative integration of type and symbols within a wide range of uses. Two hours lecture, four hours lab. Prereq.: ART 756.

*758. Informational Graphics. The visual interpretation of data through typography and illustration. Includes charts, graphs, maps and data presentation. Two hours lecture, four hours lab. Prereq.: ART 657, 728 and ENGL 743.

*761. Art Strategies for Preschool and Kindergarten Teachers. Designed for the prekindergarten associate and kindergarten validation program with emphasis on establishing attitudes and philosophies through classroom experiences. Two hours lecture and four hours laboratory per week. Prereq.: ART 662 or permission of instructor.

*762. Art Strategies for Classroom Teachers. A study of the artistic needs of students from grades one through eight and the exploration of the creative process in relation to classroom experiences. Two hours lecture and four hours laboratory per week. Prereq.: ART 662.

*763. Strategies for Teaching Secondary School Art. An exploration of the needs of students from grades nine through twelve and the methods used in providing creative art experiences. Two hours lecture and four laboratory per week. Prereq.: ART 762.

*769. Fiber Exploration. Individual manipulation of the processes of dyeing, printing of fibers, and creative stitchery, wrapping, macrame, soft sculpture, creative knitting, and crocheting. Eight hours lab. Prereq.: ART 504.

*770. Jewelry 1. The basic methods of fabrication used in the creation of jewelry. Design as applied to the hand processes in the shaping of various metals. Eight hours lab per week. Prereq.: ART 504.

4 q.h.

*771. *Jewelry 2.* The casting process used in the creation of jewelry. Eight hours lab per week. Prereq.: ART 504. 4 q.h.

*780. Photography 1. Photographic fundamentals; developing, copy enlarging. Technical and visual knowledge relating to the photograph as an expressive art form. Students provide their own cameras and supplies. Two hours lecture; six hours lab. Prereq.: ART 502 or permission of instructor.

4 q.h.

*781. Photography 2. Color. Color printing, color films; exposure, developing. Students provide their own cameras and supplies. Eight hours lab. Prereq.: ART 780.

*782. Photography 3. Continued development of photographic craft and vision, in black and white and/or color photography. Introduction to large-format films; sheet film development and printing; multi-media visual communication. Students provide their own cameras and supplies. Eight hours lab. Prereq.: ART 780.

*783. Photography 4. A continuation of photography 780 with emphasis on refinement of the student's creative and technical abilities. One hour lecture and seven hours lab. Students provide cameras and supplies. Prereq.: ART 780. 4 q.h.

*784. Photography 5. A continuation of photography 781 with emphasis on competence in color theory, technique, and creative manipulation of recent color processes. One hour lecture; seven hours lab. Students provide their own cameras and supplies. Prereq.: ART 781.

*790. Special Topics in Studio Art. Study in one of the many areas of the visual arts. May be taken three times for credit if topic is not repeated. Prereq.: Art 503 and/or ART 504, or consent of instructor.

2-4 q.h.

791. Special Topics in Art History. Study in one of the many areas of art history. May be taken up to three times for credit if topic is not repeated. Prereq.: Permission of the instructor or sophomore standing.

*800. Studio Problems. Advanced, self directed study in any two- or three-dimensional studio discipline. Prereq.: Senior standing and/or permission of instructor. Intended for some senior projects, culminating in the senior show at the McDonough Museum of Art. All course work in relevant studio discipline is to be completed first. May be repeated for a maximum of 15 q.h.

801. Seminar. Discussions of problems of the prospective teacher which involve plant facilities, tools, and supplies. Planning individual exhibits on site and on campus. Assembly of comprehensive portfolio and portfolio review. Required of all art education students and must be taken concurrently with student teaching. Two hours of lab. 1 q.h.

*803. Painting 3. Concentration of individual investigation of imagery and technique. Ten hours lab per week. Prereq.: ART 703. 5 q.h.

*804. Painting 4. A continuation of individual investigation of imagery and technique. Ten hours lab per week. Prereq.: ART 803. 5 q.h.

*805. *Painting 5.* A continuation of individual investigation of imagery and technique. Ten hours lab per week. Prereq.: ART 803. 5 q.h.

808. Twentieth Century Art to 1945. Important movements in painting, sculpture, and architecture from 1900 to 1945, and the artists involved in these movements. Prereq.: ART 523 and junior standing.

- 809. Twentieth Century Art from 1945. Important movements in painting, sculpture, and architecture from 1945 to the present, and the artists involved in these movements. Prereq.: ART 523 and junior standing.
- *810. Ceramics 3. Emphasis on clay as a means of personal expression through handbuilt and wheel-thrown ceramics. Two hours lecture, four hours lab per week. Prereq.: ART 726.
- *811. Ceramics 4. Designed for advanced ceramics students. Course will include study of kiln types, ceramic raw material, the nature and properties of clay and non-clay materials used in ceramic construction and calculation, formulation and firing of clay bodies, slips, engobes and glazes. May be repeated once for maximum of 8 q.h. credit. Two hours lecture, four hours lab per week. Prereq.: ART 810.
- *812. Sculpture 3. Concentrated exploration of techniques developed in ART 730 or 731. Ten hours lab. Prereq.: ART 731. 5-10 q.h.
- 813. Northern Renaissance Art. Painting, sculpture and graphic arts of Germany, France and the Netherlands. Examines the work of Jan van Eyck, Hieronymous Bosch, Albrecht Durer and others. Prereq.: ART 706; or ART 523 and junior standing; or consent of the instructor.
- 816. Introduction to Museum Practices. An exploration of museum history, administration, acquisitions, preservation, conservation, connoisseurship, exhibition procedures, physical plant, and security. Weekly seminars and practical experience at the Butler Institute of American Art and the Arms Museum. Two hours of seminar and six hours of museum practicum weekly. Prereq.: 12 hours of art history and junior standing.
- 817. Museum Internship. The student experiences the day-to-day operations of the museum through observation and hands-on applications. Experiences will include registration and computer cataloguing, art preparation and preservation, basic conservation techniques, elementary curatorial research and the general work of museologists in the small museum. Student is required to spend six clock-hours per week. May be repeated for a maximum of 4 q.h. Prereq.: ART 816.
- *821. Lithography 2. Continued experimentation with printmaking techniques from a flat stone or metal plate. Eight hours lab. Prereq.: ART 721.

4 q.h.

- *822. Puppetry and Stage Construction. Concentrated exploration of puppetry, stage design, and construction, and a survey of the historic development of puppetry. Prereq.: ART 762 or consent of instructor.

 3 q.h.
- *823. Weaving 2. The more advanced loom techniques of pattern-weaving, tapestry, ripsmatta, rugmaking, double weave, open weave, simple gar-

- ment making, and lkat dyeing. Continuation of more complicated off-loom techniques. Prereq.: ART 723. 3 q.h.
- *824. *Photo Silk Screen 2.* Continued experimentation in various photo silk screen methods of printmaking. Ten hours lab. Prereq.: ART 722.

- *830. Pre-Press Production. Traditional and electronic production for printed materials, emphasizing pre-press software. Printing and paper specifications, as well as current printing technology, will be addressed. Two hours lecture, four hours lab. Prereq.: ART 657, 756.
- 831. Early Christian and Byzantine Art. Christian art from its origins to about 500 AD in the Latin West and to 1453 in the Greek East. Includes architecture, painting, sculpture, and the luxury arts. Stresses change in art as part of social and religious developments. Prereq.: ART 522 and ART 630 and junior standing or consent of the instructor. 4 q.h.
- 832. Early Medieval Art. Irish, English, and continental European art of the Migration period (Franks, Visigoths, etc.), Hiberno-Saxon, Carolingian, Anglo-Saxon, Viking, and Ottonian cultures (about 500 to 1100 AD). Includes jewelry, painting, sculpture, and architecture. Interaction between Celtic, Germanic, and Mediterranean cultures. Prereq.: ART 522 and ART 630 and junior standing or consent of the instructor. 4 q.h.
- 833. Late Medieval Art. Romanesque and Gothic architecture, painting, sculpture, and the luxury arts (about 1100 to 1500 AD). Examines the great cathedrals and other arts as aspects of pilgrimage and feudalism, reflecting new developments in Christianity. Prereq.: ART 522 and ART 630 and junior standing or consent of the instructor.

 4 q.h.
- 840. Graphic Design Internship. An application of Graphic Design theory and practices within a professional work experience. Students are selected on the basis of preparation, portfolio, GPA and competitive interview. Enrollment is contingent upon the availability of internship positions. 20 hours of student time is expected weekly. Students must enroll for two consecutive quarters. Prereq.: ART 727 and permission of instructor. Course may be repeated for up to 6 q.h. 3 q.h.
- *841. Three-Dimensional Graphics. The application of graphic design concepts to three-dimensional problems in packaging, environmental graphics, signage and exhibition design. Two hours lecture, four hours lab. Prereq.: ART 504, 757. 4 q.h.
- *842. Publication Design. The coursework is based on the use of type and visual elements in publication format. Assignments in newspaper design, newsletters, magazines, direct mail, annual reports, specialty publications and book design. Will include a major project.

 4 q.h.

845. Business Skills for the Artist. Focus is on preparation for business world, galleries and museums as well as on obtaining free lance work. Content covers legal issues, taxes, and copyrights as well as portfolio preparation, and professional practices. Prereq.: permission of instructor. 4 q.h.

*846. Senior Portfolio/Graphics Seminar. Portfolio development including self-promotion materials. Preparation for Senior Show. Course also includes seminars on current issues in graphic design. Four hours lecture. Prereq.: ART 842. 4 q.h.

850. Seminar in Art History. A seminar on problems in art history. Topics will be drawn from all periods and media. Prereq.: Senior standing or consent of instructor. May be repeated with different topics up to 12 q.h.

*860. Three-Dimensional Computer Graphics. Provides an essential component to the studies of animation and multimedia design. Discussion of applications of three-dimensional modeling and animation in the broadcast, film, and multimedia design industries. Two hours lecture, four hours lab. Prereq.: ART 750 or permission of instructor.

*870. Advanced Printmaking. Advanced methods in a selected printmaking discipline. May be repeated for a maximum of eight hours of credit. Eight hours lab per week. Prereq.: ART 734 or 735 or 821 or 824.

*871. Time-based Digital Imaging. Explores the processes of integrating digital imagery into the contexts of time, motion, and space. Coursework is intended to provide more extensive experience with three-dimensional animation and examine creative methods of two-dimensional cell animation and digital video manipulation. Two hours lecture, four hours lab. Prereq.: ART 751.

*880. Photography 6. Selected technical and aesthetic photographic problems to enrich the student's abilities and knowledge of photography. May be repeated for a maximum of 10 q.h. credit. Eight hours of lab. Prereq.: ART 784 and acceptance of photo portfolio by instructor.

5-10 q.h.

*881. Multimedia Design. A continuation of timebased imaging allows for the translation of ideas across a variety of disciplines by synthesizing pictorial imagery, typography, animation, video, and sound. Investigates both linear and non-linear approaches to designing multimedia presentations. Two hours lecture, four hours lab. Prereq.: ART 871.

885. Photography Internship. Application of photographic knowledge and skills in the professional work environment. Competitive admission to course based on preparation, portfolio, G.P.A., competitive interview, and the availability of positions. Ten contact hours per week. Prereq.: ART 784. May be repeated once.

890. Problems in Art History. Studies in bibliography, descriptive and interpretative terminology, iconography, research methods and objectives, forms and structures of critical performances. May be repeated for a maximum of nine quarter hours. Prereq.: Senior standing and permission of instructor and department chair. 1-9 q.h.

ASTRO—ASTRONOMY

Lower-Division Courses

*504. Descriptive Astronomy. Introduction to modern knowledge about the universe. Astronomical observing methods; the earth and moon and their place in the universe; planets, stars and star systems, galaxies; recent astronomical discoveries.

504L. Astronomy Laboratory: Telescope and planetarium laboratory work designed to supplement ASTRO 504. Two hours per week. Prereq. or concurrent: ASTRO 504.

608. Moon and Planets. A detailed discussion of the moon and planets, with particular emphasis on the geology of the moon. Prereq.: ASTRO 504 or permission of the instructor. 4 q.h.

Upper-Division Courses

700, 701, 702. Astrophysics 1, 2, 3. The application of physical principles to the study of stars and planets; stellar distances and dimensions; stellar spectra and chemical composition; nuclear reactions and evolution of stars; the Milky Way and other galaxies; cosmology. These courses may be used to complete a physics minor. Must be taken in sequence. Prereq.: PHYS 611 (or PHYS 650) and MATH 674.

800, 801, 802. Observational Astronomy 1, 2, 3. Observational techniques in astronomy. Photography, photoelectric photometry, photographic darkroom techniques, spectroscopy, methods of data reduction. Some nighttime observatory work included. Prereq.: PHYS 704. Offered every other year. Must be taken in sequence. 3+3+3 q.h.

805. Research in Astronomy. Individual investigation performed with faculty guidance. Prereq.: ASTRO 800, 801 and senior standing. Offered every other year. 3 q.h.

BIOL—BIOLOGICAL SCIENCES

Lower-Division Courses

504. Human Evolution and Genetics. Mendelian genetics as it applies to man and his evolutionary history, including the genetic problems and evolutionary relationships of mankind. Not applicable to the biology major. Four hours lecture a week.

505. Biology and the Modern World. Findings, applications, and thinking of the science of biology as related to problems today. Primarily for the science area requirement. Not applicable to the biology major. Four hours lecture a week.

4 q.h.

*509. Principles of Biology I. A lecture course with laboratory for students majoring in biology or related disciplines. Topics will include chemical and physical foundations of life, structure and function of cells, cellular organelles, metabolism, cell divisions, inheritance and basic molecular biology. High school chemistry or equivalent recommended. Required of all Biology majors. Three hours lecture and two hours laboratory a week.

4 q.h.

*510. Principles of Biology II. A lecture course with laboratory for students majoring in biology or related disciplines. Topics will include principles of evolution, diversity, phylogeny and systematics. Required of all biology majors. Three hours lecture and two hours laboratory a week. Prereq.: BIOL 509.

*551, *552. Physiology and Anatomy of Humans. Structure and function of the human organism. Prereq.: High school chemistry and biology, or equivalent. Not applicable to the biology major. Three hours lecture and two hours laboratory a week; must be taken in sequence.

4+4 q.h.

*560. Paramedical Microbiology. Characteristics, epidemiology, and pathology of viruses, rickettsiae, bacteria, and protozoa of medical significance. Not applicable to the biology major. Three hours lecture and one three-hour laboratory-discussion period a week.

5 a.h.

565. Introductory Forestry 1. An introduction to forestry in the United States. Contribution of forestry to the national economy. Discussion of the principles of forest tree management. May not be used to fulfill biology requirement for biology majors.

4 q.h.

599. Orientation to Medicine. An introduction to the philosophy of medicine through examination of ideas ancient to modern, the Hippocratic Ideal, the Oath of Maimonides, the meaning of knowledge, humanism in medicine, independent thought in medicine, and the uncertainty factor. One hour of lecture a week. Prereq: Admission to the NEOUCOM-YSU program or consent of the instructor and the department chair.

*604. Food Microbiology. Role of microbes in food preservation, fermentation, spoilage, sanitation, and food poisoning. Two hours lecture, four hours laboratory a week. Prereq.: One four-hour laboratory science course. For human ecology majors only.

4 q.h.

*611. Principles of Biology III. A lecture and laboratory course comparing the structure and function of animals. Three hours lecture and two hours laboratory a week. Either 611 or 612 is required of all biology majors. Prereq.: BIOL 509 and 510 or permission of instructor.

*612. Principles of Biology IV. A lecture and laboratory course which examines ecological concepts and compares the structure and function of plants. Three hours lecture and two hours laboratory a week. Either 611 or 612 is required of all biology majors. Prereq.: BIOL 509 and 510 or permission of instructor.

661. Economic Botany. Enumeration, ecology, culture, distribution, use and biological significance of plants that serve useful purposes for man as food, fiber, wood, drugs, or ornament. Designed for the University science requirement. Four hours lecture a week.

692. Human Sexuality. An interdisciplinary approach to the study of human sexuality. Holistic approach dealing with questions that concern the college student of today. Includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Factual information will be given in the areas of physiological reproduction, contraception, venereal disease, sexual disfunctions, techniques, and response. Listed also as HSC 692 and PSYCH 692. Prereq.: HSC 590. Does not count toward general University requirement.

699. Medical Applications Case Studies. Applications of biological and chemical concepts in the practice of medicine. May be repeated to a total of three hours credit. Prereq.: Admission to NEOUCOM-YSU program, or consent of instructor and department chair.

Upper-Division Courses

*700. Non-Vascular Plants. A presentation of classification, morphology, reproduction, ecology, and economic aspects of monera, algae and fungi. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 612.

*701. Invertebrate Zoology. Essentials of structure, function, and classification of invertebrates. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611. 5 q.h.

*702. Microbiology. Scope and evolution of microbiology: microscopy, anatomy, cultivation of bacteria, reproduction and growth, bacterial metabolism, microbial genetics, viruses, resistance and immunity, and control. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611, or admission to NEOUCOM-YSU program. 4 q.h.

703. Clinical Immunology. Fundamentals of antigen antibody reactions applied to serological procedures performed in the clinical laboratory. Two hours lecture per week. Biology majors do not need to enroll in the laboratory. Prereq.: BIOL 509, 510, and 611.

*703L. Clinical Immunology Laboratory. Laboratory work includes VDRL, ASO, febrile, latex, pregnancy, and viral tests. Techniques practiced include flocculation, precipitation, complement fixation,

and titration procedures used in the clinical laboratory. Three hours of laboratory a week. Must be taken concurrently with BIOL 703. Listed also as MLTEC 703L. 1 q.h.

*705. Introduction to Human Gross Anatomy . A general overview of the structure of the human body, using a regional approach to examine the functional anatomy of the musculoskeletal and visceral systems. Three hours lecture and three hours computer laboratory a week. Prerequisite: BIOL 611 or permission of instructor.

*710. Mammalian Anatomy. A composite study of the anatomical systems of mammals, based on the cat. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611. 4 q.h.

*713. Vertebrate Histology. The microscopic study of mammalian tissue. Three hours lecture and three hours laboratory per week. Prereq.: BIOL 509, 510 and 611.

*713L. Vertebrate Histology Laboratory to accompany BIOL 713. 0 q.h.

*715. Aquatic Entomology. Introduction to the morphology, phylogenetic relationships and evolutionary adaptions of aquatic insects and their ecological role in aquatic ecosystems. Laboratory exercises and field trips will investigate collection methods and the identification of the major orders and families of aquatic insects. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611.

721. Genetics. Genetic material, reproductive cycles, sex determination, mitosis, meiosis, mendelism, probability, linkage, genes in populations, mutation, evolution. Four hours lecture a week. Prereq.: BIOL 509, 510, 611, or admission to NEOUCOM-YSU program, or consent of instructor.

*721L. Genetics Laboratory. Experiments with subjects such as corn, fruit flies, and higher organisms; preparation and study of chromosomes; statistical analysis of crossing and mutation experiments. Four hours laboratory a week. Prereq. or concurrent: BIOL 721.

*751. Water Quality Analysis 1. An introduction to physical, chemical and biological measurements of water quality. Provides laboratory experience in the analysis of natural waters, drinking water and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Two hours lecture and six hours laboratory per week. Identical to CHEM 751 and CIEGR 751. Prereq.: CHEM 603.

*752. Water Quality Analysis 2. Advanced analytical techniques for evaluation of environmental problems. Topics include pollutant transport in natural waters, toxic contaminants in drinking water and advanced wastewater treatment. Experience with several modern laboratory instruments is provided. Experiments focus on analysis of samples

from local water bodies and treatment facilities. Two hours lecture and six hours lab per week. Identical to CHEM 752 and CIEGR 752. Prereq.: BIOL 751.

4 q.h.

*762. Field Botany. Identification, ecology, and significance of local plants. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510 612.

765. Vascular Plants. Structure, function, reproduction, and phylogenic relationships of representative vascular plants and mosses. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510 612.

*766. *Dendrology*. Identification, ecology, and silvical significance of gymnosperm and angiosperm trees and shrubs. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510; 611 or 612.

*770. Vertebrate Zoology. Taxonomic presentation of phylum chordata with emphasis on the relationships and significance of vertebrates. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611.

*771. Entomology. An introduction to the morphology, physiology, development, and control of insects. Survey of insect orders and families. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611.

*775. Comparative Vertebrate Anatomy. Comparison of morphology of vertebrates, emphasizing evolutionary development of organ systems. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 770 or consent of instructor. 5 q.h.

*780. Introduction to Ecology. Principles governing the relationship of organisms to their environment. A holistic approach to ecology framed in the concepts of ecosystems. Three hours lecture and one three-hour laboratory discussion period a week. Prereq.: BIOL 509, 510, 611 or 612.

*787. Diagnostic Microbiology. A clinical approach to the study of human pathogenic microorganisms, including types of infections, frequency, isolation, identification, and treatment. Two hours of lecture and six hours of laboratory per week. Prereq.: BIOL 702. Cross listed with MLTEC 787.

4 q.h.

789. Human Beings and the Technological Society. An interdisciplinary critical examination of human beings in the modern technological society from the perspectives of the social, engineering, and life sciences. The topics will be (1) the history of technology, (2) the world's available energy and material resources, (3) population dynamics as they interact with nature and the human ecosystem, (such as "The Green Revolution," cybernation, value concepts, and techniques to forecast societal changes). Listed also as Sociology and Chemical Engineering 789. Prereq.: Junior standing or consent of instructor.

790. Molecular Biology of the Gene. Physical and chemical structure of nucleic acids, DNA replication, transcription, translation, recombinant DNA and genetic engineering and regulation of gene activity in prokaryotes and eukaryotes. Two hours lecture a week. Prereq.: BIOL 509, 510 and 611; or admission to the NEOUCOM-YSU program or consent of instructor.

*790L. Molecular Biology of the Gene Laboratory.

The quantitative determination of protein, deoxyribonucleic acid, and ribonucleic acid in cultures of microorganisms subjected to various antibiotic treatments. Four hours laboratory a week. Prereq. or concurrent: BIOL 790.

2 q.h.

*792. Human Physiology 1. Concepts of homeostasis and physiological regulation. Study of nervous, muscular and endocrine systems that participate in physiological regulation and metabolism. Four hours lecture and three hours laboratory a week. Prereq.: BIOL 611 or admission to the NEOUCOM-YSU program, or consent of instructor.

793. Human Physiology 2. Mechanisms of function of cardiovascular, respiratory, renal, digestive, and temperature regulation systems. Four hours lecture per week. Prereq.: BIOL 792, or consent of instructor.

4 q.h.

*793L. Human Physiology 2 Laboratory. Experiments on the cardiovascular, respiratory, renal, digestive, and temperature regulation systems. Three hours per week. Prereq. or concurrent: BIOL 793, or consent of instructor.

*801. Environmental Microbiology. The activities of microorganisms, primarily bacteria, in air, soil, water, and sewage. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 702. 4 q.h.

*803. Population and Community Ecology. Current concepts of animal population and community ecology, including statistical analysis of field-collected data. Students who have had BIOL 802 will not receive credit for BIOL 803. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 780 or consent of instructor.

804. Aquatic Ecology. Ecological, physical, and chemical aspects of aquatic ecosystems. A study of interaction between aquatic organisms and their environment. Four hours lecture a week. Prereq.: BIOL 780 or consent of instructor.

*804L. Aquatic Ecology Laboratory. Field and laboratory studies of structure and function of selected aquatic ecosystems in northeastern Ohio. Four hours laboratory a week. Prereq. or concurrent: BIOL 804, or consent of instructor. 2 q.h.

*805. *Ichthyology*: The ecology, evolution, and taxonomy of fishes, especially those of the midwestern United States. Three hours lecture and two hours laboratory a week. Prereq.: BIOL 780.

4 q.h.

806. Field Ecology. A field course to study ecosystems that are distinctly different from the deciduous forest-human systems of northeastern Ohio. Parameters of ecosystem structure are measured to better understand the fundamental properties of ecosystems. Pre- and post-trip lectures, specified experiments, independent study, a written report, and an oral presentation of the independent study project during a post-trip seminar. Prereq.: BIOL 780.

*808. Embryology. Identification of mechanisms: analysis of control of developmental events and processes. Interaction of egg and sperm, penetration and activation of the egg, theories of induction, models of tissue interaction, gene action, and the fate of informational molecules during development. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 770 or admission to the NEOUCOM-YSU program or consent of instructor.

5 q.h.

*809. Concepts of Developmental Biology. The course stresses the understanding of the underlying cellular and molecular mechanisms of embryonic development. Concepts concerning cellular interactions as they relate to developmental processes are discussed. Three hours of lecture per week. Prereq.: BIOL 713 or consent of instructor.

3 q.h.

*811. Ornithology. Aspects of the structure, function, environmental and economic relations of birds. Study of common bird species and important bird groups, especially those in Ohio. Basic methods and skills for field study. Three hours lecture and three hours laboratory a week. Prereq.: BIOL 770. 4 q.h.

*812. Mycology. Morphology, physiology, classification, ecology, and economic and medical importance of fungi. Laboratory investigation of morphology and physiology. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 702. 4 q.h.

*819. Taxonomy of Flowering Plants. Phylogenetics, systematics, geographical distribution, and evolutionary development of herbaceous plants; taxonomic systems based on morphology and biochemistry. Laboratory exercises include extensive field collections. Three hour lecture and four hours laboratory a week. Prereq.: BIOL 765. 5 q.h.

*821. *Plant Anatomy*. Comparative anatomy and histology of the vascular plants. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 612, or consent of instructor. 5 q.h.

*822. Plant Physiology. Physiochemical nature of life processes of plants. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 612, and CHEM 517, or consent of instructor. 5 q.h.

823. *Molecular and Population Genetics.* Concepts of gene structure and action; aspects of inheritance in populations. Four hours lecture a week. Prereq.: BIOL 721 or permission of instructor.

- *824. Bacterial and Viral Physiology. Physiological processes of bacteria and viruses, with emphasis on their relationship to disease. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 702.
- *825. Radioisotopes in Biology. Use of radioactive isotopes as tracers of vital substances within biological systems. Students employ autoradiography, liquid scintillation, and gas flow techniques to study uptake, movement, and biosynthesis of substances. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 790. 4 q.h.
- *827. Gene Manipulation. The use of restriction endonucleases for isolation and cloning of foreign DNA in bacteria via plasmid and phage vectors. Introduction of foreign DNA into cultured mammalian cells using the calcium chloride and vector-assisted techniques. Two hours lecture and four hours laboratory per week. Prereq.; BIOL 702 and 790.

4 q.h.

- 828. Human Neurobiology. An introduction to human neurobiology that will address the human nervous system, its organization, function, and disease processes. Four hours of lecture per week. Prereq.: BIOL 792 and enrollment in the Physical Therapy Program.
- *829. Functional Neuroanatomy. A detailed examination of the structure of the brain and spinal cord, their function, integration, and role in motor control. Three hours of lecture and four hours of laboratory a week. Prereq.: BIOL 792. 5 q.h.
- *830. *Immunology.* Fundamentals of immunological systems, including both humoral and cellular immunological phenomena. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 702 and CHEM 721.
- 831. Biological Seminar. A study of the historical and contemporary literature in biology. Written and oral reports, round-table discussions. Prereq.: Junior standing and consent of instructor. 2 q.h.
- 832. Principles of Neurobiology. Topics include cell and molecular biology of the neuron, properties of excitable membranes, functional neuroanatomy, motor systems of the brain, integration of sensory and motor systems, localization of higher cortical functions, and diseases of the central nervous system. Prereq.: BIOL 792 or consent of instructor. 4 hours lecture per week.
- 833. Mammalian Endocrinology. A detailed examination of the hormones of the hypothalamus, pituitary, thyroid, adrenal, pancreas, gonads, and other organs with putative endocrine function. The course will focus on the physiological functions of hormones and their mechanisms of action with emphasis on the human. Four hours lecture a week. Prereq.: BIOL 792 or consent of instructor. 4 q.h.
- *834. Vertebrate Physiology 1. Detailed study of the cardiovascular system, exchange dynamics of blood, interstitial fluid, lymphatics, and renal regu-

- lation of extracellular fluid composition, volume, and acid-base balance with emphasis on human physiology. Three hours lecture a week, four hours laboratory a week. Prereq.: BIOL 793 and 793L, or consent of instructor.
- *835. Vertebrate Physiology 2. Detailed study of respiratory and gastrointestinal systems, metabolism, and temperature regulation. Three hours lecture, four hours laboratory per week. Prereq.: BIOL 834; or consent of instructor.
- 836. Molecular Biology of the Cell. Relationship of eukaryotic cell structure to function, integrating the biochemical dynamics of biomembrane systems including receptors, bioenergetics and the physiochemical environment. Three hours lecture a week. Prereq.: BIOL 790 or consent of instructor. 3 q.h.
- *836L. Molecular Biology of the Cell Laboratory. Current techniques involved in isolation, observation, and characterization of eukaryotic cells and their components. Four hours laboratory a week. Prereq. or concurrent: BIOL 836. 2 g.h.
- *837. Cytology and Techniques. A study of the structure and organization of protoplasm, using current methods of preparing and observing living and fixed cells. Two hours lecture and four hours laboratory a week. Prereq.: CHEM 721. 4 q.h.
- *838. Biology of Enzymes. Enzymes in biological systems and the interrelationships of enzymes with metabolism, cell membrane function, and cellular development. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 836 and CHEM 721.
- 839. Selected Topics in Physiology. Advanced study of topics in physiology not covered in depth in other physiology courses. May be repeated more than once with change in topic. Prereq.: BIOL 792.

1-3 q.h.

- 840. Microbial Pathogenic Mechanisms . Molecular mechanisms for virulence of pathogenic microorganisms. Three hours lecture per week. Prereq.: BIOL 702, or consent of instructor. 3 q.h.
- *841. Animal Parasitology. The biological implications of parasitism. Diagnosis, morphology, and life histories of the parasites of humans and domestic animals. Two hours lecture and four hours laboratory a week. Prereq.: Consent of instructor.

- 842. Advanced Parasitology. The host-parasite interphase at the evolutionary, ecological, physiological, and molecular levels. A synthesis is developed of the current concepts of the parasitic niche. Prereq.: BIOL 841.
- 844. Physiology of Reproduction. Current concepts of reproductive processes and their physiological control in mammalian systems. Prereq.: BIOL 792 or equivalent. 4 q.h.
- 850. Problems in Biology. Special biological problems for which materials and equipment are avail-

able and for which the student is qualified. Available at all times. Prereq.: Recommendation of staff. 1-4 q.h.

*853. Biometry. Application of fundamental theory and procedures to the statistical analysis of biological data. Prereq.: Consent of instructor.

4 q.h.

- 860. Evolution. Genetic and ecological forces in the evolutionary process. Prereq.: BIOL 721. 4 q.h.
- 861. Sociobiology. Examines current theories attempting to explain social behavior in invertebrate and vertebrate taxa in terms of social evolutionary theory. Emphasizes altruism, group selection, kinship theory and cost/benefits to genetic fitness within the overall process of natural selection. Prereq.: BIOL 509, 510 and 611 and 25 hours in biology or consent of instructor.
- *868. Gross Anatomy I. Regional study of the human body with emphasis on functional and topographic anatomy and clinical correlations. Three hours lecture-demonstration and four hours laboratory a week. Prereq.: Admission to YSU Physical Therapy Professional Program. 5 q.h.
- *869. Gross Anatomy II. Regional study of the human body with emphasis on functional and topographic anatomy and clinical correlations. Three hours lecture-demonstration and four hours laboratory a week. Prereq.: Admission to YSU Physical Therapy Professional Program. 5 q.h.
- *872. *Protozoology.* Morphology, phylogeny, and bionomics of protozoa. Two hours lectures and four hours laboratory a week. Prereq.: BIOL 721 or consent of instructor.
- *873. Mammalogy. The vertebrate class, mammalia, will be covered in detail considering evolutionary development, taxonomic position and characteristics, geographical distribution, ecological interactions, and economic significance. Students will observe mammalian characteristics and make a personal representative collection of mammals as laboratory requirements. Students who have taken BIOL 772 cannot receive credit for this course. Two hours lecture and four hours laboratory per week. Prereq.: BIOL 770.

BOTANY

See Biological Sciences.

BIS—BUSINESS INFORMATION SYSTEMS

Lower-Division Courses

*506. Information Processing Skills. Extensive practice and application in correct word usage, spelling, and punctuation. Transcription from tapes, hardcopy, and rough drafts. Prereq: ACT English score of 16 and BIS 523 or equivalent. 3 q.h.

- 510. Office Procedures. Basic secretarial and clerical procedures, telephone techniques, behavioral problems, basic filing procedures, use of reference material, and office systems. Must be taken in first or second quarter of program.

 4 q.h.
- *523. Intermediate Keyboarding . Preparation of business documents such as reports, tables, letters, and manuscripts. Taught on microcomputers; some practice on electronic typewriters. Two hours of lecture, two hours laboratory. Prereq.: BIS 520 or equivalent.
- *535 Machine Shorthand 1. Learning the theory of machine shorthand. 4 q.h.
- *536. Machine Shorthand 2. Review of theory with emphasis on dictation speed and transcription. A speed of 60-80 words a minute should be attained. Prereq.: BIS 523 and 535. 4 q.h.
- *537. Machine Shorthand 3. Emphasis on dictation speed and transcription. A dictation speed of 80-100 words a minute should be attained. Prereq.: BIS 536.
- *538. Machine Shorthand 4. Emphasis on dictation speed and transcription. A dictation speed of 120 words a minute should be attained. Prereq.: BIS 537.
- *623. Advanced Keyboarding. Preparation of specialized business documents which relate to student's concentration area through the use of simulations and individualization. Taught on microcomputers. Two hours of lecture, two hours of laboratory. Prereq.: BIS 523.
- *635. *Machine Shorthand 5*. Emphasis on dictation speed and transcription. A dictation speed of 140 words a minute should be attained. Prereq.: BIS 538.
- *636. Machine Shorthand 6. Emphasis on dictation speed and transcription. A dictation speed of 160 words a minute should be attained. Prereq.: BIS 635.
- *637. Machine Shorthand 7. Emphasis on dictation speed and transcription. A dictation speed of 175 words a minute should be attained. Prereq.; BIS 636.
- *638. Machine Shorthand 8. Emphasis on dictation speed and transcription. A dictation speed of 200-225 words a minute should be attained for competency in job level skills. Prereq.: BIS 637. 4 q.h.
- *641. Magnetic Media. Intensive study and utilization of microcomputer application software. Includes issues in proofreading techniques, microcomputer applications, and related technology. Lab time required. Prereq.: BIS 513 and 523 or instructor's permission.
- *642. Advanced Applications in Magnetic Media . Advanced software applications and issues in information processing and related technologies are explored. Input from rough drafts and dictation

media are used. Decision making, proofreading, and revisions will be emphasized. Lab time required. Prereq.: BIS 641. 4 q.h.

690. Courtroom Experience. Supervised courtroom experience. Student will take testimony as
recorded by court reporter and transcribe. Four
hours of class and four hours of courtroom dictation per week. Prereq.: BIS 638 and dictation proficiency of 225 wpm. 4 q.h.

Upper-Division Courses

*710. Advanced Business Computer Systems . Advanced concepts and vocabulary of information processing; includes advanced software applications. Topics include office automation, data communications, networking, decision support systems, computer security, and hardware and software evaluation criteria. Prereq.: BIS 514.

*718. Automated Office Systems. Students organize and operate an information center utilizing decision-making skills and information systems procedures and components. Lab time required. Prereq.: BIS 641 or 642 within one year or permission of instructor.

*741. Electronic Files Management Systems . Information management; database management software; micrographics; file structure and design; input and output formats; media selection; storage, safety, and security issues; migration techniques; technologies, communication capabilities and user information requirements. Prereq.: BIS 513.4 q.h.

760. Office Work Experience for Teacher Certification. To give Business Education students the opportunity to earn work experience hours to apply toward the two-year requirement for vocational certification. Students will take this course concurrently with approved work experience and will be permitted to double the hours of work for the purpose of vocational certification. The course may be repeated for a maximum of 2,000 work experience hours. Grading for BIS 760 is CR/NC. Prereq.: Approval of BIS Chair. 3 q.h.

762. Independent Study for Teacher Certification. To give Business Education students the opportunity to earn work experience hours to apply toward the two-year requirement for vocational certification. Each quarter hour of credit is equivalent to 125 work-experience hours, with a maximum of 500 work-experience hours for this course. Credit hours will be dependent upon the complexity of the study undertaken and the course may be repeated, with a different topic of study, for a maximum of 8 quarter hours credit. Grading for BIS 762 is CR/NC. Prereq.: Approval of BIS Department Chair.

1-4 q.h.

*810. Techniques in Teaching Typewriting. Includes demonstration and practice of techniques in teaching typewriting, with emphasis on the psychology of skill development and currently accepted theories. Prereq.: Junior standing and BIS 523.

820. Techniques of Office Simulation Procedures . Prepares students to teach in an office simulation environment. The student will participate in a simulation package. Prospective teachers gain insight into problems encountered by students during simulation exercises. Prereq.: EDUC 704. 4 q.h.

826. Teaching Intensive and Cooperative Business Education. Organization, administration, implementation, and evaluation of Intensive and Cooperative Business Education programs at the secondary and adult education levels. Selection, instruction, curriculum, and placement of vocational students. Same as EDUC 826. Prereq.: EDUC 706 and 706L.

830. Techniques of Teaching Shorthand. Examines research in methods and techniques of teaching shorthand and its related areas. Includes techniques necessary for dictation, and criteria for transcription evaluation. Prereq.: Junior standing.

2 g.h

831. Alternate Shorthand Systems. The fundamentals of Century 21, notehand, and other kinds of shorthand and how they differ from Gregg shorthand. Intended for business education majors and graduate students. Three hours lecture only. Prereq.: Junior standing.

860. Principles and Problems of Business Education. The principles underlying the complete area of business education and its subareas: including such topics as nature, purposes, history and development, curriculum, educational levels, materials, equipment, administration and supervision standards, evaluation, guidance, public relations, job placement, research, teacher qualification, legislation, and cooperation with business. Prereq.: EDUC 704 or graduate standing.

BLKST—BLACK STUDIES

Lower-Division Courses

600. Introduction to Black Studies 1. The social-historical and intellectual heritage of black people in Africa and the Americas. This course is applicable to the University requirement in the social studies area.

4 q.h.

601. Introduction to Black Studies 2. The cultural and intellectual heritage of black people in Africa and the Americas as reflected in literature, philosophy, and art. This course is applicable to the University requirement in the humanities area. 4 q.h.

Upper-Division Courses

700. Black Studies Colloquium 1. A social studies seminar focusing on the historical, economic, political, or social aspects of the experiences of people of African descent. Prereq.: BLKST 600 or consent of instructor. May be repeated once with different content.

701. Black Studies Colloquium 2. A humanities seminar focusing on the art, music, literature and/or philosophy of people of African descent. Prereq.: BLKST 601 or consent of the instructor. May be repeated once with different content.

BUS—BUSINESS ADMINISTRATION

*500. Dynamics of U.S. and Global Business. The external, competitive, and internal environments of business are examined. The skills required to succeed in business, such as team-building, information gathering, communication, professionalism, and an appreciation of career search will be explored. This course is required for business majors and is recommended for non-business majors.

4 q.h.

CEEGR—CIVIL AND ENVIRONMENTAL ENGINEERING

*601. Mechanics 1. Principles of engineering mechanics as applied to statics with vector applications to resultants of forces, centroids and centers of gravity, distributed loads, equilibrium, and friction. Prereq.: MATH 572, PHYS 510 or concurrent. (F, W)

4 q.h.

- 602. Mechanics 2. Physical properties of area and masses, and methods of virtual work and energy with engineering applications. Elementary theory and relationships between load, stress, and strain in tension, compression, torsion, and bending. Combined stresses in members. Prereq.: CEEGR 601. (W, SP)
- *603. Mechanics 3. Deflection of beams, indeterminate beam analysis, column theory, and connections. Experimental verification of theories of strength of materials. Three hours lecture and three hours laboratory per week. Prereq.: CEEGR 602. (F, SP)
- 610. Surveying 1. The theory of surveying and the use of instruments. Problems in leveling, traversing, and topography. Introduction to circular and vertical curves. Prereq.: MATH 520 or equivalent. (F)
- *610L. Surveying 1 Laboratory. Field surveying principles and techniques. Uses of transit and level are stressed. Three laboratory hours per week. Prereq.: Concurrently with CEEGR 610. (F) 1 q.h.
- *612. Computer Methods in Civil Engineering . Introduction to the application software packages STAAD-3, AUTOCAD, and LOTUS 1,2,3. Computer programs using mainframe subroutines will be developed for civil engineering applications. Use of MSDOS and VM/SP operating systems will also be covered. Two lecture hours and three laboratory hours per week. Prereq.: ENGR 570 or equivalent, CEEGR 602 or concurrent.

- 711. Surveying 2. A study involving the location, design, and construction of transportation systems, including route selection, horizontal and vertical alignment, earthwork calculations and layout. Prereq.: CEEGR 610. (SP) 3 q.h.
- *711L. Surveying 2 Laboratory: Field and office techniques used in layout of circular, compound, and spiraled horizontal curves, and vertical curves. Three laboratory hours per week. Prereq.: Concurrently with CEEGR 711. (SP) 1 q.h.
- 712. Construction Management. Fundamentals of construction management: to include contracts, bonding, estimating, organization, finance; cost and productivity of equipment, material, and labor; and project planning and scheduling. Prereq.: CEEGR 612.
- *716. Fluid Mechanics. A study of the laws of fluid mechanics and their application as applied to incompressible flow; properties of fluids; fluid statics; kinematics and kinetics of one dimensional flow; impulse-momentum; and viscous flow in pipes. Prereq.: CEEGR 602. (F, W) 3 q.h.
- *716L. Fluid Mechanics Laboratory. Experimental verification of the principles of fluid mechanics as applied to incompressible fluids. Three hours laboratory per week. Prereq.: Concurrently with CEEGR 716, ENGR 570 or equivalent. (F, W)

- *717. Hydraulic Engineering. Civil engineering application of fundamental fluid mechanics principles to open and closed channel flow and distribution systems, hydraulic machinery, and basic concepts of hydraulic structures. Prereq.: CEEGR 716. (SP)
- *720. Highway Engineering 1. Principles of highway and traffic engineering to include administration, economic studies, finance, highway design standards, traffic characteristics, accidents, traffic studies, signalization, traffic marking and markers, highway capacity, long range and route planning, construction planning and supervision, highway geometry, rehabilitation, repair, and renovation of highways. Prereq.: CEEGR 610. (F) 4 q.h.
- *736. Environmental Engineering 1. Causes and control of water, land, and air pollution; effects of pollution on health and aesthetics; environmental regulations and standards; introduction to water and wastewater treatment. Prereq.: CHEM 516, ENGR 570 or equivalent.
- *749. Structural Analysis 1. The determination of shears, moments, and stresses in statically determinate beams, frames, and trusses. Consideration of dead, live, moving, and wind loads. Elastic deflections of simple structures. Introduction to the analysis of statically indeterminate structures using numerical and energy methods. Prereq.: CEEGR 603. (W)
- *751. Water Quality Analysis 1. An introduction to physical, chemical, and biological measurements

of water quality. Provides laboratory experience in the analysis of natural waters, drinking water, and wastewater. Emphasizes procedures for the collection and interpretation of data on related environmental problems. Two hour lecture and six hours laboratory per week. Identical to CHEM 751, ENST 751, and BIOL 751. Prereq.: CHEM 603. 4 q.h.

751L. Water Quality Analysis 1. Laboratory experience in the analysis of natural waters, drinking water and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Six hours laboratory per week. Identical to ENST 751L. Prereq.: CHEM 603.

0 q.h.

*752. Water Quality Analysis 2. Advanced analytical techniques for evaluation of environmental problems. Topics include pollutant transport in natural waters, toxic contaminants in drinking water, and advanced wastewater treatment. Experience with several modern laboratory instruments is provided. Two hours lecture and six hours lab per week. Identical to CHEM 752 and BIOL 752. Prereq.: CEEGR 751.

752L. Water Quality Analysis 2. Laboratory experience in the analysis of natural waters, drinking water and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Six hours laboratory per week. Identical to ENST 752L. Prereq.: CEEGR 751L or ENST 751L.

*775. Hydrology. A study of the properties, distribution, and behavior of water in nature as it appears in its three forms: precipitation, surface water, and sub-surface water. Hydrologic design of hydraulic structures. Prereq.: CEEGR 716. (W) 4 q.h.

789. Technology and Society. This course offers a critical exploration of how societal needs affect the creation of technologies and how technology affects society. The course will be interdisciplinary in nature and will present various approaches to examining the complex interaction between humans and their tools. Topics include: (1) technology in human history; (2) society, science, and technology development; (3) technology and social change; (4) technology, knowledge, and power; (5) technology, population, and the environment. Prereq.: junior standing or consent of instructor. Listed also as SOCIO 789, BIOL 789.

*800. Special Topics. Special topics and new developments in Civil Engineering. Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing or consent of instructor. May be repeated to a maximum of 8 q.h.

1-4 q.h.

*820. Pavement Design. Design methods for flexible, rigid and other wheel-supporting pavements to include investigation, testing and preparation of subgrade, base course and pavement materials, design of various pavement mixtures, stresses in pave-

ments, pavement design, and strengthening existing pavements. Prereq.: CEEGR 720, CEEGR 881. (SP) 4 q.h.

829. Civil Engineering Materials-Concrete. A course designed to broaden the student's understanding of Portland Cement Concrete as a construction material. Topics include the study of cement, hydration of cement, aggregates, admixtures for concrete, mix design handling and placing, curing and properties of Portland Cement Concrete. Testing of concrete, quality control and special concretes are also included. A library research paper on a concrete-related topic of the student's choice is required. Prereq.: CEEGR 749 or permission of instructor.

4 q.h.

*835. Highway Location and Design. Methods of highway route location; design methods and standards for highways, intersections, freeways, and interchanges. Includes the extensive use of computeraided design. Prereq.: CEEGR 720. (F) 4 q.h.

837. Environmental Engineering 2. A study of the elements of water purification and wastewater treatment systems, including principles of operation and design procedures. The course includes the design of actual treatment processes. Prereq.: CEEGR 736 and an unrecalculated GPA of 2.0 or better for all CEEGR (major) courses.

*838. Hazardous Waste Management. Sources, characteristics, handling procedures, and disposal options for hazardous wastes. Topics include: federal regulations (RCRA, CERCLA, and SARA); site assessment and remediation; risk management; theory and design of treatment processes; and management of underground storage tanks. Prereq.: CEEGR 736 or equivalent. 4 q.h.

*839. Solid Waste Management . Sources, characteristics, handling procedures, and disposal options for municipal solid waste. Topics include: federal and state regulations; methods of waste characterization; design of collection systems; waste separation, processing, and transformation; waste minimization; recycling; and sanitary landfill design. Prereq.: CEEGR 736 or equivalent. 4 q.h.

*849. Structural Analysis 2. Analysis of statically indeterminate beams, trusses, bents and multistory frames, utilizing concepts of strain energy, virtual work, slope-deflection, and moment distribution. Introduction to matrix methods of analysis using force and displacement methods. Prereq.: CEEGR 749. (SP)

855. Structural Design 1. An introduction to the behavior, analysis, and design of reinforced concrete members. Included are singly and doubly reinforced beams, tee-beams, slabs, short and long columns. Both ultimate and working stress design approaches are included. Prereq.: CEEGR 749 and an unrecalculated GPA of 2.0 or better for all CEEGR (major) courses. (F)

856. Structural Design 2. An introduction to the behavior and design of steel structures. Included are the design of rolled and built-up tension members, beams, columns, beam-columns, welded and bolted connections. Prereq.: CEEGR 749. (W)

4 q.h.

857. Structural Design 3. Selected topics in both reinforced concrete and steel design including moment resistant connections, plate girders, unsymmetrical bending, plastic design, composite design, prestressed concrete design, and precast concrete sections. Prereq.: CEEGR 855, CEEGR 856. (SP)

4 q.h.

858. Wood and Timber Design. An introduction to the design of wood structural members. Included are the application of the national design specification for wood construction to lumber stresses, design, and fastenings; wooden truss design; concrete form design; and structural applications of plywood. Prereq.: CEEGR 749. 4 q.h.

859. Reinforced Masonry Design. A course intended to introduce the student to reinforced masonry as an engineering construction material, and to study the application of current design techniques to reinforced masonry structures. Subject matter will include modern masonry materials; typical dead, live and lateral loads, including seismic loadings; and fundamental design concepts. Design of reinforced walls, columns, pilasters, beams and lateral load resisting elements will be included. A building design project will serve to integrate the topics studied. Prereq.: CEEGR 855.

*863. Integrated Design Project. Students will be required to complete a meaningful design experience that focuses attention on professional practice and is predicated on the accumulated background of curriculum components. Two hours of lecture and six hours of laboratory a week. Prereq.: CEEGR 882 or Senior Standing.

*873. Transportation Planning. A study of the various aspects of transportation planning. Topics include operation and control of transportation vehicles, the transportation planning method, transportation study needs, modeling development, evaluation of options and transportation systems management. Concepts studied will be applied to a problem to design a specific transportation facility. Prereq.: CEEGR 720.

877. Systems Engineering. System approach to engineering design and operation involving deterministic and probabilistic models; linear programming, critical path scheduling, and competitive strategies and their application to construction planning and other engineering problems. Prereq.: MATH 705.

4 q.h.

4 q.h.

*879. Civil Engineering Analysis. Application of mathematical and numerical methods to the systematic analysis and development of problems in the field of Civil Engineering. Prereq.: CEEGR 749.

*880. Advanced Structural Analysis. Matrix formulation and solution of complex structural problems; force and displacement methods using flexibility and stiffness-coefficient matrices. Prereq.: CEEGR 849. 4 q.h.

881. Soil Mechanics. Properties of soil, classification, capillarity, permeability, stress and strain, consolidation and compressibility, seepage. Prereq.: GEOL 611, MATH 674, CEEGR 749 and an unrecalculated GPA of 2.0 or better for all CEEGR (major) courses. (F)

*881L. Soil Mechanics Laboratory. Typical soil testing procedures and physical testing of soil samples. Prereq.: Concurrently with CEEGR 881. (F) 1 q.h.

882. Soil and Foundation Engineering. Analysis and design of foundation structures; retaining walls, abutments, piers, piles, and footings; bearing pressures, movements and stability including embankments. Prereq.: CEEGR 881, CEEGR 855. (W)

4 q.h.

*883. Design of Water and Wastewater Systems. An introduction to the theoretical and practical design of water distribution systems, wastewater collection and conveyance systems, storm water systems, and pumping systems for water and sewage applications. An actual design and cost analysis project for the water/wastewater systems of a model city will be included for each student to perform. Prereq.: CEEGR 610, CEEGR 717. 4 q.h.

884. Solid and Hazardous Waste Management. Sources, characteristics, and disposal options for municipal solid waste and potentially hazardous materials. Topics include potential environmental impacts and health effects, optimization of collection systems, recycling, energy recovery, design of land disposal sites, safety considerations, and cleanup of contaminated sites. Prereq.: At least one of the following: CEEGR 736, BIOL 780, CHEM 719, CHEGR 820, or GEOL 804.

885. Pavement Construction. Methods, equipment, and quality control for the production and placement of pavement materials. Materials covered include soils, granular layers, asphaltic concrete, surface treatments, and Portland cement concrete. Preparation of plans and specifications for each material are also included. Prereq.: CE 881. (W)

4 q.h.

CET—CIVIL ENGINEERING TECHNOLOGY

*604. Properties and Strength of Materials . Introduction to the physical and chemical properties of materials and their behavior under various loads and environments. Concepts of stress and strain. Use and care of testing equipment. Instruction in methods of data retrieval and reduction and report preparation. Three hours lecture and three hours laboratory per week. Prereq.: MET 515 and CHEM 501 or PHYS 501/503.

- 607. Solid Mechanics 1. Elementary theory in the resistance of solids to external loadings. Relationships among load, deformation, stress and strain in the design of members in tension, compression, torsion, and bending. Three hours lecture and three hours computational laboratory per week. Prereq.: CET 604.
- *610. Structural Analysis 1. Fundamental determination of member forces in trusses, beams, arches, frames and cables. Influence lines for moving loads. Deflection calculations. Three hours lecture and three hours computational laboratory per week. Prereq.: CET 607 or concurrent.
- *611. Specifications and Estimating. Fundamentals of writing and interpreting specifications for materials and methods. Estimating material and labor costs for construction projects. Use of Timberline computer estimating packages. Prereq.: CET 617 or MET 630 or consent of instructor.
- *612. Structural Design and Drafting. Familiarization with design using AISC, SJI, ACI and similar codes. Selection of members and connections in accordance with manuals and specifications. Design and drafting projects. Application of CADD. Prereq.: CET 610 and DDT 605 or equivalents. Three hours lecture and three hours laboratory per week.

4 q.h.

- 615. Soil Mechanics. Study of the properties of soils, soil classification, soil strength, bearing capacity. Consolidation, and compressibility. Seepage and frost action. Principles and procedures of soil testing. Prereq.: CET 604. (W) 3 q.h.
- *615L. Soil Mechanics Laboratory. Practice in soil identification and soil properties. Use and care of basic soil testing equipment. Three hours per week. Concurrent with CET 615. (W) 1 q.h.
- 617. Construction Methods and Materials. Basic properties of construction materials. Processing and placement methods. Purchase, use and replacement of construction equipment. Application of engineering economics to construction. Use of building codes. Prereq.: CET 604.
- *617L. Construction Methods and Materials Laboratory. Physical testing of construction materials such as concrete, aggregates, wood, and bituminous materials. Field trips to construction sites. Practice in construction inspection procedures. Three hours per week. Concurrent with CET 617.
- 624. Environmental Analysis. Analysis of problems in public works. Water supply and waste management and their impact on land use planning. Analysis of water distribution systems, drainage systems, and waste water treatment processes. Prereq.: MET 615, CHEM 501. (SP) 4 q.h.
- *705. Computing for Technologists. Further development of computer techniques used in solutions to problems in all fields of engineering technology. Students will develop computerized solutions to

- problems with which they are familiar. Use of data base management, spreadsheets, etc. May be taken by non-CET majors. Three hours lecture and three hours laboratory per week. Prereq.: Junior standing or consent of instructor.
- 707. Advanced Steel Design. A continuation of CET 612 with heavier emphasis on design applications in steel. Practical solutions to more complex members and load applications. Emphasis on understanding and applying AISC and AISI codes. Design projects are required. Three hours lecture and three hours laboratory per week. Prereq.: CET 710.
- *710. Structural Analysis 2. A continuation of CET 610. Analysis techniques for common structures. Introduction to classical approaches to statistically indeterminate structures. Use of standard computer programs such as STRUDL, STAAD, etc. Practice in developing students own programs for special cases. Three hours lecture and three hours computational laboratory per week. Prereq.: CET 610, CET 705 (or concurrent).
- 712. Architectural Design Technology. Overall planning, layout and design of building elements. Study of the use of architectural concepts and materials such as masonry and wood in design. Design projects in compliance with applicable building Codes. Three hours lecture and three hours design laboratory per week. Prereq.: CET 610 and CET 617.
- 717. Underground Construction. Design and construction procedures for foundations, retaining walls, caissons, tunnels and other underground structures. Prereq.: CET 615, 610. 4 q.h.
- 724. Public Works Technology. Technological aspects of the functions and responsibilities of a public works department. Emphasis on the effective use, maintenance and renovation of water, wastewater, drainage systems and road and transit systems. Studies of current infrastructure problems and alternative methods of solution. Prereq.: CET 617 and CET 624.
- 730. Transportation Technology. Introduction to transportation planning and highway system design. Familiarization with AASHTO manuals. Capacity analysis. Geometric design and signalization of highway and rail segments. Route selection. Costbenefit analysis for transportation projects. Earthwork calculations. Prereq.: CEEGR 610 and CET 617.
- 800. Building Systems. An overview of the relationships between the environmental systems and structural systems of buildings. Architecture, structural systems, plumbing systems, HVAC systems and electrical systems. Three hours lecture and three hours project laboratory per week. Prereq.: CET 604 and EET 625 or equivalent and junior standing.

807. Design Project Management. Application of engineering skills to a total design project. Teaches and requires utilization of technical and management skills necessary to lead a project from proposal through design and preparation of bid plans and specifications. A design project is required. Three hours lecture and three hours design laboratory per week. Prereq.: MGT 604, CET 710 or CET 812.

4 q.h.

812. Advanced Concrete Design. A continuation of CET 607 and CET 612 with more emphasis on modern techniques in concrete. Applications of reinforced, prestressed and precast concrete. Three hours lecture and three hours design laboratory per week. Prereq.: CET 612.

*817. Construction Management. Design / Construction office techniques. Planning and scheduling. Computer methods for program planning and updating. Financial, labor and material resource allocation and tracking. Construction reports. Contracts, specifications and general conditions. Relationships among owner, architect/ engineer and constructor. Prereq.: MGT 604, CET 617 or equivalent.

824. Environmental Technology. A continuation of CET 624 with emphasis on application of environmental principles to land planning and development. Wastewater treatment processes and system design. Application of water and wastewater management to specific sites. Permitting and endangerment assessment. Prereq.: CET 624, CET 724 or equivalent.

CHEGR—CHEMICAL ENGINEERING

507. Women in Science and Technology. An overview of the role women have played in scientific and technological advances. Problems unique to women entering scientific professions will be addressed, information about scientific and technical careers and job opportunities and contacts with professionals in the community will be provided.

4ah

*650. Computer Methods in Chemical Engineering. Application of computational software packages and spreadsheets to solve chemical engineering problems. Utilization of process simulation packages, such as HYSIM and FLOWTRAN. Realtime computing applications in laboratory automation. One lecture hour and three laboratory hours per week. Prereq.: ISEGR 642.

680. Design Techniques in Chemical Engineering. A systematic survey of well-established and readily available methods for implementing the usual types of operational or process procedures. Where several design techniques may be applicable, the advantages and limitations of each are considered. Prereq.: MATH 572, CHEM 516.

681. Industrial Stoichiometry. To aid the nonchemical engineer to organize, analyze, and effectively utilize the information inherent in chemically stoichiometric relationships, as they apply to actual plant situations. Prereq.: MATH 572, CHEM 516.

4 q.h.

682, 683. Chemical Engineering Principles. Engineering units and dimensions. Methods of analysis and measurement. Perfect gas and real gas relationships. Material and energy balances for both nonflow and flow systems. Prereq.: MATH 571, CHEM 516.

684. Stagewise Separations. Cascade theory and design of staged separation processes. Concepts of reflux, algebraic solutions for linear systems and graphical methods of analysis. Design of distillation columns. Prereq.: CHEGR 683.

688. Energy Assessment. Concept of energy assessment. Technology of energy production that includes coal gasification, liquefaction, magnetohydrodynamics, utilization of shale oil, solar, geothermal, and chemical energy. Nuclear energy utilization. Fuel from wastes. Energy resource distribution and future supply and demand. Simple calculations relating to fuel saving, production, and consumption. Primarily for non-engineering students. Prereq.: CHEM 500 or PHYS 500. 3 q.h.

*700. Measurement Laboratory. Computer application in real-time data acquisition and laboratory data processing. Measurements of physical and chemical properties. Oral presentations and preparation of technical reports. 3 hr. laboratory. Prereq.: CHEGR 650, ENGL 551, CHEGR 683. 1 q.h.

721. Engineering Plastics. Preparation, characterization, manufacture, properties and applications of commercial polymers. Prereq.: CHEGR 681 or 683, CHEM 721, or consent of instructor. 4 q.h.

726. Elementary Nuclear Reactor Engineering. Basic engineering science to serve as background material for nuclear reactor design. Nuclear fission as an energy source. Reactor use and classification. Comprehensive discussion of reactor design problems such as neutron distribution in the core, type of moderator, heat removal, and radiation protection. Prereq.: MATH 674, PHYS 610. 3 q.h.

745. Corrosion Control Engineering. Introduction to electrochemical mechanism and theory of corrosion, engineering practice, and criteria for both anodic and cathodic control. Theory and engineering practice in the use of inhibitors. Prereq.: CHEGR 681 or 683.

*771,772. Chemical Engineering Thermodynamics 1, 2. Development of the concepts and formalisms of thermodynamics and their applications to chemical engineering systems. Real and ideal behavior of single and multicomponent systems. Introduction to the thermodynamics of phase equilibria. Analysis and design of thermal systems. Prereq.: CHEGR 683 or CHEGR 681, MATH 673.

4+4 q.h.

785, *786. Transport Phenomena 1 and 2. Mathematical formulation of conservation laws. Dimensional analysis. Mechanism and fundamentals of momentum and energy transfer from macroscopic point of view with selected applications to analysis and design of chemical engineering equipment. Prereq.: MATH 673.

*785L, *786L. Transport Phenomena Laboratory. Experimental studies of transport properties and momentum, energy and mass transfer using industrial type equipment. Correlation of data and comparison with theory. Oral presentations and preparation of technical reports. 3 hrs. laboratory. Prereq.: CHEGR 785 and CHEGR 786, respectively.1+1 q.h.

*787. Unit Operations 1. Mass transfer processes. Diffusional operations and separation processes with emphasis on evaporation, humidification and drying. Derivation of the design equations from mass and energy balances. Applications of the equations to equipment design. Prereq.: CHEGR 786.

4 q.h

788. Unit Operations 2. Gas absorption and desorption, interphase mass transfer processes, liquid extraction and leaching. Physical separation processes including filtration, settling, and size reduction. Derivation of the design equations for the above processes, and applications of the design equations to equipment design. Prereq.: CHEGR 786.

*787L, *788L. Unit Operations Laboratory . Experiments in absorption, cascade operations, reaction kinetics, mixing and other chemical engineering operations employing industrial and pilot plant size equipment and instrumentation. Treatment of experimental data, correlations and comparison with theory. Oral presentations and preparation of technical reports. 3 hr. laboratory. Prereq.: CHEGR 787 and CHEGR 788, respectively.

800. Special Topics. Special topics and new developments in chemical engineering. Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing in chemical engineering or consent of instructor.

4 q.h.

801-802-803. Chemical Engineering Projects. Chemical engineering projects under the guidance of a faculty member. Literature search, design and construction of apparatus, experimentation and preparation of a comprehensive report. Prereq.: Advanced junior standing in chemical engineering and permission of the Department chair.

2+2+2 q.h.

805. Principles of Biomedical Engineering. Application of engineering principles and methods of analysis to processes in the human body. Rheological, physical and chemical properties of body fluids. Dynamics of the circulatory system. The human thermal system. Transport through cell membranes. Analysis and design of artificial organs.

Prereq.: BIOL 552 or concurrent, advanced standing in chemical engineering or consent of instructor.

4 q.h.

- 810. The Business of Engineering. Industrial processing facilities, and the engineers and business people that run them, are studied. Decision-making perspectives and the technical and communication skills of each group are compared. Focus is on quality control, R&D, and efficiency.

 4 q.h.
- 811. Advanced Transport Phenomena. Development of basic differential balance equations for mass, momentum and energy. Analytical and approximate solutions to the equation of change with application to the analysis of common engineering problems. Prereq.: CHEGR 786 or consent of instructor.
- 817. Management of Nuclear By-products. Sources and characteristics of radioactive material, principles and determination of tolerance; standards and regulations; protection from side effects. Prereq.: CHEGR 726, or concurrent.
- 820. Industrial Pollution Control. Types, sources and effect of industrial and hazardous waste; principles of industrial and hazardous waste control; discussion and design of biological, physical, and chemical treatment processes. Prereq.: MATH 674, CHEM 517 or CHEGR. 681.
- 821. Fundamentals of Polymer Science. The survey of polymerization mechanisms, polymer structure-property relationships, transport properties, flammability related plasticizers and solvents as well as design applications. Prereq.: CHEGR 721 or CHEM 824.
- 822. Reinforced Polymer Structures. Survey of raw materials, manufacturing methods, and design of products utilizing reinforcing materials combined with an elastomer or polymer binder. Prereq.: CHEM 721, MATH 674, CEEGR 601 or consent of instructor.
- 830. Introduction to Nuclear Reactors. Neutron interactions and scattering; moderation ratio, the steady state reactor core and four factor equation, the diffusion equation for various reactor geometries and the reflected reactor core. Prereq.: CHEGR 726 or equivalent.
- 831. Introduction to Nuclear Materials. Discussion of various chemical and metallurgical separation methods for the manufacturing and reprocessing of nuclear reactor fuel for the thermal and breeder reactors. Aspects of production of nuclear materials. Prereq.: CHEGR 726 or equivalent.3 q.h.
- 835. Introduction to Nuclear Fusion. Fusion reactors; the kinetics of fusion reactions. Plasma confinement technology. Prereq.: CHEGR 726 or equivalent.
- 840. Biochemical Engineering Fundamentals. Design of biological reactors, bioremediation schemes, methods for the purification and mass pro-

duction of chemical species from living organisms or cultures, extraction, and fermentation. Technologies and processing of recombinant DNA, antibiotics, antibodies, vitamins, steroids, and methane are included. Essentials of microbiology, biochemistry, and genetics will precede the industrial applications. Prereq.: Junior standing. 4 q.h.

845. Chemical Engineering Analysis. Modeling of processes from unit operations, transport phenomena, and thermodynamics. Topics will include the determination of limiting and generalized operating conditions, estimations of operating variables, and process balances of energy, mass, and momentum transfer. Prereq.: Junior standing.

4 q.h

850. Industrial Processes. A fundamental approach to the design of industrial chemical processes. Emphasis upon flow charting, chemical reactions, separations involved, thermodynamics, and economic considerations. Food and pharmaceutical processing will be a major focus. Prereq.: Junior standing.

*880, *881. Chemical Reactor Design 1 and 2. Chemical reaction equilibria. Theoretical developments and methods of interpreting experimental data pertaining to chemical kinetics. General design principles and construction features of reactors with application of these principles to the design of specific reactors. Prereq.: CHEGR 772. 3+3 q.h.

*882. Process Dynamics. Introduction to automatic control and control loop concepts. Laplace transform techniques. Linear open-loop and closed-loop systems. Root-locus and frequency response methods. Design of control systems. Prereq.: CHEGR 786.

*882L. Process Dynamics Laboratory. Experimental studies in process dynamics and control. Treatment of experimental data with correlation and comparison with theory. Oral presentations and preparation of technical reports. Three hours of laboratory. Prereq.: CHEGR 882.

*883. Mathematical Methods in Chemical Engineering. The applications of advanced mathematics to the solution of chemical engineering problems. Topics covered include treatment and interpretation of engineering data, modeling of chemical engineering systems and formulation of ordinary and partial differential equations governing chemical engineering operations and their solutions by use of numerical and analytical techniques. Prereq.: CHEGR 786.

886. Nuclear Reactor Design. The steady state reactor core; four-factor equation, resonance escape probability, neutron flux distribution in various geometrics, two-group and multigroup theories. Transient reactor behavior and control; effect of delayed neutrons, fission product poisoning, nuclear fuels, nuclear heat transfer and burnout problems, reactor economy; fuel burnup and power cost. Ther-

mal breeder and fast reactors. Neutron flux distribution measurements. Radiation detection and monitoring. Prereq.: CHEGR 726. 4 q.h.

*887. Process and Plant Design 1. An examination of engineering economic analysis to include: cost estimation, profitability, optimum design, principles of fixed and operating costs, materials and site selection, and general and specialized design techniques. Prereq.: Senior standing in Engineering.

4 q.h.

*888. *Process and Plant Design 2*. The application of chemical engineering and cost principles to the component design and selection of process equipment. Prereq.: CHEGR 788, 880, and 887.

4 q.h.

*889. Process and Plant Design 3. The application of chemical engineering and cost principles to the design of chemical plants and processes including societal aesthetic, environmental, and safety considerations. Prereq.: CHEGR 888. 4 q.h.

CHEM—CHEMISTRY

Lower-Division Courses

Chemistry 500, 501, 505, 506, and 510 may be counted toward the University science-area requirement, but are not intended for chemistry or engineering majors.

500. Chemistry in Modern Living. A one-quarter introduction to basic chemical concepts, the scientific method, and the impact of chemistry on human life and society. Examples may include water treatment, air quality, plastics, drugs, cosmetics, energy resources, food, and the chemical basis of life. Four hours lecture-discussion; no laboratory.

4 q.h.

501. Introduction to Chemistry. Chemical concepts and principles with their relation to the properties of simple chemical systems. Development of problem-solving skills. For students without high school chemistry and others needing preparation for Chemistry 505 or 515. Four hours lecture-recitation; no laboratory. Prereq.: One unit each of high school algebra and geometry or MATH 511 or equivalent.

*505, *506. Chemistry for the Allied Health Sciences 1, 2. Fundamentals of inorganic, organic, and biological chemistry including applications to the human organism. Three hours lecture and three hours laboratory-discussion. Prereq.: CHEM 501 or one unit of high school chemistry; two units of high school mathematics (algebra or geometry) or MATH 511 or equivalent.

*510. Introduction to Chemistry Laboratory. Accompanies Chemistry 501, for those desiring laboratory experience. Three hours laboratory-discussion. Prereq. or concurrent: CHEM 501. 1 q.h.

*515, *516, *517. General Chemistry 1, 2, 3. The fundamental principles and the more important elements and compounds; qualitative analysis. Intended for majors in the natural sciences and engineering. Three hours lecture and three hours laboratory-discussion. Prereq.: Three units of high school algebra and geometry (or MATH 504 or 505 and MATH 511 or their equivalents), and one unit of high school chemistry or CHEM 501 or 505.

4+4+4 q.h.

550H. The Molecular World. The historical development of chemical thought including critical experiments, the discoveries of fundamental laws, and turning points in understanding molecular structure and behavior. Cultural and historical contexts that defined the work of some of those who made major contributions to this development; critical exploration of technical and societal implications of the modern view of matter. Four hours lecture-discussion. Prereq.: One year of high school chemistry and admission to the Honors program.

4 q.h

591H, 592H. Principles of Chemistry 1, 2. Fundamental principles of chemistry and introduction to inorganic chemistry. This sequence and its accompanying laboratory cover material similar to that in General Chemistry, with important concepts treated in greater depth. Three hours lecture-discussion. Prereq.: Admission to the NEOUCOM-YSU program or Honors program. Concurrent: CHEM 593H with 591H; 594H with 592H. 3+3 q.h.

*593H, *594H. Principles of Chemistry Laboratory 1, 2. Introduction to laboratory techniques, including inorganic qualitative and quantitative analysis. Three hours laboratory-discussion. Concurrent: CHEM 591H with 593H; 592H with 594H.

1+1 q.h.

602. African and African-American Contributions to Science. An introduction to basic science concepts, the scientific method, and the impact of chemistry as a central science on society. Examples will include works of African-American scientists. Four hour lecture-discussion.

*603, *604. Quantitative Analysis 1, 2. Chemical equilibrium, stoichiometry, theory of errors, and volumetric and gravimetric procedures as applied to quantitative determinations. Introduction to electroanalytical and spectrophotometric methods. Emphasis on development of technique. Three hours lecture and six hours laboratory. Prereq.: CHEM 517 or 592H for 603. 5+5 q.h.

650. Introduction to Undergraduate Research. An introduction to the methods of chemical research under the direction of a faculty member. May include literature searching and analysis, instructional laboratory development, and/or original basic or applied research. May be repeated to a maximum of six q.h. Prereq. or concurrent: CHEM 516 or equivalent and approval of department chair.

1-2 q.h.

699. Medical Application Case Studies. Applications of biological and chemical concepts in medicine. May be repeated to a total of three hours credit. Prereq.: Admission to NEOUCOM-YSU program or consent of instructor and department chair. 1 q.h.

Upper-Division Courses

*705. Nutritional Biochemistry. Phases of biochemistry of special interest in home economics and dietetics. Credit cannot be received for this course if credit is received for any other biochemistry course. Three lectures and three hours laboratory-discussion. Prereq.: CHEM 506.

*713. Clinical Biochemical Techniques. Advanced biochemistry laboratory for Chemistry and Medical Technology majors. Two three-hour laboratories. Prereq. or concurrent: CHEM 786L. 2 q.h.

*719, *720, *721. Organic Chemistry 1, 2, 3. Organic compounds, reactions, and theories. Typical preparations and procedures of analysis. Three hours lecture and three hours laboratory. Prereq.: CHEM 517 or 592H.

729. Inorganic Chemistry 1. The fundamental principles underlying the structure and properties of the elements and their compounds. Prereq.: CHEM 740 (may be concurrent) or 801. 3 q.h.

730. Clinical Radiochemistry. An introductory and systematic study of radioisotopes in clinical practice. Three hours lecture. Prereq.: CHEM 517 or 592H.

*730L. Clinical Radiochemistry Laboratory. Methods of detection and measurement of radiation, with emphasis on the development of techniques and safety in a clinical radiation laboratory. Three hours laboratory. Prereq. or concurrent: CHEM 730.

1 q.h.

*739, *740, *741. Physical Chemistry 1, 2, 3. Principles and applications of physical chemistry. Three hours lecture and three hours laboratory. Prereq.: CHEM 603 and PHYS 611, 510L, 610L, 611L. Prereq. or concurrent: MATH 674.

*751. Water Quality Analysis 1. An introduction to physical, chemical, and biological measurements of water quality. Provides laboratory experience in the analysis of natural waters, drinking water, and waste-water. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Two hours lecture and six hours laboratory. Identical to CEEGR 751 and BIOL 751. Prereq.: CHEM 603.

*752. Water Quality Analysis 2. Advanced analytical techniques for evaluation of environmental problems. Topics include pollutant transport in natural waters, toxic contaminants in drinking water, and advanced wastewater treatment. Experience with several modern laboratory instruments is provided. Two hours lecture and six hours lab. Identical to CEEGR 752 and BIOL 752. Prereq.: CHEM 751.

- 764. Chemical Toxicology. An introduction to the clinical, forensic, industrial, and environmental aspects of chemical toxicology. The therapeutic and toxic limits of drugs. The actions, control, and treatment of poisons and environmental agents. Students who receive credit for CHEM 864 will not receive credit for CHEM 764, also. Prereq.: CHEM 721 and either 604 or permission of instructor.
- *785. Biochemistry 1. Structure and properties of biomolecules including proteins, lipids, carbohydrates, and nucleic acids. Three hours lecture. Prereq: CHEM 603 and 721. 3 q.h.
- *786. Biochemistry 2. Bioenergetics and intermediary metabolism of biomolecules. Three hours lecture. Prereq: CHEM 785. 3 q.h.
- *785L, *786L. *Biochemistry Laboratory 1, 2*. Analysis and separation techniques of biochemistry. Three hours laboratory-discussion. Prereq. or concurrent: CHEM 785 with 785L, 786 with 786L. 1+1 g.h.
- 787. Biochemistry 3. Biochemical information pathways including nucleic acid synthesis, protein synthesis, and signal transduction. Three hours lecture. Prereq: CHEM 786. 3 q.h.
- 790. Undergraduate Seminar. The student will participate in departmental seminars and will present a seminar to the class. May be repeated once. Prerequisite or concurrent: CHEM 603 and 720.

1 a.h

- *801. Elements of Physical Chemistry. An introduction to thermodynamics, spectroscopy, chemical structure, reaction rates, and other physical properties of chemical systems. Four hours lecture and three hours laboratory. Prereq.: CHEM 604 and 721; PHYS 603 or 611; and PHYS 510L, 610L, and 611L; and MATH 674 (may be concurrent).
- *802. Biophysical Chemistry. Principles of chemical thermodynamics, spectroscopy, and kinetics as specifically applied to biological systems. Four hours lecture and three hours laboratory. Prereq: CHEM 801 or 740.
- *803, *804. Chemical Instrumentation 1, 2. The theoretical foundations of instrumental procedures and use of instruments in analytical work. CHEM 803: Two hours lecture and six hours laboratory. CHEM 804: Two hours lecture and three hours laboratory. Prereq.: CHEM 604, and CHEM 741or 802.

 443 q.h.
- 805. Applied Spectroscopy. Infrared, ultraviolet, nuclear magnetic resonance, electron spin resonance, mass spectrometry, and methods of current interest as applied to chemical systems. Three hours lecture. Prereq.: CHEM 721; Prereq. or concurrent: CHEM 740 or 802.
- *807. Chemical-Instrumentation Interfacing. An introduction to the use of microprocessor-based equipment for data acquisition and manipulation and for instrument control in chemical experimen-

- tation. Interfacing requirements will be stressed. Three hours lecture and three hours laboratory. Prereq.: CHEM 804. 4 q.h.
- 813. Thermodynamics and Kinetics . Fundamentals of chemical thermodynamics and kinetics with applications in both ideal and real chemical systems. Three hours lecture. Prereq.: CHEM 740. 3 q.h.
- 821. Intermediate Organic Chemistry. An introduction to advanced study in organic reactions and theories. Three hours lecture. Prereq.: CHEM 721; Prereq. or concurrent: CHEM 739 or 801. 3 q.h.
- *822. Organic Analysis. Analysis of the structures of organic compounds using NMR and other modern instrumental methods. Integration of theoretical and practical perspectives through laboratory exercises. Two hours lecture and three hours laboratory. Prereq.: CHEM 721. 3 q.h.
- *823. Organic Synthesis. Preparations of organic compounds and applicable instrumental techniques. One hour lecture and six hours laboratory with discussion. Prereq.: CHEM 721. 3 q.h.
- 824. *Polymer Chemistry.* Polymerization processes and polymer structure-property relationships. Prereq.: CHEM 720. 3 q.h.
- *825. Polymer Chemistry Laboratory. Preparation and characterization of some polymers. One hour lecture and six hours laboratory. Prereq.: CHEM 824. 3 q.h.
- 829, 830. *Inorganic Chemistry 2 and 3.* 2: Current interpretations of the chemistry of nonmetals and pre-transition metals. 3: Transition metals and coordination compounds. Need not be taken in sequence. Prereq.: CHEM 729, 741. 2+2 q.h.
- *831. *Inorganic Chemistry Laboratory.* Preparation of typical inorganic compounds and their characterization. Six hours laboratory-discussion. Prereq. or concurrent: CHEM 729, and 740 or 802.

- 832. Solid-State Structural Methods. Structure determination for single-crystal and multi-phase organic and inorganic solids by techniques such as single-crystal and powder diffraction, electron microscopy, and X-ray microanalysis. Integration of theoretical and practical perspectives through laboratory exercises. Two hours lecture and three hours laboratory-discussion. Prereq: CHEM 721 and CHEM 741 or 802.
- 835. Nuclear Chemistry and Its Applications. Nuclear structure and reactions, types of radioactive decay, radiation detection, measurements, and techniques in handling radioactive materials. Prereq.: CHEM 740 or 801.
- 836. Chemical Bonding and Structure. Application of molecular orbital theory and symmetry to chemical bonding, structure, and spectroscopy. Prereq.: CHEM 740. 3 q.h.

850. Undergraduate Research. Research participation under the direction of a faculty member. The student will prepare an acceptable written report on the completed project. May be repeated to a maximum of nine q.h. Prereq.: CHEM 603 or 719 and approval of department chair. 2 or 3 q.h.

860. Regulatory Aspects of Industrial Chemistry. Roles and responsibilities of industrial chemists. Industrial hygiene and safety. Industrial chemical processes, their waste products, their environmental effects, and the treatment of pollutants. Governmental regulations relating to waste disposal, product safety, occupational safety, resource conservation, environmental protection, and problems of awareness and compliance. Prereq.: CHEM 604 and 721.

2 q.h.

CHFAM—CHILD AND FAMILY

514. Prekindergarten Programs. Each aspect of the preschool/day care program as it interfaces with family relationships and the development of the child. Thirty hours of field experience are required.

3 q.h.

531. Infant and Toddler Care. Guiding principles in the care of infants from conception to age two, with special attention to planned infant stimulation. Lecture, demonstrations, and observation. Course will include five hours of field/clinical experience.

3 q.h.

- 532. *Pre-School Child Care.* Care and guidance of 2-to-5-year-old children in a group setting; emphasis on behavior management. Course will include ten hours of field/clinical experience. 4 q.h.
- 632. Child Health and Safety. Health care practices applied to child care in group facilities; home nursing skills for non-health personnel. Students receive certification in first aid, communicable disease management, and child abuse detection and prevention. Prereq.: CHFAM 514 and HSC 590.

3 a.h.

- 650. Introduction to the Assessment of Young Children. Principles of conducting developmentally appropriate assessments of behavior and development of young children; includes assessment purposes, and strategies, and appropriate uses of assessment information. Prereq.: CHFAM 531 and CHFAM 532.
- 664. Managing Classroom Behaviors and Staff Relationships in Early Childhood Settings. Principles of effective classroom management in the early childhood classroom; emphasis on positive guidance strategies, the influence of the classroom environment on children's behavior, and establishing a collaborative professional team. Includes 10 hours of field/clinical experience. Prereq.: CHFAM 532 and 532L.

- 672. Nutrition and the Young Child. Nutritional needs of the developing child; implementation of quality foodservice in a child care setting; nutrition education of young children for development of desirable food habits. Course will include five hours of field/clinical experience. Prereq.: FNUTR 543 or 502 or 551.
- *706. Preschool Laboratory. Participation in the campus early child development laboratory. One hour lecture and 6 hours laboratory per week. Prereq. PSYCH 755; EMCE 630 or FOUND 501. Permit required. 3 q.h.
- 716. Infant Laboratory. Observation and participation in infant and toddler programs. One hour lecture and six hours Laboratory per week. Prereq.: PSYCH 560; CHFAM 514 and 531. Permit required. 3 q.h.
- 731. Individual and Family Development. The family ecosystems, dynamics and roles throughout the life span, and the impact of heritage and culture on family systems worldwide. Prereq.: PSYCH 560.
- 750. Parent and Professional Relationships. Strategies for building working relationships with parents of young children and other professionals in early childhood education. 10 hours field/clinical experience. Prereq.: CHFAM 664; CHFAM 514 or FOUND 501.
- 760. Language and Literacy Experiences in Early Childhood Settings. Concepts and teaching strategies related to understanding language and literacy development of young children and planning language and literacy experiences for all children, 3 to 8 years of age. Prereq.: CHFAM 532. 4 q.h.
- 770. Wellness During the Early Childhood Years. Principles of maintaining physically and psychologically safe and healthy learning environments for children; includes nutrition, safety in the classroom, stress and mental health issues, and community resources. Prereq.: CHFAM 532. 4 q.h.
- 790. Supervised Practice in Early Childhood Education. A culminating practicum designed to provide beginning teachers clinical experience with children in the early childhood years (ages 3 to 8). Students will apply developmental theories and appropriate practices in settings for young children. 140 hours of field/clinical experiences. CHFAM 532L, EMCE 630, and CHFAM 664.
- 833. School-Age Child Care. Developing and administering extended day and vacation programs for children K-6, in schools and other facilities. Prereq.: CHFAM 731 or EMCE 830. 3 q.h.
- 859. Methods and Materials in Early Childhood Settings. Methods and techniques used to implement an integrated early childhood curriculum with emphasis on social, emotional, and physical development and concept formation of young children ages 3 to 8 years. Listed also as EMCE 859. Prereq.: EMCE 630, CHFAM 790.

860. Coordination and Evaluation of Early Child-hood Programs. Administration, organization, and operation of early childhood programs, including legal and ethical guidelines, managing resources, program development and evaluation, advocacy, and public policy in early childhood education. Includes ten hours of field/clinical experience. Prereq.: CHFAM 664, or EMCE 841, or SEDUC 842.

CIS—COMPUTER INFORMATION SYSTEMS

- *601. Scientific Programming. An introductory course in computer programming using the science-oriented language known as Fortran. Three hours of lecture and three hours of laboratory per week. Prereq.: MATH 520.
- *605. MVS JCL & Utilities. General purpose programs found in computer installations, including sort/merge routines, report generators, magnetic tape routines, supervisory routines, and random-access utility programs. Prereq.: CSIS 590. 4 q.h.
- *608. Business Programming 2. The application of Cobol Language to the solution of advanced problems in business. Techniques of programming using mass storage devices. Prereq.: CIS 607 or consent of instructor.
- *609. Interactive Computing Applications. The study and use of interactive computing methods in commercial and technical applications. Emphasis on terminal programming of higher level languages such as REXX and EXEC II. Three hours lecture and three hours laboratory per week. Prereq.: CIS 607 or consent of instructor.
- *612. Programming PL/1. Detailed study of the PL/1 language; demonstration of its applicability to engineering, mathematical, and commercial problems. Three hours of lecture and three hours of laboratory per week. Prereq.: CIS 601 or CIS 607.4 q.h.
- *613. RPG Programming. A detailed study of the Report Program Generator (RPG) language. Applications programs ranging from business reporting to master file updating. Prereq.: CSIS 610. 4 q.h.
- *615. Business Programming. Use of one or more programming languages for writing business-related programs. Table (array) processing, file input and output, sorting, report generations, and multistep jobs. Introduction to non-sequential files. Three hours lecture and three hours lab per week. Prereq.: CSIS 610.
- 621. Data Communications. Develops the communication system pertaining to transmission media; communication hardware, including modems, switches, multiplexers, terminals and gateways; and various protocols to manage the network pathways and data traffic. Prereq.: CSIS 610. 4 q.h.

- *624. Microcomputer Programming. The use of microcomputer programming languages and operating systems. Three hours lecture and three hours laboratory per week. Prereq.: CIS 601, or CIS 607, or consent of instructor.
- *626. Visual/Object-oriented Programming. Use of one or more visual programming languages in conjunction with the concepts of object-oriented programming. Development of interactive programs using a graphical user interface. Three hours lecture, three hours lab per week. Prereq.: CSIS 610.

4 q.h.

- *635. UNIX Environment. Use of the UNIX operating systems or similar systems, including editors, file management, shell scripts, and language compilers. Prereq.: CIS 610. 4 q.h.
- *640. Business Programming Project. Design and construction of one or more business-related programming projects using several languages and multiple file formats. Three hours lecture, three hours lab per week. Prereq.: CIS 615 and CSIS 617.

4 q.h

Upper-Division Courses

- *701. Science Programming Applications. Use of computers to solve basic technical problems in electrical, chemical, structural, and mechanical design. Three hours of lecture and three hours of laboratory a week. Prereq.: CIS 601, MATH 570 or equivalent.
- *714. Assembly language and Architecture. Fundamentals of computer architecture and organization. Forms of data representation. Assembly language and machine language programming. The assembly process. Methods and protocols for subroutine linkage. Prereq.: CIS 640. 4 q.h.
- *718. Operating Systems Concepts. Concepts of computer operating systems, including memory allocation, job scheduling, process communication, and input/output processing. Examinations of operating systems on several platforms. Prereq.: concurrent: CIS 714.
- *721. Data Communications Networking . A study of present methods for design and evaluation of information networks, LAN and WAN. To include queuing, routing, security, reliability, error detection and correction, and distributed processing. Prereq.: CIS 621, or OIS 663 and 710. 4 q.h.
- *730. Computer Graphics. Techniques of computer raster graphics, including scan conversion, two- and three-dimensional clipping and windowing, transformations and viewing in 3D. Algorithms and more advanced topics will be surveyed. Listed also as CSCI 730. Prereq.: CSIS 617 and MATH 572 or equivalent.
- *731. User Interface Design. The design, implementation, and evaluation of human-computer interfaces. Emphasis on practical applications of

guidelines to modern multimedia and graphical user interfaces. Listed also as CSCI 731. Prereq.: CSIS 610. 4 q.h.

*804. Programming in Operations Research Applications. Basic operations-research techniques and programming. Linear programming, queuing, mathematical modeling, and network analysis. Prereq.: CIS 640 and MATH 645 and 32 q.h. of CIS courses applicable to the major.

*808. CICS Programming. A detailed study of CICS (Customer Information Control System), including CICS commands, file definitions, screen definitions, and application programming. Prereq.: CIS 714 or consent of instructor 4 q.h.

*810. Special Topics. The content of this course will vary from term to term. It will be concerned with various topics to allow a student to remain current with the changing computer technology. Subject material will be announced in advance. Prereq.: CIS 611 or consent of instructor. May be repeated up to 8 q.h.

814. Advanced Business Systems and Procedures. The study of system analysis, design, and implementation using the data flow analysis and systems development life cycle approach. Prereq.: CIS 618 and junior standing.

*818. Development of Data Bases. The basic structure, design, development, implementation, and modification of data bases for use in management information systems. Prereq.: CIS 640 and 32 q.h. of CIS courses applicable to the major. 4 q.h.

819. Parallel and Distributed Computing. A survey of current development of parallel processing with emphasis on parallel programming. Topics include parallel architectures, inter-connection networks for inter-processor communication, parallel sorting/searching algorithms, parallel constructs for parallel programming paradigms, and implementation of the algorithms in a parallel language. Prereq.: CSCI 740 or permission of instructor.

4 q.h.

820. Computer Center Operations. The organization of a computer center, with emphasis on features and selection criteria of communication equipment, including mainframe, minicomputer, and microcomputer systems. Prereq.: CIS 640 and 32 q.h. of CIS courses applicable to the major, or BIS 663 and 710.

*822. Data Base Applications. Design and development of applications using data base languages. Prereq.: CIS 818. 4 q.h.

*824. Artificial Intelligence in Decision Making . A study of software from the field of artificial intelligence. Topics may include software for robotic control, expert systems, or logic programming. Prereq.: CIS 818.

*831. Virtual Reality Systems. An investigation into the use, design, implementation, and evalua-

tion of virtual reality interfaces. Experience with VR systems using both 2D projections and stereoscopic display and other systems. Students will work in multidisciplinary groups. Listed also as CSCI 831. Prereq.: CIS/CSCI 730. 4 q.h

840. Business Systems Analysis & Design. The study of computing and information systems analysis, design, and implementation. This project course uses many of the concepts presented throughout the curriculum. Prereq.: CIS 822 and senior standing.

4 q.h.

COMM—SPEECH COMMUNICATION

Lower-Division Courses

500. Orientation. Introduction to department programs, policies, practices, and facilities, with particular emphasis to the needs of speech communication majors. Various educational and career opportunities in speech communication are included. Relevant aspects of the assessment program in speech communication are explained.

525. Building Communication Confidence. Intensive work for students having difficulty with fundamental communication skills. In consultation with instructor, students set individual goals and perform practical exercises. Prereq.: Permission of the instructor. Not applicable to speech communication major.

4 q.h.

530. Communication Theory 1. The study of significant communication models, systems, and theories. The verbal and nonverbal communication processes will be discussed and applied as they occur in interpersonal, group, organizational, mass, and public situations. Prereq.: Prior concurrent enrollment in COMM 500 for students majoring in Speech Communication.

*545. Communication Theory and Practice. The study of the theories, strategies, and skills for competent participation in interpersonal, group, and public communication situations. Application exercises in interpersonal, group, and public communication are included.

4 q.h.

*550. *Public Speaking*. Designed to improve speech skills through the application of communication principles to varying audience situations.

4 q.h.

600. Speech Improvement Lab. Designed to help students develop clearer, more distinct and expressive speech, so they can meet their personal and professional communication requirements more effectively. Individualized goals set with instructor. Repeatable once with instructor's recommendation. Students will be screened to determine if they could benefit from course. 4 hours per week. 2 q.h.

610. Intercultural Communications. The study of key historical and contemporary theories that affect communication across cultural boundaries. Exercises for improving communication skills in intercultural communication situations are included. 4 q.h.

615. Competitive Public Speaking 1. An introduction to forensics competition. Practice with the coach(es) for a minimum of one hour per week and participation in at least two forensics tournaments each quarter is required. COMM 615 may be taken up to 8 hours. Prereq.: Permission of instructor.

2 q.h.

- 640. Theories of Rhetoric. The study of the ideas and writings of thinkers, ranging from the classical to 20th century American, concerned with communication as a practical art. Concepts from lecture and discussion sections will be applied in practical experience. Satisfies the University's area requirement in the humanities.
- *652. Business and Professional Speaking. The principles of speech communication in business and professional settings. Emphasis on presentational speaking and group communication. 4 q.h.
- 653. Small-Group Communication. Small-group interaction and participation from a communication systems perspective. Includes an examination of group processes and leadership in group interaction.

 4 q.h.
- 656. Interpersonal Communication. An examination of the skills necessary to develop, maintain, and evaluate one-to-one relationships. Through practical experiences from everyday life, the class examines what occurs when one person communicates with another.

 4 q.h.
- 657. Organizational Communication 1. A general survey of traditional and interpretive approaches to organizational communication as well as career applications. Explores the relationship between communication and organizational effectiveness.

4 q.h.

- *659. Communication for the Environmental Professional. A study of the principles and practices of effective communication in settings which emphasize environmental matters. Development of skills in oral presentation and visual aids. Course will also examine personal and organizational strategies for communication concerning risk to people or the environment. Prereq: ENST 602, can be taken concurrently; or permission of instructor.

 4 q.h.
- 670. Oral Interpretation. The development of skills necessary for the oral interpretation of various types of literature prose, poetry, and drama. The thorough analysis of each literary work and communication of the work to an audience. Prereq.: Sophomore standing.

Upper-Division Courses

730. Communication Theory 2. An in-depth examination of key historical and contemporary theories, concepts, models and pertinent literature in communication theory. Prereq.: COMM 530.4 q.h.

- 740. Special Topics in Communication. An indepth analysis of topics of relevance and interest in classical through contemporary communication. May be repeated if the topic of the course changes. Prereq.: COMM 530; or Junior standing with permission of instructor.
- 745. Individual Studies. The student selects a special problem or issue in communication to research in detail. Repeatable to a maximum of 8 q.h. Prereq.: COMM 530; junior standing in Speech Communication, and approval of Individual Study Proposal Form by faculty committee; for Comprehensive Communication majors, COMM 654, 16 q.h. of required communication courses, and approval of Individual Study Proposal Form by faculty committee.
- *750. Advanced Public Speaking. Advanced theoretical principles in the practice of public speaking and persuasive discourse. Prereq.: COMM 545 or COMM 550 or COMM 651 or COMM 652 or COMM 654.
- 754. Argumentation. Developing critical thinking through the systematic evaluation of theories, principles and practices of argumentation. Prereq.: ENGL 551 or COMM 545 or COMM 550 or COMM 651 or COMM 652 or COMM 654.
- 756. Interviewing. Theories of communication applied to interview situations with a special concern for developing student understanding of and skills needed to participate in one-to-one and panel interviews. Prereq.: COMM 530. 4 q.h.
- 757. Organizational Communication 2. Examines the traditional structures and functions of communication in organizations emphasizing the interdependence of organizational goals and communication. Focuses on recognizing, understanding, assessing, and designing communication systems in organizations. Prereq.: COMM 530 and COMM 657.
- 798. Understanding Communication Research. This course prepares students to review and understand research from both qualitative and quantitative communication methodologies. Prereq.: COMM 530 and 16 hours in speech communication major; for Comprehensive Communication majors, COMM 654 and 16 hours of required communication courses.
- 815. Competitive Public Speaking 2. Advanced forensic competition. Practice with the coach(es) must be scheduled for a minimum of one hour per week and participation in at least two forensics tournaments each quarter is required. Open to Juniors and Seniors. COMM 815 may be taken up to 8 hours. Prereq.: COMM 615 and permission of instructor.

2 q.h.

840. Persuasive Campaigns. In-depth examination of persuasive communication theories and persuasive campaigns. The application of the various theoretical perspectives will be emphasized in the development of a persuasive campaign. Prereq.: COMM 530, COMM 653 and COMM 754. 4 q.h.

852. Small Group Communication Theory and Practice. Analysis of communication variables influencing communication practice in groups. Includes the study of relevant literature, observation and participation in group situations, and application of theory to practice. Prereq.: COMM 653 and COMM 730.

855. Interpersonal Communication Theory and Practice. An examination of the development of interpersonal communication theory and its application in personal and professional relationships. Prereq.: COMM 656 and COMM 730. 4 q.h.

856. Communication Training and Development. Designed to teach students various methodologies available to assess communication in organizations. Based on results of assessments, students will design appropriate communication training programs. Prereq.: COMM 757. 4 q.h.

858. Practicum. Faculty supervised experiences in communication studies. Might include field work applying theory to practice in business or applying research techniques to support communication research. Repeatable to a maximum of 8 q.h. Prereq.: COMM 657, COMM 798, and approval of Practicum Proposal Form by faculty committee. 2-4 q.h.

859. Advanced Studies in Organizational Communication. An in-depth analysis of communication topics in modern organizations. Students will examine communication processes as they influence organizational development outcomes. May be repeated for credit as long as a specific topic is not repeated. Prereq.: COMM 757.

896. Internship in Organizational Communication. An application of communication theories and practices within organizational settings. Weekly meetings with faculty supervisor are required. Weekly field workload: 20 hours. May be repeated upon approval to a maximum of 8 q.h. Prereq.: COMM 757, senior standing, and approval of faculty internship committee.

898. Seminar in Speech Communication. A cooperative exploration of topics in communication not covered in course offerings. May be repeated for credit if the seminar topic changes. Prereq.: COMM 798; Junior standing or permission of instructor.

4 q.h.

899. Senior Project. Students will demonstrate a synthesis of research, writing, and presentation skills through the completion of a project identified by a student during coursework in the major. The student in consultation with a faculty project advisor, will produce and develop an appropriate presentation to department faculty and other interested parties. Prereq.: COMM 798, Senior standing, 50 hours in Speech/Communication major, and approval of senior project form.

Speech Education

603. Physical Aspects of Speech. A fundamental study of the voice mechanism, vocal sound, and elementary phonetics. Includes a functional familiarization with the International Phonetic Alphabet.

2 q.h.

606. Introduction to Speech Pathology. An examination and observation of the nature and severity of speech communication problems; their identification, characteristics, and possible remediation.

4 q.h.

654. Speech Communication in the Classroom. A speech fundamentals course adapted to the special needs of teachers. Emphasis on improving interpersonal communication skills, group discussion techniques, and skill in the extemporaneous style of classroom presentation. Required of all students seeking certification in education. Prereq.: EDUC 501.

705. Speech Problems of Children. A consideration of speech improvement for all pupils and of speech correction for pupils with speech and/or hearing problems in kindergarten primary, and intermediate grades. Types of difficulties, techniques, and materials for development and continued use of good voice and acceptable speech. Prereq.: COMM 654 or permission of instructor. 3 q.h.

800C. Special Methods: Speech Communication. Exploration of the content and methodology involved in the handling of traditional speech subjects. Emphasis on the identification of core concepts, planning, instructional strategies, and evaluation. Prereq.: SEDUC 706/706L unless taken concurrently with consent of instructor. Same as SEDUC 800C.

801. Co-curricular Programs in Speech and Theater. Practical aspects of setting up and directing high school forensics and theatrical events. Significant elements of co-curricular programming: underlying philosophy, budget, recruiting students, developing student skills and scheduling. Prereq.: Senior standing. 4 q.h.

COUNS—COUNSELING

Upper-Division Courses

761. Human Relations and Guidance Skills for Teachers. Approaches to improving the interpersonal aspects of the learning climate within the classroom. Primary focus is on the application of human relations principles. Consideration is also given to amelioration and prevention of behavior problems. Prereq.: EMCE 705 (or concurrent with).

3 q.h

821, 822. Seminar in Guidance and Counseling. Study of selected topics chosen by staff, e.g.: career guidance, counseling process, and other contemporary issues in school personnel work. May be repeated for different topics.

823. Career Education and Career Guidance. Study of public school career education and career guidance programs; the career education continuum, legislation relating to vocational programs, structures of vocational school programs, historical development, and principles of vocational education and vocational guidance. Also a survey of concomitant services: distributive education, human resources, programs, and placement.

3 q.h.

825. Group Processes in the School. An introduction to group activities applicable to the needs of students in the school setting. This would include a study of group processes and group dynamics for social and personal problem solving a well as in the general area of individual and group behavior. Also, a study of programs that provide for counselor-teacher cooperation in the development of groups in the classroom.

862. Principles of Interaction With Special Needs Students. Principles and methods of interaction with students, parents and other professionals in behalf of students with special needs. A team approach and the use of community resources will be emphasized. Prereq.: SPED 864. Also listed as SPED 862. 3 q.h.

879. Consultation With Gifted/Talented Students and Their Families. A study of consulting and referral practices related to the developmental, social and personal difficulties often experienced by gifted/talented students and their families. A field study component is also included. Prereq.: SPED 874, 878 or permission of instructor.

895. Counseling Workshop. Selected topics related to prevention and intervention approaches in school and community settings. Designed primarily as continuing professional education, this course is not included in counseling degree programs.

1-4 q.h.

898. Introduction to Professional Counseling in School and Community Contexts. History, philosophy and trends of professional counseling in school and community settings. Development, organization and administration of counseling services, the work of counselors, and legal and ethical standards for counselors are considered.

CRJUS—CRIMINAL JUSTICE

Lower-Division Courses

500. Introduction to Criminal Justice. An overview of the American criminal justice process with emphasis upon its constitutional foundations, its constitutional limits, and the rights of the individual from arrest through sentencing and release. 4 q.h.

601. Law Enforcement In the United States. The evolution, structure, and functions of modern police organizations; the role of police in a democratic society; the impact of social, economic, and political influences; contemporary practices and controversial issues. Prereq.: CRJUS 500. 4 q.h.

602. American Criminal Courts. The structure and function of criminal courts in the American society, perceptions of national commissions, organization, administration, and caseflow relationships with appropriate social agencies. Prereq.: CRJUS 500 or permission of the instructor.

603. Corrections in America. Development and description of the American correctional systems' history and philosophy: the constitutional foundations of its control, and the rights of those within it. An overview of treatment approaches. Prereq.: CRJUS 500.

621. Evidence. The admissibility of evidence, the hearsay rule and its exceptions, opinion evidence, circumstantial evidence, documentary evidence, presumptions, corpus delicti, and evidentiary privileges. Prereq.: CRJUS 500. 4 q.h.

630. Criminology. Study of the social context of crime in American society, including a review of historical theories offered in explanation of criminal behavior. Identical with SOCIO 630. Prereq.: SOCIO 500 and PSYCH 560.

648. Introduction to Crime Prevention. Basic concepts and strategies of crime prevention and the protection of assets in the public and private sectors.

4 q.h.

653. Traffic Law and Investigation. Study of traffic laws concerning operator licensing equipment requirements, and vehicle-related offenses; legal considerations and enforcement philosophy; accident investigation techniques, reports and records; evaluation of accident problems and determining offenses involved. Prereq.: CRJUS 601. 4 q.h.

Upper-Division Courses

700. Fire and Safety: Municipal, industrial, and other fire protection services: fire detection and suppression systems, and special emphasis on fire safety at industrial and commercial locations. Prereq.: CRJUS 601, 648, or permission of the instructor.

4 q.h.

701. Probation and Parole. An examination of the theory and practices of probation and parole with juvenile and adult offenders. Prereq.: CRJUS 603.

4 q.h.

702. Institutional-Community Corrections. Contemporary theory, practice, and research findings in the administration of juvenile and adult correctional facilities. Community-based programs and institutional resources will be examined within the perspectives of prevention, control, and rehabilitation of the criminal offender. Prereq.: CRJUS 603. Must be taken concurrently with CRJUS 702L.

3 q.h.

*702L. Field Techniques in Institutional-Community Corrections. Contact, observational, and on-site examination and comparison of community programs, and institutional facilities varying from halfway houses, jails, and medium to maximum security institutions. On-site contact will involve 6 hours per week, usually on a single day. Facilities in Ohio and Pennsylvania will be selected. Prereq.: CRJUS 603 and must be taken concurrently with CRJUS 702.

703. Correctional Case Management. Theory and techniques of counseling and interviewing the correctional client. Field and clinical situations are simulated to provide experience in interviewing and report writing. Prereq.: CRJUS 701. 4 q.h.

*710. Social Statistics 1. Cross-listed with SOCIO 701. 4 q.h.

711. Social Statistics 2. Cross-listed with SOCIO 702. 4 q.h.

*712. Criminal Justice Research. Analysis of the major components of social research, including research design, sampling, measurement, data collection, and analysis and interpretation of findings. Prereq.: CRJUS 710.

714. Forensic Science Investigation. Scientific study of the significance of physical materials associated with crime scenes and qualitative and quantitative analytical concepts in the examination of the physical evidence. Must be taken concurrently with CRJUS 714L. Prereq.: CRJUS 601. 4 q.h.

*714L. Forensic Science in Investigation Laboratory. Techniques and procedures in crime scene processing with special emphasis upon legal and scientific aspects of the physical evidence. Experiments and demonstrations concerning the examination of the physical and chemical properties of physical evidence. One laboratory class per week of 3 hours. Taken concurrently with CRJUS 714. Prereq.: CRJUS 601.

715. Criminal Justice Management Concepts. Modern criminal justice management theory; organizational behavior, organizational development, personnel management, executive decision making, supervision problems. Prereq.: CRJUS 601. 4 q.h.

719. Criminal Law. Development, theories, and purposes of criminal law; elements of a crime, parties to a crime. Prereq.: CRJUS 602. 4 q.h.

*720. Legal Research. In-depth study and legal research of case law, statutes, rules and regulations at the federal and state levels. Emphasis will be placed on how to find and use primary and secondary authority, how to conduct legal research as well as in-depth legal writing in areas such as torts, contracts, real estate, criminal law. Prereq.: CRJUS 602 or permission.

722. Criminal Procedure. Legal and practical applications of the laws of arrest, criminal procedure, search and seizure, court structures, and federal civil rights. Prereq.: CRJUS 602. 4 q.h.

735. Juvenile Delinquency. Social and psychological factors underlying delinquency; the juvenile court and probation; treatment and preventative

measures. Cross-listed with SOCIO 735. Prereq.: CRJUS 630 or SOCIO 630. 4 q.h.

736. Criminal Victimization. The dynamics of the victim-offender relationships within the criminal justice system. Review of advocacy programs including information on victim compensation/assistance programs. Examination of society's attitudes towards victims. A review of current laws advocating for compensation of crime victims. Prereq.: CRJUS 630 or SOCIO 630.

*740. Criminal Justice Information Systems . Information theory and practice applied to criminal justice agencies; automated systems in policing, courts, and corrections at the federal, state, and local levels; problems and constitutional constraints. Microcomputer and Internet assignments included. Prereq.: Junior standing in CRJUS and CRJUS 715 and CSIS 514 or equivalent course. 4 q.h.

748. Commercial and Industrial Security. Plant protection, merchandising safety and security; credit and insurance investigative procedures. Prereq.: CRJUS 648.

749. Drug Abuse. Causes and effects of drug abuse. Problems of law enforcement and dangers to public safety caused by drug abuse. Identifications, classification and characteristics of different types of drugs. Impact of drug abuse on American criminal justice system. Prereq.: CRJUS 601. 4 q.h.

765. Human Relations in Criminal Justice . Methods of coping with conflicts arising from law violation intervention; programs for improving interpersonal relations between police and the community. Prereq.: SOCIO 500, PSYCH 560, and 12 q.h. in CRJUS.

770. Ohio Criminal Code. Examination of code, noting construction of statutes, procedural rules, proof required for charges, defenses, basis of criminal liability, and the 11 degrees of offenses, penalties, and criteria for sentencing. Prereq.: CRJUS 719.

799. Directed Individual Study. The individual study or research of a special problem or issue related to the criminal justice field. Application must be made to the department prior to registration. May be repeated once for a maximum of five quarter hours of credit. Prereq.: Senior standing, 20 hours of criminal justice courses, and approval of instructor.

2-3 q.h.

802. Corrections Law & Liability. An analysis and examination of legal mandates and restrictions affecting the field of corrections. History of the development of offender rights, current issues surrounding offender rights, and future concerns in this area. Jail and prison standards, accreditation standards, case law, and liability concerns are included. Prereq.: CRJUS 702 and CRJUS 703 or instructor's approval.

807. Criminal Justice Internship. Field experiences in an appropriate criminal justice agency under the

direction of experienced and qualified professionals. The grading is CR/NC. May be repeated for a maximum of 12 q.h. Prereq.: Senior standing in CRJUS and specific emphasis area courses as per department guidelines.

4-12 q.h.

*820. Advanced Legal Research. Advanced techniques in conducting legal research using standard reference tools as well as automated on-line services and the Internet. Includes analysis of findings of legal issues related to criminal justice, report and memorandum writing utilizing the Harvard Uniform System of Citations, legal forms and terminology. Prereq.: CRJUS 720 or instructor's approval.

4 q.h.

825. Constitutional Issues in Criminal Law. Examination in depth of the constitutional foundations of the American criminal justice process with special emphasis upon recent supreme court decision, state and federal legislation affecting criminal law. Prereq.: Senior standing.

826. Forensic Science and the Criminal Justice System. A review of the impact of forensic science on the criminal justice system, discussion of future applications, constitutional considerations and the significance of physical evidence. Emphasis is given to management responsibilities with respect to the criminalistics laboratory. Prereq.: Senior standing.

831. Violence in America. An analysis of violence in America including official and unofficial statistics; types and levels of violence, research findings, and profile of offenders. Includes case analyses of domestic violence, juvenile violence (gangs), and other forms of violence. Prereq.: CRJUS 630 or SOCIO 630 and CRJUS 712.

836. Theory of Criminal Behavior . An analysis of theory and research on epidemiology and etiology of crime. Prereq.: CRJUS 630. 4 q.h.

848. Legal and Managerial Aspects of Security. Emphasis on security standards, policy, and regulation at the state and federal levels as they impact on the security function. Administrative decisions regarding implementation of a security program in view of legal, technological, and behavioral considerations. Applications focus on selected public and private enterprises. Prereq.: CRJUS 748 or senior standing.

*850. Contemporary Problems in Criminal Justice. Lectures on contemporary issues in the criminal justice area. Topics are announced prior to enrollment. Prereq.: Senior standing or permission of instructor.

4 q.h.

865. Gathering and Using Information in Criminal Justice. Specialized communication skills to prepare criminal justice practitioners in information-gathering techniques, written presentation techniques, verbal and nonverbal communication skills within constitutional guidelines. Prereq.: CRJUS 712 or CRJUS 765.

870. Law Enforcement Administration. Detailed examination of the administration of line and staff services of law enforcement agencies and the role of technology in administration. Prereq.: CRJUS 715.

4 q.h.

875. The Juvenile Justice System. An in-depth analysis of the specialized agencies and procedures developed to deal with problems of juveniles from a historical and philosophical perspective. Consideration is given to the juvenile court, community-based programs, as well as to institutionalization. Prereq.: Senior standing.

890. Judicial Administration. Court management is studied in light of structure, judicial responsibility and the inherent power of the courts. Consideration is given to case flow, case management, automation and judicial staffing. Prereq.: CRJUS 602 and senior standing or instructor's permission. 4 q.h.

CSCI—COMPUTER SCIENCE

Lower-Division Courses

*560. BASIC Programming. An introduction to computer programming on microcomputers. A structured version of BASIC will be used. Topics will include array processing and input/output. Not applicable to the Computer Science major. Prereq.: MATH 505 or equivalent. 4 q.h.

610L. Programming Laboratory. Introduction to the use of a computer terminal in the creation and manipulation of files. Two hours per week. Designed to accompany CSCI 610 for those who desire instruction in use of terminals. Concurrent CSCI 610.

*620. Assembly Language and Instruction Set Architecture. A general study of basic computer structures, data representation, addressing techniques, instruction execution, and machine language. Symbolic coding and assembly systems, macro definition and generation, and program segmentation and linkage. Absolute and relocatable loaders, I/O structures. Prereq.: CSIS 617 or equivalent. 4 q.h.

*650. Language Topics. Intensive language courses with emphasis on writing efficient programs in a particular programming language. Each language topic is open only to students without previous credit in that particular language. The language topic and special prerequisites will be announced in advance. Prereq.: varies by topic or permission of instructor.

2-4 q.h.

*690. Individual Study in Computer Programming. Individual study of a computer language. The instructor will be available for consultation and will evaluate the student's progress. The CR/NE grading system will be used. May be repeated twice with consent of the chair of the department. 2 q.h.

Upper-Division Courses

*701. Computer Programming 3. Advanced programming techniques for design and implementation of large programs. Object-oriented design and programming, including classes, inheritance, and polymorphism. Introductory software engineering techniques for program development, specification, documentation, verification, and user interface design. Prereq.: CSIS 617.

 710. Introduction to Discrete Structures. Basic set theory, including functions and relations. Boolean algebra, propositional logic, regular expressions, and finite automata. Prereq.: CSIS 610 or equivalent, and MATH 673. 4 q.h.

*730. Computer Graphics. Techniques of computer raster graphics, including scan conversion, two-and three-dimensional clipping and windowing, transformations and viewing in 3D. Algorithms and more advanced topics will be surveyed. Listed also as CIS 730. Prereq.: CSIS 617 and MATH 572 or equivalent.

*731. User Interface Design. The design, implementation, and evaluation of human-computer interfaces. Emphasis on practical applications of guidelines to modern multimedia and graphical user interfaces. Listed also as CIS 731. Prereq.: CSIS 610. 4 q.h.

740. Computer Logic and Organization. Fundamentals of logic design, digital components, instructions design, arithmetic operations, processor (CPU) and control unit design, memory systems, and input/output. Optional topics include performance evaluation, pipelining, and survey of parallel processors. Prereg.: CSCI 620 and 710. 4 q.h.

*750. Advanced UNIX and C Programming. Use of UNIX programming environment and associated tools and utilities. Command language programming. Systems programming with ANSI C. May include UNIX internals and system administration. Prereq.: CSCI 620 or consent of instructor. 4 q.h.

*770. Survey of Programming Languages. A survey of several programming languages. Languages surveyed may include Ada, Modula-2, C, LISP, and SNOBOL. Prereq.: CSCI 701.

*780. Microcomputer System Software. Programming microprocessor based systems using assembly language. Study of addressing techniques, machine language, program segmentation and linking on microcomputers. Prereq.: CSCI 620.

*801. Software Engineering. Developing and maintaining complex software systems. Process and life-cycle models, and tools for software development (such as CASE). Specification methods, prototyping, validation and verification strategies, and version maintenance. Management of the system development process. A group project is required. Prereq.: CSCI 701 and 710, or consent of instructor. 4 q.h.

*805 Systems Programming. Topics selected from aspects of systems programming, including assemblers, loaders, linkage editors, macro processors, and file management systems. Prereq.: CSCI 701.

4 q.h.

*806. Operating Systems. Study of the various components of operating systems including kernels and monitors, concurrency and parallel processing, processor management, storage management, device management, I/O processing and file management. Prereq.: CSCI 805 or permission of instructor.

*807. Compiler Design . Study of compiler design and construction, including context-free languages, lexical analysis, parsing, code generation and optimization. Prereq.: CSCI 710 and 805, or consent of instructor.

*814. Computer Architecture. A continuation of the study of high-performance sequential computer architectures begun in CSCI 740. Topics include performance evaluation, instruction set design, processor implementation techniques, pipelining, vector processing, memory hierarchy design, and parallel architectures. Prereq.: CSCI 740. 4 q.h.

*817. Communication Networks. Study of network structures and topologies, international standards, models, communication media and protocols, hardware and software. Prereq.: CSCI 710 and MATH 743, or consent of instructor.

*819. Parallel and Distributed Computing. A survey of current development of parallel processing with emphasis on parallel programming. Topics include parallel architectures, inter-connection networks for inter-processor communication, parallel sorting/searching algorithms, parallel constructs for parallel programming paradigms, and implementation of the algorithms in a parallel language. Prereq.: CSCI 740 or permission of instructor.

*820. Simulation. Methods for modeling discrete event systems by algorithmic approaches using simulation languages. Prereq.: CSCI 620 and one of MATH 714 or 743, or permission of instructor.

*830. Advanced Computer Graphics. A thorough investigation of graphics algorithms. Topics will include hidden surface removal, parametric curves, lighting, shading, and texturing. An implementation of a graphics project is required. Prereq.: CIS/ CSCI 730 and MATH 725. 4 q.h.

*831. Virtual Reality Systems. An investigation into the use, design, implementation, and evaluation of virtual reality interfaces. Experience with VR systems using both 2D projection and stereoscopic display and other systems. Students will work in multidisciplinary groups. Listed also as CIS 831. Prereq.: CIS/CSCI 730. 4 q.h.

*835. Artificial Intelligence. Study of the theory and application of intelligent systems. Topics may include general problem-solving techniques, knowledge representation and expert systems, vision and perception, natural language processing. AI systems and languages. Prereq.: CSCI 701 and 710, and MATH 725.

840. Theory of Finite Automata. The structural and behavioral aspects of finite automata. Prereq.: CSCI 710 and MATH 725. 4 q.h.

*855. Database Design and Information Retrieval.
Study of physical database storage, relational and object data modeling, logical database design (normalization process), and structural query languages.
Prereq.: CSCI 710.

*860. Programming Language Structures. Systematic approach to the study of the structures of programming languages. Formal descriptions, syntax, semantics and technical characteristics. Prereq.: CSCI 705 and 750.

*870. Data Structures and Algorithms . Study and application of analysis and design techniques to non-numerical algorithms. Topics selected from algorithms acting on sets, trees, graphs; memory management; notions of complexity and related areas. Prereq.: CSCI 701 and 710.

*875. Computer-Assisted Instruction (CAI). Introduction to CAI components: questioning episodes, formal answer processing, types of responses, types of trials, analysis of algorithms, and a description of authoring usages. Not applicable to the CSCI major. Prereq.: CSCI 701 or consent of instructor.

4 q.1

*881. Microcomputer System Architecture. A state-of-the-art course on microcomputer architecture. Topics will include introduction to microcomputer systems, 16 and 32 bit microprocessors, direct memory access and other I/O transfer schemes, architecture of I/O processors, introduction to computer communications. Prereq.: CSCI 740 and 780.

4 q.h.

*885. Evaluation of Educational Software and Hardware 1. A critical analysis of educational software for various academic disciplines and grade levels. The use of evaluative forms and the study of existing review criteria. Analysis and evaluation of hardware alternatives, peripheral devices, networking, and hardware expansions in an educational setting. Not applicable to the CSCI major. Prereq.: CSCI 701 or consent of instructor. 4 q.h.

*886. Evaluation of Educational Software and Hardware 2. A continuation of the analysis and evaluation of educational software and hardware begun in CSCI 885. The emphasis in this course will be on equipment used in grades K - 6. Not applicable to the CSCI major. Prereq.: CSCI 885. 4 q.h.

890. Computer Projects. Individualized study of a topic in computer science culminating in a written report and an oral presentation. May be repeated

up to 10 quarter hours. Prereq.: 36 q.h. of computer science applicable to the minimum requirements for a computer science major.

2-5 q.h.

893. Computer Science Internship. An academic/industrial experience which the student works as part of a Data Center's programming group for a quarter. The student intern will be employed for at least 20 hours per week. Each student will have a faculty advisor and an industrial advisor who will periodically review the student's work as an intern. A written report on the internship must be submitted by the student. For a computer science major, internship hours may be applied only to the technical electives requirement. May be repeated once with permission of the department chair. Prereq.: 24 quarter hours of computer science including CSCI 701 and permission of the department internship supervisor.

*895. Special Topics. A study of special topics in computer science. May be repeated up to 10 quarter hours. Subject matter, credit hours and special prerequisites will be announced in advance. Prereq.: Permission of instructor. 2-5 q.h.

CSIS—COMPUTER SCIENCE AND INFORMATION SYSTEMS

Extensive reorganization has placed the beginning sequences of classes in a new area designated CSIS, which contains non-major courses and core courses for majors and minors. Some courses are replacements for previous courses; for example, CSIS 500 replaces CSCI/CIS 520, CSIS 514 replaces BIS 514, and CSIS 590 replaces CSCI/CIS 540. A complete list of replacements is available in the department office in Meshel Hall.

*500. Computer Literacy. A survey of computer concepts and applications. Network access and electronic mail. Emphasis on software applications packages available for microcomputers, including word processing. Not applicable to the CSCI majors.

4 q.h.

*510. Global Electronic Information Resources . A survey of concepts and tools relating to communicating and gathering information on the Internet. Electronic mail, newsgroups, on-line services, and the World Wide Web. Using internet and web search tools to locate sites, and to retrieve and evaluate information. Creating home pages on the World Wide Web. Basic telecommunication, hypermedia, and ethical concepts. Prereq.: CSIS 500 or equivalent.

*514. Business Computer Systems. Hands-on business software, with emphasis on operating systems, word processing, database and spreadsheet applications. 4 q.h.

*525. Survey of Modern Operating Systems . An introduction to the common operating systems cur-

rently used by computers, such as DOS, Microsoft Windows, UNIX, and X-windows. Topics include setting up the user's work environment, file manipulation, and other commands. Not applicable to the CIS or CSCI major. Prereq.: CSIS 500 or equivalent.

*550. Survey of Language Topics. Introductory language courses with the emphasis on writing structured programs in a particular computer language. The language topic and special prerequisites will be announced in advance. Not applicable to the CIS or CSCI major. Prereq.: varies by topic or permission of instructor. 4 q.h.

*580. Technical Presentation and Communication . Tools and techniques for presentation of information in a computer-based environment. Introduction to slide-making, graphics, and multimedia software. Methods for gathering information and determining requirements, and for designing and critiquing presentations. Prereq.: CSIS 500 or equiva-4 q.h.

*590. Survey of Computer Science and Information Systems. Concepts, theory, and contemporary issues underlying the computing sciences. Introduction to computer applications, the YSU computing environment, the use of communication and information networks, and basic problem-solving techniques using computers. This course is intended for CSIS majors and minors. Prereq .: CSIS 500 or equivalent, and MATH 505 or equivalent. 4 q.h.

*602. Programming in C. Programming concepts and techniques, with an emphasis on scientific and engineering applications. An accelerated survey of the C programming language and an introduction to the UNIX programming environment. Not applicable to the CIS or CSCI major. Prereq.: CSIS 500 or equivalent, and MATH 525 or equivalent.

*610. Programming and Problem-Solving . Problem-solving methods and algorithms using a highlevel programming language. Designing, coding, debugging, and documenting programs using techniques of good programming style. 4 hours lecture and 2 hours lab. Prereq.: CSIS 590 or equivalent.

5 q.h.

*617. Data Structures. Continuation of program design, style and expression, testing and debugging, for larger programs. Theory and application of data structures, including linked structures, trees, networks, and graphs. Prereq.: CSIS 610. 4 q.h.

DDT—DRAFTING AND DESIGN TECHNOLOGY

*602. Civil and Architectural Drafting. Drafting associated with environmental designs such as land surveys, highways, and plot plans. Architectural symbols, foundations, and floor, wall, and roof systems. Three hours of lecture and three hours of laboratory per week. Prereq.: DDT 605. 4 q.h.

*603. Piping & HVAC CAD. The basic principles and drafting techniques used to design and represent mechanical building systems and process piping. Application of techniques on computer-aided drafting system. Three hours lecture and three hours lab per week. Prereq.: DDT 605 or equivalent.

4 q.h.

*605. CAD Technology 1. Basic instruction in the use of the AUTOCAD computer-aided drafting system. Includes primary 2D commands including layers, blocks, plotting and an introduction to attributes and 3D. Three hours lecture, three hours lab per week. Prereq.: MECH 500 or equivalent or permission of instructor.

*606. CAD Technology 2. Includes more advanced features of AUTOCAD and some customization techniques. Menu and toolbar creation, introduction to use of programming languages and integration of AUTOCAD with other windows-based applications. Three hours lecture, three hours lab per week. Prereq.: DDT 605.

607. CAD Technology 3. Use of programming languages within AUTOCAD. Creating and editing of surface and solid models. Advanced display control methods. Three hours lecture and three hours lab per week. Prereq.: DDT 605. 4 q.h.

*608. Machine Elements. Design and drafting of machine elements common to mechanical equipment, including bending, torsion and bearing concepts. Application and interpretation of GD & T. Three hours lecture and three hours lab per week. Prereq.: CET 604 or equivalent.

609. Industrial Technology. Materials planning and handling, applications of quality assurance, post production control. Introduction to ergonomics and manufacturing standards. Two hours of lecture and four hours lab per week. Prereq.: MET 630.

4 q.h.

610. Manufacturing Elements. Mechanical power transmission, mechanisms and linkages. Also hydrostatics, system losses, interpretation and analysis of hydraulic and pneumatic schematics. Three hours lecture and three hours lab per week. Prereq .: MET 516.

DENHY—DENTAL HYGIENE

500. Dental-Medical Emergencies. Instructions on medical diseases and conditions in relationship to dental procedures. Prereq.: Permission of director.

2 q.h.

*501. Dental Hygiene 1. An introduction to dental hygiene and its role as an integral part of the dental health profession. Prevention of disease transmission through sterilization and asepsis is also discussed. Medical/dental history, vital signs, and oral inspection are discussed and periodontal disease is introduced. Prereq.: Admission to Dental Hygiene program. 3 q.h.

- *501L. Clinical Dental Hygiene 1. A detailed clinical study of planning patient care, patient preparation and positioning the dental chair, and principles of dental instrumentation. Six hours laboratory per week. Prereq.: Admission to Dental Hygiene program.

 2 q.h.
- *502. Dental Hygiene 2. Discussion of individualized patient education instruction, the appropriate preventive dental agents and devices, and the techniques for utilization. Prereq.: DENHY 501. 2 q.h.
- *502L. Clinical Dental Hygiene 2. Clinical application of dental hygiene techniques. Services include oral prophylaxis, fluoride application, and patient education. Nine hours of clinic per week. Prereq.: DENHY 501L. 3 q.h.
- 503. Dental Hygiene 3. Discussion of modified dental hygiene procedures as it relates to special needs dental patients. Presentation of specialized areas of dentistry to which dental hygiene services are closely allied. Prereq.: DENHY 502. 2 q.h.
- *503L. Clinical Dental Hygiene 3. Clinical application of dental hygiene techniques. Oral prophylaxis, radiographs, fluoride application, and patient education. Nine hours of clinic per week. Prereq.: DENHY 502L. 3 q.h.
- *520. Dental Anatomy. Numbering systems of permanent and primary dentitions, basic terminology of hard and soft oral structures, the anatomy of the head and neck, and the physiology and function of primary and permanent teeth and the stomatognathic system. Prereq.: Permission of director.
- *520L. Dental Anatomy Lab. Applied study of individual tooth morphology through the recognition and identification of natural teeth, and by tooth drawings. Practical application of the didactic study of head and neck anatomy in the examination of actual hard structures of the skull. Prereq.: Permission of director.
- 525. Oral Histology And Embryology. Introduction to the microscopic structure of the body by simple discussion of the cell concept, normal and abnormal tissues, and the embryonic development of the face and the oral cavity. Prereq.: DENHY 520. 3 q.h.
- 530. Dental Radiology. Radiographic theory, techniques, and use of diagnosis in prevention of dental and related diseases. History and development of radiographs, hazardous effects of radiation, and methods of protection.
- *530L. Dental Radiology Lab. The techniques necessary to expose, develop, and mount dental films. Three hours of laboratory a week. 1 q.h.
- 535. General and Oral Pathology. The cause and nature of disease, together with anatomical and functional changes. The observation and progress of disease in the human as related to diagnosis and treatment-planning by the dentist. Special emphasis is given to oral pathology.

 3 q.h.

- 601. Comprehensive Dental Hygiene Care. Application of practical knowledge of nutrition science to patient evaluation and education as related to clinical dental hygiene. Continuing emphasis on comprehensive dental hygiene care and dental health education. DENHY 503. 2 q.h.
- 602. Pain Control. An in-depth study of patient management and pain control in dentistry. Prereq.: DENHY 601. 2 q.h.
- 603. Dental Office Management. The study of dental office management and business administration. Discussion of responsibilities and changing roles of the dental hygienist. Prereq.: DENHY 602. 2 q.h.
- *604. Dental Hygiene 4 Seminar. An in-depth seminar dealing with comprehensive dental hygiene care of both adult and child patients. Identification, assessment and treatment of periodontal patients will be emphasized. Must be taken concurrently with DENHY 604L. Prereq.: DENHY 503. 1 q.h.
- *604L. Clinical Dental Hygiene 4. Continued clinical experience with the addition of periodontal patients. Introduction of oral irrigation and the ultrasonic scaler. Twelve hours of clinic per week. Must be taken concurrently with DENHY 604. Prereq.: DENHY 503L. 4 q.h.
- *605. Dental Hygiene 5 Seminar. An in-depth seminar in treatment planning for compromised patients. Emphasis on clinical skills and infection control. Preparation for the clinical board examination. Must be taken concurrently with DENHY 605L. Prereq.: DENHY 604.
- *605L. Clinical Dental Hygiene 5. Continued clinical experience. Completion of one practical patient in addition to a specified number of periodontal patients. Use of ultrasonic scalers and oral irrigation continued. Sealant and amalgam polishing patients required. Twelve hours of clinic per week. Must be taken concurrently with DENHY 605. Prereq.: DENHY 604L.
- *606. Dental Hygiene 6 Seminar. An in-depth seminar in advanced clinical procedures. Concentration on patient and time management, ethics and professionalism. Case presentation of a periodontal patient. Must be taken concurrently with DENHY 606L. Prereq.: DENHY 605.
- *606L. Clinical Dental Hygiene 6. Continued clinical experience. Completion of all clinical requirements at exit level proficiency. Emphasis on professionalism, patient and time management as well as comprehensive dental hygiene care. Must be taken concurrently with DENHY 606. Prereq.: DENHY 605L.
- 611. Dental Materials. The sources, physical properties, methods of manufacturing, and uses of various dental materials. Two hours of lecture a week. Prereq.: Second-year standing in DENHY Program.

- *611L. Dental Materials Lab. Selected dental materials are manipulated in laboratory procedures so that the student will be able to assist the dentist at the chair as well as perform certain laboratory procedures and specified clinical duties. Three hours of laboratory a week. Prereq.: Second-year standing in DENHY Program. 1 q.h.
- 620. Periodontics 1. Introduction to Periodontics for the dental hygienist. Etiology, clinical manifestations, classification of periodontal disease, and treatment-planing. The hygienist's role in its prevention through patient education. Prereq.: DENHY 535.
- 621. Periodontics 2. Surgical techniques, root planing, curettage, and periodontal maintenance therapy will be presented and discussed. Prereq.: DENHY 620. 2 q.h.
- *625. Dental Public Health. An introduction to public health dentistry, including study of the epidemiology of dental disease. Particular attention is given to preventing and controlling dental disease and promoting optimal oral health through organized community efforts. Prereq.: DENHY 601.

2 q.h.

- *625L. Dental Public Health Practicum 1. Primary preventive dental services will be provided by students in off-campus locations. Three hours of laboratory and/or clinical experience per week. Prereq.: DENHY 604L. 1 q.h.
- *626L. Dental Public Health Practicum 2. Primary preventive dental services will be provided by students in off-campus locations. A case-study design is used by student teams in solving a community oral health problem. Three hours of laboratory and/or clinical experience per week. Prereq.: DENHY 625.
- 641. Ethics and Jurisprudence. The historical, professional, legal and ethical aspects of dental hygiene and dentistry. Prereq.: DENHY 601. 1 q.h.

ECON—ECONOMICS

Lower-Division Courses

- 510. Economics in Action. An introduction to the United States' economic system and institutions through the examination of current economic problems. Not applicable for a major or minor in economics.

 4 q.h.
- 610. Principles 1: Microeconomic Theory and Policy. Introduction to supply and demand analysis. The theories of perfect competition and imperfect competition as applied to the markets for goods, services, and labor. Effects of taxes and government regulation of markets on price and output. Students who have completed ECON 621 or ECON 530 will not receive credit for this course. Prereq.: MATH 505 or high school Algebra 2 or equivalent.

- *624. Economics and Social Statistics 1. Probability theory with emphasis upon uncertainty in estimating parameters and testing hypotheses. Evaluation, single-sample estimating. Prereq.: Sophomore standing.
- 630. Principles 2: Macroeconomic Theory and Policy. The methods of national income accounting and measurement of economic performance. Theories of inflation, unemployment, and economic growth; the banking system; and the effectiveness of government monetary and fiscal policies in the control of inflation and unemployment. Students who have completed ECON 520 will not receive credit for this course. Prereq.: ECON 610. 4 q.h.
- 632. Principles 3: International Economics. Determinants of a nation's exports and imports of goods and services. The effects of free and restricted international trade on a nation's welfare, income, and employment structure. Balance of payments problems, exchange rate regimes and currency unification. International investment and regional development. Students who have completed ECON 622 will not receive credit for this course. Prereq.: ECON 630.
- 650. Environmental Economics and Policy. Economics of resource depletion and environmental damage. Evaluation of conservation strategies, pollution control policies; cost-benefit analysis in the policy making process. The use of science and economic analysis in the creation of environmental law. Prereq.: ENST 600, ECON 510, or ECON 610.4 q.h.

Upper-Division Courses

- 701. Money and Banking. Organization and operation of commercial banking in the United States; central banking under the Federal Reserve System; basic theory. Monetary policy as a determinant of national income. Prereq.: ECON 630. 4 q.h.
- 702. Public Finance. The development and present status of public finance; federal, state, and local expenditures and taxation; theories of tax incidence, axioms of taxation, theories in justification of taxation and government spending; tax reform. Study of the techniques of fiscal policy with emphasis on its role as a determinant of the level of national income. Prereq.: ECON 610. 4 q.h.
- *705. Economics and Social Statistics 2. Continuation of estimating and testing using small sample techniques. Correlation, simple and multiple regression, time series, index numbers, nonparametric statistics, and introduction to decision theory. Prereq.: ECON 624.
- 707. Economics for Engineers. A study of American manufacturing: The evolution of major industries, and their technological and economic growth, maturity, current problems, and outlook for the future. Prereq.: ECON 610 and MATH 673. 4 q.h.
- 709. Mathematical Economics. A course designed to give students of economics a mathematical back-

ground with special emphasis on the theory of functions of real variables, fundamentals of differential and integral calculus as applicable to the macro-and micro-economic theory. Prereq.: ECON 630 and MATH 550.

710. Intermediate Micro-Economic Theory. A systematic analysis of the theory of demand and the theory of the firm: production input and output choices, and some basic concepts of linear programming. An intensive analysis of the theory of the firm: competitive pricing; monopoly pricing; pricing in imperfect competition; and the theory of rent, profits, interest, and wages. Prereq.: ECON 610 and either ECON 709 or MATH 550.

712. Intermediate Macro-Economics. The construction of national income and production accounts and the basic determinants of income, output, and employment. Determination of the level of employment, interest, and money through the classical versus Keynesian aggregative economics. Prereq.: ECON 632 and either ECON 630 or MATH 550.

720. Comparative Economic Systems . An examination of the recent world-wide trend toward free market economy, giving particular attention to basic processes such as resource allocation and product distribution. Frequent references will be made to the failure of Socialism in the USSR and the new approach in Russia, Eastern Europe and China toward market economies. Credit for 720 will not be given to students 802. Prereq.: ECON 630 or junior standing.

731. Women in the Labor Market. An examination of the reasons why women's and men's labor market outcomes differ. The course will examine issues such as occupational segregation, wage discrimination, the glass ceiling effect, and affirmative action. Prereq.: ECON 610 or junior standing.

4 q.h.

801. Economics of Industrial Organization. A systematic analysis of the structure, conduct, and performance of American industry. A quantitative analysis plus a comprehensive review of theoretical models of the market, firm behavior, and performance. Prereq.: ECON 610 and junior standing.

803. Economics of Regulation. Study of the theory of government intervention in markets. Topics include: the application of antitrust laws and the involvement of regulatory institutions in issues on public policy, and the theory of economic and social regulation. Prereq.: ECON 801 and junior standing.

806. History of Economic Thought. This course is designed to provide students with an understanding of the development of economic ideas to include: Mercantilism, Physiocrats, the English Classical School, Utilitarianism, Early Socialist Thought, Karl Marx, the German Historical School, Institutionalists and the Keynesian School. Prereq.: ECON 630 and junior standing.

807. Economic Development. Analysis of developing economies, particulary Africa, Asia and Latin America. Prereq.: ECON 630 and junior standing. 4 q.h.

808. Money and Banking 2. Procedures employed by financial institutions to assess and manage default, market, and call risk. Determination of interest rates, misintermediation, securitization, markets for derivative securities, and markets for collateralized mortgage obligations. Prereq.: ECON 701.

4 q.h.

809. Current Problems in Money, Banking, and Financial Markets. The financial market system, including money and capital markets. Current problems are associated with trends in theory and practice. Theories of the interest rate and monetarism. Prereq.: ECON 701 or consent of the instructor.

4 q.h.

810. Managerial Economics. An application of economic analysis to business problems. Emphasis upon executive decisions for the allocation of resources. Prereq.: ECON 610 and junior standing.

4 q.h.

811. International Trade. Theories of international trade and specialization; free trade v. protectionism; tariff and non-tariff barriers to international trade; international balance of payments and its components; the role of multinational enterprises in contemporary trade pattern; regional economic integrations and world trade; U.S. commercial policies. Prereq.: ECON 630 and junior standing. 4 q.h.

812. International Finance. Theories of foreign exchange and capital movements, international payments, analysis of spot and forward foreign exchange markets, foreign exchange market arbitrage, speculation, and risk hedging. The Bretton Woods agreement and the contemporary international monetary system. The rise of international organizations and multinational enterprises in the international economy. Prereq.: ECON 630 and junior standing.

813. Resource and Environmental Economics. The economic analysis of depletable, renewable, and inexhaustible resources worldwide. An examination of the limits to growth debate. The regulation of domestic and international markets for fuels. Problems of a throughput economy and transition to a steady-state economy. Prereq.: ECON 610 or 650 and junior standing.

820. Regional Economic Analysis. Techniques for measuring the growth or decline of economic activity in small-area economies. Topics include economic base analysis, input-output applications, economic modeling and forecasting, and theory of location and agglomeration. Prereq.: ECON 610 and junior standing.

822. *Urban Economics*. Economic analysis of the problems of urbanized areas, using benefit-cost and micro-economic techniques. Prereq.: ECON 632 and one of the following: 624, 702, or consent of the instructor.

*824. Applied Time Series Analysis of Economic and Business Data. An in-depth analysis of time series models and their applications to problems in economics and business. Emphasis on forecasting. Extensive use of standard computer programs. Prereq.: ECON 610 and 705.

*825. Economic and Business Data Analysis. An introduction to the applications of various data analysis techniques for confirming as well as exploring structural relationships among social and economic variables. Topics include interpretation of multiple regression and analysis of variance results, discriminant analysis and canonical correlation, principal component analysis, factor analysis, and others. The course emphasizes the correct uses of these techniques and the analysis of computer printouts using computer-program packages. Prereq.: ECON 610 and 705.

831. Labor Markets. Economic theory and analysis of labor as an input in the resource market; principles, labor problems, public policy; theories of the development of the labor movement; economic objectives of trade unions; problems in public control. Prereq.: ECON 610 and junior standing. 4 q.h.

833. Collective Bargaining and Arbitration. Marginal productivity theory as a restraint in labor negotiations; bargaining theory and practice; utilization of third-party facilitators; government intervention and control. Cross-listed as LREL 833. Prereq.: ECON 610 and junior standing.

843. Equal Employment Opportunity and Income Security. Public policy related to discrimination in hiring, pay and fringes, training, promotion, and retention of the legally-protected classes. Crosslisted as LREL 843. Prereq.: ECON 610 and junior standing.

850. Introduction to Decision Analysis. The study of rational decision-making under economic uncertainty: theory of utility, value of information, normal and extensive analysis, sampling. Bayesian Analysis. Prereq.: ECON 610 and 624 and junior standing.

*853. Applied Econometrics. Construction and estimation of economic models with public and business applications, using standard computer programs. Programming ability not required. Prereq.: ECON 630 and 705.

*854. Computational Economics. The use of economic theory, operations research (OR) methods, and computer applications to model and solve economic problems. The OR methods include linear, nonlinear, integer, and dynamic programming; transportation analysis, and input-output analysis as they relate to the optimization problems of firms, consumers, and financial institutions. Analytics will emphasize economic understanding and policy implications of the solutions. Prereq.: MATH 550 or 571; and MATH 642 (or equivalent).

855. Health Economics. This course applies basic economic principles to the study of the health care industry. Topics include the supply and demand of medical care, the effects of private and public insurance on the health care industry, trends in health care costs, public policies to equalize access to medical care and the dilemma caused by the improvement in life-sustaining technology. Prereq.: ECON 610 and junior standing.

870. Economics Internship. The practical application of economic knowledge and statistical skills in the workplace. Students will assist professionals in various kinds of industrial, financial, and public service organizations. Prereq.: ECON 705. By permit only. Minimum 2.5 gpa.

2-4 q.h.

880. Analysis of Economic Problems. The application and extension of the student's skills in economic analysis and statistical techniques to economic issues. The course will cover sources of data, exploratory data techniques, matching of data and statistical tests, interpretation and presentation of results. Students will demonstrate their command of research techniques by the completion of a research paper and its oral presentation. Topics to be determined. Prereq.: ECON 705, 710 and 712.4 q.h.

899. Individual Study in Economics. Individual study of a topic, area, or problem requiring in-depth reading, and a written project. May be repeated once with a different topic, area, or problem. Prereq.: Junior or senior standing, and consent of instructor and department chair.

2-5 q.h.

EET—ELECTRICAL ENGINEERING TECHNOLOGY

501. Circuit Theory 1. Fundamental electrical definitions and units; electrical energy sources, Ohm's Law, Kirchoff's Laws; analysis of direct current circuits; network theorems; magnetic circuits and permanent magnets. Prereq.: MATH 505, STECH 505. 3 q.h.

*501L. Circuit Theory 1 Laboratory. The use of instruments; measurements of resistance; effect of length, cross section, and material on resistance; measurement of voltage, currents, and power in DC series and parallel circuits; network theorems. Three hours a week. Taken concurrently with EET 501. (W, SP).

502. Circuit Theory 2. Analysis of elementary magnetic circuits; capacitance; inductance; analysis of simple RC and RL transient circuits; alternating current and voltage; average and effective values; phasor representation of sinusoidal waveforms; phasor algebra, impedance. Prereq.: EET 501. Prereq. or concurrent: MATH 520.

*502L. Circuit Theory 2 Laboratory. Experiments of the measurement of inductance and capacitance; simple transient circuits; hysteresis curves; average

and effective values; AC impedance. Three hours of laboratory per week. Taken concurrently with EET 502. 1 q.h.

503. Circuit Theory 3. Analysis of AC circuits (steady state solution); phasor diagrams; network theorems; power, power factor; series and parallel resonant circuits; polyphase circuits; mutually coupled circuits. Prereq.: EET 502. Prereq. or concurrent: MATH 570.

*503L. Circuit Theory 3 Laboratory. The measurement of voltage, current and power in AC single-phase series and parallel circuits; resonant circuits mutually coupled circuits. Three hours a week. Taken concurrently with EET 503. 1 q.h.

605. Electronics 1. The physical basis for semiconductor devices; the semiconductor diode and common diode circuits; the Zener diode and voltage regulator circuits; the bipolar-junction transistor and biasing circuits. Prereq.: EET 502. Concurrent with EET 605L. 3 q.h.

*605L. Electronics Laboratory. Instruction on the use of the oscilloscope and the voltohmmilliammeter; experiments involving semiconductor diodes, power supplies, clippers and clampers, and Zener diode regulators. Three hours of laboratory per week. Taken concurrently with EET 605.

606. Electronics 2. Transistor h-parameters and the analysis of transistor amplifiers; decibels, frequency response, Miller effect and the transistor switch; circuits used in linear ICs; the design and analysis of IC operational-amplifier circuits. Prereq.: EET 503, EET 605. Concurrent with EET 606L.

3 ah

*606L. *Electronics 2 Laboratory.* Experiments involving the measurement of transistor parameters; the construction and testing of several types of transistor amplifiers; time measurements of a switching circuit, and the uses of the modern IC operational amplifier. Three hours of laboratory per week. Taken concurrently with EET 606. 1 q.h.

607. Electronics 3. Linear oscillator circuits; the field-effect transistorits parameters and common circuits; the SCR and its common circuits; optoelectronic devices; display technology; electronic noise; negative-feedback amplifiers; filters; cathode-ray tubes and switching regulators. Prereq.: EET 606. Concurrent with EET 607L. 3 q.h.

*607L. Electronics 3 Laboratory. Experiments involving several types of oscillators; measurements of and use of the field-effect transistor; the voltage regulator and the SCR. Three hours of laboratory per week. Taken concurrently with EET 607.1 q.h.

610. Direct Current Machines. Construction and principles of operation of DC motors and generators; characteristics, efficiency, control, and associated equipment; specialized DC machines. Prereq.: EET 502. 3 q.h.

*610L. Direct Current Machines Laboratory. Experiments with direct current machinery, characteristics, operation, efficiency, control. Three hours per week. Taken concurrently with EET 610. 1 q.h.

611. Alternating Current Machines . Transformer construction design; standards, operational characteristics; three-phase transformers; alternators; induction, synchronous, and single-phase motors. Prereq.: EET 503, 610.

*611L. Alternating Current Machines Laboratory. Experiments with transformers, alternators; induction and synchronous motors. Three hours per week. Taken concurrently with EET 611. 1 q.h.

612. Introduction to Programmable Logic Controllers. Introduction to ladder logic programming & programmable logic controllers. Examination of I/O device characteristics and interfacing; analog and digital I/O; installation, maintenance, and safety practices. Prereq; EET 611, EET 606, EET 620. Concurrent with EET 612L. 3 q.h.

*612L. Programmable Logic Controllers Laboratory. Exercises in PLC programming using the concepts developed in EET 612. Three hours of laboratory per week. Taken concurrently with EET 612.

1 q.h.

620. Digital Fundamentals. An introductory study of number systems and conversions, codes, Boolean algebra, and logic gates. Includes Boolean function simplication, truth tables, Karnaugh maps, and combination circuits. Prereq.: MATH 570.

3 q.h.

*620L. Digital Fundamentals Laboratory. Experiments utilizing digital integrated circuits to implement various logic functions discussed in EET 620 lecture. Taken concurrently with EET 620. Three hours of lab per week.

*625 and *625L. Electrical Systems 1 and Laboratory. A survey of the major topics in electrical circuits, electronics, and electromechanics. Emphasis on AC/DC networks and magnetics. Three hours of lecture and three hours of laboratory per week. Prereq.: MATH 570.

645. Microprocessor Systems 1. An introduction to microprocessor architecture and organization. Emphasis on machine/assembly language programming. Prereq.: EET 620 or CIS 500. Concurrent with EET 645L. 4 q.h.

*645L. Microprocessor Systems 1 Laboratory. Laboratory exercises utilizing a microcomputer to provide practical applications of concepts developed in EET 645. Three hours laboratory per week. Taken concurrently with EET 645.

710. Networks. An introduction to the Laplace transform and its application to the analysis of electrical networks, including coupled circuits, filters, attenuators, and equalizers. Prereq.: EET 503; Prereq. or concurrent: MATH 770. Concurrent with EET 710L.

*710L. Networks Laboratory: Laboratory exercises dealing with applications of concepts developed in EET 710. Three hours of laboratory per week. Taken concurrently with EET 710. 0 q.h.

720. Pulse Circuit Design. A study in the analysis and design of active circuits employed in electronic switching applications and in the generation of nonsinusoidal waveforms. Prereq.: EET 607. Concurrent with EET 720L.

*720L. Pulse Circuit Design Laboratory. Laboratory exercises dealing with applications of concepts developed in EET 720. Three hours of laboratory per week. Taken concurrently with EET 720.0 q.h.

725. Electrical Systems 2. A continuation of EET 625 with emphasis on AC/DC machinery, electronics, and controls. Prereq.: EET 625. 4 q.h.

730. Logic Systems Design. To study the characteristics and applications of integrated circuit logic families and various memory devices. Emphasis on the design of digital systems with SSI, MSI, and LSI as system components. Prereq.: EET 605, EET 620. Concurrent with EET 730L.

*730L. Logic Systems Design Laboratory. Laboratory exercises dealing with applications of concepts developed in EET 730. Three hours of laboratory per week. Taken concurrently with EET 730.

0 q.h.

745. Microprocessor Systems 2. Continuation of EET 645 with emphasis on advanced programming techniques, memory mapping, I/O ports, and basic I/O interfacing. Prereq.: EET 645, EET 607. Concurrent with EET 745L. 4 q.h.

*745L. Microprocessor Systems 2 Laboratory. Laboratory exercises utilizing a microcomputer to provide practical applications of concepts developed in EET 745. Three hours laboratory per week. Taken concurrently with EET 745.

750. Industrial Controls. Introduction to motor control principles and hardware. Examination of motor start-up and speed control systems, as well as overload protection. Emphasis on solid-state logic control using programmable controllers as well as variable frequency ac motor drives. Prereq.: EET 607, 611, 620. Concurrent with EET 750L. 4 q.h.

*750L. Industrial Controls Laboratory. Laboratory exercises dealing with applications of concepts developed in EET 750. Three hours of laboratory per week. Taken concurrently with EET 750. 0 q.h.

760. Variable Speed Drive Fundamentals. Introduction to electronic speed control of direct and alternating current motors. Power conversion and waveform modulation techniques, drive sizing, harmonics, and motor performance. Prereq.: EET 611, EET 607. Concurrent with EET 760L. 4 q.h.

*760L. Variable Speed Drive Fundamentals Laboratory. Exercises in variable speed drive applications. Demonstrating the concepts developed in EET 760. Taken concurrently with EET 760.0 q.h.

780. Communication System Fundamentals . Audio signals, noise, untuned and R.F. amplifiers, amplitude, frequency, pulse modulation, transmission lines, antennas, and multiplexing of communication channels. Prereq.: EET 607. Concurrent with 780L.

*780L. Communication System Fundamentals Laboratory. Laboratory exercises dealing with applications of concepts developed in EET 780. Three hours laboratory per week. Taken concurrently with EET 780.

0 q.h.

*810. Electrical System Design. A course concerning the design and layout of electrical systems for power, light, heat, signals, and communications in commercial, industrial, and residential buildings. Three hours of lecture and three hours of laboratory per week. Prereq.: EET 607, 611. 4 q.h.

820. Power Transmission. An introduction to power systems analysis, transmission line parameters and calculations, and steady-state power system representation. Prereq.: EET 611. 4 q.h.

845. *Microprocessor Systems 3.* Continuation of EET 745 with emphasis on real data acquisition, A/D and D/A conversions, and industrial applications. Prereq.: EET 745, EET 730. Concurrent with EET 845L.

*845L. Microprocessor Systems 3 Laboratory. Laboratory exercises utilizing a microcomputer to provide practical applications of concepts developed in EET 845. Three hours laboratory per week. Taken concurrently with EET 845.

850. Integrated Circuit Applications . An introduction to integrated circuits technology and typical application. Prereq.: EET 607. Concurrent with EET 850L. 4 q.h.

*850L. Integrated Circuit Applications Laboratory. Laboratory exercises dealing with applications of concepts developed in EET 850. Three hours of laboratory per week. Taken concurrently with EET 850. 0 q.h.

*870. Process Controls Technology. An introduction to process control technology. Topics include control system components, transfer functions, and the analysis of linear control systems. Prereq.: EET 611, EET 710. 4 q.h.

ELEGR—ELECTRICAL ENGINEERING

*555. Computer Engineering. Introduction to the personal computer, typical application software, technologies, microprocessors, microcomputer programming and applications. Basic operation of digital circuits, interfacing using integrated chips, and analog computers. Experiments will accompany the lectures, providing practical experience for the students.

4 q.h.

*555H. Honors Computer Engineering. The personal computer, its components, and the role it plays in control applications, instrumentation, and engineering design. Basic experiments using digital circuits, microcomputers, integrated circuits, and design software integrated into a project with the personal computer and instrumentation. Prereq.: or concurrent: ENGL 550H and admission to the Honors program or permission of instructor and Director of Honors.

*601. Basic Circuit Theory 1. Basic principles of linear circuits, circuit concepts and laws, methods of analysis, network theorems. Power in DC circuits. Transients in RC and RL circuits. Magnetic circuits. Prereq. or concurrent: MATH 572.

*602. Basic Circuit Theory 2. Sinusoids, phasors, complex numbers. Analysis of AC circuits, phasor diagrams, impedance and admittance, resonance. Power in AC circuits. Magnetic circuits with AC signals. Prereq. or concurrent: MATH 673, Prereq.: ELEGR 601.

*603. Basic Circuit Theory 3. Mutual inductance and transformers. Frequency response and transfer functions. Three phase circuits. Fourier series applications to non-sinusoidal periodic signals. Fourier transforms and laplace transforms in circuit analysis. Prereq.: ELEGR 602. 3 q.h.

*611. Instrumentation and Computation Laboratory 1. Theory and applications of laboratory instruments. Laboratory experimentation. Digital computer techniques using modern CAD software such as SPICE. Prereq. or concurrent: ELEGR 601 or equivalent.

*612. Instrumentation and Computation Laboratory 2. Theory and applications of laboratory instruments. Laboratory experimentation. Digital computer techniques using modern CAD software such as SPICE. Prereq.: ELEGR 611, ENGL 551.

1 q.h

*613. Instrumentation and Computation Laboratory 3. Theory and applications of laboratory instruments. Laboratory experimentation. Digital computer techniques using modern CAD software such as SPICE. Prereq.: ELEGR 602, 612. 1 q.h.

*621. Basic Logic Circuit Design . Introduction to digital design concepts: number systems, Boolean algebra, logic gates, and truth tables. Combinational and sequential design techniques. Comparators, multiplexers, coders and decoders, and their practical applications.

*621L. Logic Circuits Laboratory. Laboratory exercises to accompany ELEGR 621. Design and testing of combinational and sequential logic circuits. Prereq. or concurrent: ELEGR 621. 1 q.h.

*632, *633. Basic Circuit Theory 1, 2. Basic principles of linear circuits. Circuit concepts and laws, methods of analysis, network theorems. Power in DC and AC circuits. Transients in RLC circuits. Analysis of AC circuits, phasor diagrams, imped-

ance and admittance, resonance. Mutual inductance and transformers. Frequency response and transfer functions. Three-phase circuits. Transform methods in circuit analysis. Prereq. or concurrent: MATH 572 for ELEGR 632, MATH 673 or 633. Prereq.: ELEGR 632 or ELEGR 633.

*632L, *633L. Instrumentation and Computations Laboratory, 1, 2. Laboratory exercises to accompany ELEGR 632, 633. Theory and applications of laboratory instruments. Laboratory experimentation. Simulation with the digital computer. Prereq.: ELEGR 632L for 633L. Prereq. or concurrent: ENGL 551 and ELEGR 632 for 632L, 633 for 633L.

1+1 q.h.

*702. Fundamentals of Logic Circuit Design. Introduction to digital design concepts: number systems, Boolean algebra, logic gates, and truth tables. Minimization and design of combinational circuits: maps, variable-entered mapping theory, and reduction techniques. Combinational arithmetic circuits, comparators, multiplexers, coders and decoders, and their practical applications. Prereq.: MATH 705, or ELEGR 714 or ELEGR 603.

*703. Linear Control Systems. Introduction to analysis and design of linear, continuous-time and discrete-time systems using transfer functions and state-variable methods. Must be taken concurrently with ELEGR 703L. Prereq.: ELEGR 603. 3 q.h.

*703L. Control Systems Laboratory. Laboratory experiments and exercises designed to accompany ELEGR 703. Must be taken concurrently with ELEGR 703. Prereq.: ELEGR 613. 1 q.h.

*704. Electromagnetic Fields 1. The study of Coulomb's law and electric field intensity, electric flux density, Gauss' Law and divergence, energy and potential, conductors, dielectrics and capacitance, the steady magnetic field. Must be taken concurrently with ELEGR 704L. Prereq.: ELEGR 603, ELEGR 613, PHYS 611, 611L, CEEGR 601, MECH 501 and INEGR 642. Prereq. or concurrent with MATH 706.

*704L. Electromagnetic Fields Laboratory 1. Laboratory experiments and exercises to demonstrate and verify theories by a variety of methods including graphical and numerical methods using digital computation. Three hours of laboratory per week. Must be taken concurrently with ELEGR 704.

1 q.h

705. Electromagnetic Fields 2. The study of Poisson's and Laplace's equations, magnetic forces, magnetic materials, inductance, time-varying electric and magnetic fields and Maxwell's equations. Must be taken concurrently with ELEGR 705L. Prereq.: ELEGR 704 and ELEGR 704L. 3 q.h.

*705L. Electromagnetic Fields Laboratory 2. Laboratory experiments and exercises to demonstrate and verify theories by a variety of methods including numerical methods with an emphasis on finite element analysis using digital computation. Three hours of laboratory per week. Must be taken concurrently with ELEGR 705.

706. Transmission and Microwave Principles. The uniform plane wave, transmission lines, waveguides and resonators, antennas and radiation. Must be taken concurrently with ELEGR 706L. Prereq.: ELEGR 705 and ELEGR 705L. 3 q.h.

*706L. Transmission and Microwave Principles Laboratory. Waveguide/transmission-line experiments and exercises to demonstrate and verify theories by a variety of methods including numerical methods with an emphasis on finite element analysis using digital computation. Research project and presentation. Three hours of laboratory per week. Must be taken concurrently with ELEGR 706.

1 q.h.

*707, *708. Electronic Circuit Analysis and Design 1, 2. Terminal characteristics of electronic devices such as diodes, bipolar junction transistors, and field-effect transistors. Bias and small-signal models. Single- and multi-stage amplifiers. Power amplifiers. Frequency response. Feedback. Oscillators. Prereq.: ELEGR 603. 3+3 q.h.

*707L, *708L. Electronic Circuit Laboratory 1, 2. Laboratory experiments and exercises designed to accompany ELEGR 707 and 708. Should be taken concurrently with ELEGR 707 and 708, respectively. Prereq.: ELEGR 613. Prereq. or concurrent: ELEGR 707 for 707L, ELEGR 708 for 708L. 1+1 q.h.

709. Communication Systems. Signal Analysis. Power spectral density. Design and analysis of modulation, detection, selection, and transmission circuits and systems. Must be taken concurrently with 709L. Prereq.: ELEGR 603 OR ELEGR 715 or MATH 706 and PHYS 611.

*710. Electronic Circuit Design with Operational Amplifiers. The ideal op amp; performance limitations of nonideal op amps. Large-signal, small-signal and dc amplifiers. Linear circuit applications, filter design. Frequency compensation and stability. Sensitivity and error analysis. Computer-aided design of op amp circuits. Prereq.: ELEGR 708, and INEGR 642.

*714. Circuits and Electronics. Basic circuit elements and laws: DC and AC circuit analysis, operational amplifiers, sinusoidal analysis, circuit and system concepts. Electronics: diodes, transistors, amplifiers, electronic circuits and applications. Prereq. or concurrent: MATH 674.

*715. Electrical Devices. Digital devices and applications: digital logic, devices, circuits, and systems. Electromagnetic devices: magnetics, transformers, circuit models. Electromechanical devices: transducers, generators, and motors. Prereq.: ELEGR 714. 4 q.h.

717. Sensor Fundamentals. Basic principles of sensors such as electro-chemical, -mechanical, -optical, and -thermal transducers. Signal conditioning and smart sensors. Applications in process control and environmental systems. Prereq.: MATH 705; and either PHYS 611 or ELEGR 714.

*741. Electromagnetic Fields 1 . Static electric and magnetic fields. Maxwell's equations. Magnetic materials and forces, dielectrics, conductance, capacitance, and inductance. Poisson's and Laplace's equations. Must be taken with ELEGR 741L. Prereq.: PHYS 611, CEEGR 601, MATH 705. Prereq. or concurrent: ELEGR 633.

*741L. Electromagnetic Fields Laboratory 1. Laboratory experiments, exercises, and projects to illustrate the topics covered in ELEGR 741. Methods include graphical and numerical techniques using the digital computer. Prereq.: PHYS 611L. Prereq. or concurrent: ELEGR 633L and ELEGR 741.

1 q.h.

*742. Electromagnetic Fields 2. Time varying electric and magnetic fields. Transmission lines, microwave transmission. Introduction to antennas and radiation. Must be taken with ELEGR 742L. Prereq.: ELEGR 741. Prereq. or concurrent: MATH 706.

5 q.h.

*742L. Electromagnetic Fields Laboratory 2. Laboratory experiments, exercises, and projects to illustrate the topics covered in ELEGR 742. Methods include graphical and numerical techniques with emphasis on finite element analysis. Prereq.: ELEGR 741 and ELEGR 741L. Prereq. or concurrent: ELEGR 742.

*771, *772. Analog Circuit Analysis and Design 1, 2. Terminal characteristics of electronic devices such as diodes, bipolar junction transistors, field-effect transistors, and operational amplifiers. Bias and small-signal models. Large-signal, small-signal and dc amplifiers. Single-stage, multi-stage and power amplifiers. Frequency response. Applications with op amps such as amplifiers, comparators, filters, and oscillators. Computer-aided design and analysis. Prereq.: ELEGR 603 5+5 q.h.

*771L,*772L. Analog Circuit Laboratory 1, 2. Laboratory experiments and exercises designed to accompany ELEGR 771 and 772. Should be taken concurrently with ELEGR 771 and 772, respectively. Prereq.: ELEGR 613. Prereq. or concurrent: ELEGR 771 for 771L, ELEGR 772 for 772L. 1+1 q.h.

*800. Special Topics. Special topics, new developments in Electrical Engineering. Subject matter, special prerequisites, and credit hours to be announced in advance of each offering. May be repeated under different subject matter to a maximum of eight credit hours. Prereq.: Senior standing in Electrical Engineering.

*807. Digital and Switching Circuits. Chip circuitry for devices such as BJT, CMOS, and ECL-based digital logic chips. Switching devices such as SCRs, triacs, and timers. Switching power supplies. Applications and specifications of off-the-shelf IC devices. Computer-aided design and analysis. Prereq.: 34 q.h. of ELEGR courses.

*808. Signals and Systems. A continuation of Electrical Engineering 709 with emphasis on problems

arising from communications and electronics areas. Correlation of classical differential equations approach to time and frequency domain interrelationships with Fourier and Laplace methods, and applications of these concepts to problems in communications and control arts. Numerical methods, including impulse-train techniques. Prereq.: ELEGR 709.

*816. Theory and Fabrication of Solid-state Devices. An introductory study of physical theory, design, and fabrication of discrete devices and integrated circuits. Electronic properties of semiconductors such as carrier concentration, energy gap, mobility, lifetime. Techniques of fabrication such as oxidation, diffusion, alloying, ion implantation, metallization, masking. Prereq.: ELEGR 603, PHYS 510, ELEGR 704.

*817. Sensor Design and Application. Design and applications for measurement and control; includes electro-chemical, -mechanical, -optical, and -thermal transducers. Signal conditioning and smart sensors. Prereq.: ELEGR 707, ELEGR 715 or ELEGR 717.

*823. Microprocessor Design and Applications. Analysis of modern storage devices, microprocessor architecture, potential applications and limitations, implementation, peripheral devices, interfacing, and typical microcomputer applications. Must be taken concurrently with ELEGR 823L. Prereq.: ELEGR 826, ELEGR 826L. 3 q.h.

*823L. Microprocessor Design and Applications Laboratory. Laboratory exercises to provide the students with hands-on-experience in the area of microprocessor programming and interfacing. Must be taken concurrently with ELEGR 832. Three hours laboratory.

*824. Advanced Microprocessor Design and Applications. Designs and applications based upon different microprocessors will be studied using microprocessor development systems. Must be taken concurrently with ELEGR 824L. Prereq.: ELEGR 832.

3 q.h.

*824L. Advanced Microprocessor Design and Applications Laboratory. Laboratory exercises in the area of microprocessor design and applications using microprocessor development systems. Three hours laboratory per week. Must be taken concurrently with ELEGR 824. Prereq.: ELEGR 823L.

1 q.h.

*825. Sequential Logic Circuits Analysis and Design. Sequential machine fundamentals: basic cell, flip-flops, timing and triggering considerations, and types of sequential machines. Traditional approaches to sequential analysis and design: state diagrams, basic design fundamentals, and registers and counters. Introduction to multi-input system controller design: controllers, design requirements, and clocks and power supply requirements. Must be taken concurrently with ELEGR 825L. Prereq.: ELEGR 702.

*825L. Combinational and Sequential Circuits Laboratory. Laboratory exercises to accompany ELEGR 825. Must be taken concurrently with ELEGR 825. Three hours laboratory. 1 q.h.

*826. Advanced Logic Circuits Analysis and Design. System controllers utilizing combinational MSI/LSI circuits: decoders, multiplexers, memories, and logic arrays. Introduction to programmable system controllers: types and general requirements. Asynchronous finite state machines: asynchronous circuits design, cycles and races, and hazards. Must be taken concurrently with ELEGR 826L. Prereq.: ELEGR 825 and 825L. 3 q.h.

*826L. Advanced Logic Circuits Laboratory. Laboratory exercises to accompany ELEGR 826. Must be taken concurrently with ELEGR 826. Three hours laboratory.

*831. Digital Circuits and Systems. Analysis, design, and application of logic arrays, basic cells, flipflops, registers, counters, memories, and controllers. Synchronous and asynchronous finite-state machines. Must be taken concurrently with ELEGR 831L. Prereq.: ELEGR 702 or 715.

*831L. Digital Circuits and Systems Laboratory. Laboratory experiments and exercises to clarify and enhance the concepts covered in ELEGR 831. Must be taken concurrently with ELEGR 831. Prereq.: ELEGR 613. Prereq. or concurrent: ELEGR 831.

1 q.h.

832. Digital Components and Systems. Analysis, design, and application of programmable logic arrays, programmable logic controllers, and microprocessors. Must be taken concurrently with ELEGR 832L. Prereq.: ELEGR 831. 5 q.h.

*832L. Digital Components and Systems Laboratory. Laboratory exercises and projects to clarify and enhance the concepts covered in ELEGR 832. Must be taken concurrently with ELEGR 832. Prereq.: ELEGR 831L. Prereq. or concurrent: ELEGR 832.

*840. Electric Power Systems. Power system engineering. Modeling of power system components, including synchronous generators, transformers, transmission lines, cables, and circuit breakers. Analysis and design of power system networks while considering power flow, faults, protection systems, and stability. Must be taken concurrently with ELEGR 840L. Prereq. or concurrent: ELEGR 844.

*840L. Electric Power Systems Laboratory. Laboratory experiments and exercises to accompany ELEGR 840, including application of digital computer methods for analysis and design. Must be taken concurrently with ELEGR 840.

*844, *845. Electromagnetic Energy Conversion 1, 2. An examination of lumped parameter electromechanics as related to electromagnetic field theory with development of theoretical and design

parameters for electrical energy conversion devices such as transformers, dc motors and generators, synchronous motors and generators and induction motors including typical and special applications of each. Must be taken concurrently with ELEGR 844L, ELEGR 845L, respectively. Prereq. or concurrent MECH 641. Prereq.: ELEGR 704 and 34 q.h. of ELEGR courses.

*844L,*845L. Electromagnetic Energy Conversion Laboratory 1 and 2. Required experimental work designed to accompany the corresponding lecture courses. In addition to experiments for ELEGR 844L: Research project and presentation. Three hours lab each week. Must be taken concurrently with ELEGR 844, ELEGR 845, respectively. 1+1 q.h.

*850. Communications Systems 2. Signal detection in noise. Averages, sampling spectral analysis, shot noise, the Gaussian process, linear systems, noise figures, optimum linear systems, nonlinear devices. The direct method. Nonlinear devices; the transform method, detection of signals. Prereq.: ELEGR 808.

*860. Energy Radiation, and Propagation. Examination of dipole, loop aperture, reflector, lens, surface wave, traveling wave, and other antennas; array theory; radiation resistance, directivity, and input impedance. Investigation of theoretical and practical applications of fiber optics. Prereq: ELEGR 704 and 34 q.h. of ELEGR courses.

*879. Computer-Aided Design of Electrical Networks and Systems. The design, analysis, and modeling of linear and nonlinear networks and systems using a modern computer program. Development and use of library models of devices, subcircuits, and subsystems. The student will do at least one design project. Prereq.: ISEGR 642 and 34 q.h. of ELEGR courses.

*880. Linear Control System Design. Linear control system compensation techniques in both the time and frequency domains. Design of analog and digital compensators. Compensation to eliminate the effects of parameter variations. Prereq.: ELEGR 703.

*881. Modern Control System Design. Design of analog and digital compensators using state-variable techniques. Design of compensators for minimum fuel constraints and minimum mean square error. Prereq.: ELEGR 703. 4 q.h.

*890. Power Electronics. The design and analysis of power circuits using solid state power devices. Topics include rectifiers, thyristor commutation techniques, phase-controlled rectifiers, applications of forced commutation techniques, AC voltage controllers, converters and inverters, and DC/AC drives. Prereq.: ELEGR 771 and 34 q.h. of ELEGR courses.

EMCE—EARLY AND MIDDLE CHILDHOOD EDUCATION

Lower-Division Courses

630. Creative Processes of Learning and Teaching. This course provides prospective teachers with the knowledge, skills and dispositions necessary to support children's development and learning. Special attention will be given to interpersonal relationships and curriculum models in group care settings. 10 field/clinical hours. Prereq.: PSYCH 755 and ENGL 551.

Upper-Division Courses

(Open only to students who have been admitted to upper-division status in the College of Education.)

705. Professional Laboratory Experiences: Elementary. Observational and participatory experiences in actual elementary school situations under the direction of regular school teachers and administrative personnel. Students work as teachers' aides in assigned schools for the equivalent of one full school day each week. Minimum time must be at least six hours weekly. In addition, one hour of campus conference is required weekly. Course should be scheduled during the quarter following admission to upper-division status in the College of Education and must be taken prior to or with the basic methods courses. Required of all elementary candidates. Grading will be CR/NC.

3 q.h.

705K. Professional Lab Experience: Kindergarten. Observational and participatory experiences in actual kindergarten situations under the direction of regular school teachers and administrative personnel. Students work as teacher aides in assigned schools for the equivalent of one full school day each week. In addition, one hour of campus conference is required weekly. Required of all candidates seeking Kindergarten validation. Grading is CR/NC. Course shall precede or be taken concurrently with EMCE 630, 830, 831, and/or 832. 3 q.h.

707. Methods of Teaching Early Adolescents . Instructional strategies, techniques, procedures and applications of research appropriate for early adolescents. Collaborative, interdisciplinary field experience including observation, participation, and teaching experiences ranging from individual to large group settings. Prereq.: Admission to COE upper-division status.

709. Thematic Instruction and Assessment Methods in Social Studies. Investigation and application of principles from history, geography, civics, economics, and related fields to create developmentally appropriate learning experiences for early adolescents. A field-based course. Prereq.: Admission to COE upper-division status.

710. Characteristics of Early Adolescents and Implications for Curriculum and Instruction. Physical, social, emotional, intellectual, and moral development within social and cultural contexts, and the corresponding implications for developmentally and culturally responsive curriculum and instruction. Prereq.: Upper-division status in the COE.

6 q.h.

- 712. The Middle School Learning Community. History, philosophy, and concepts of middle level education, including interdisciplinary instruction, collaborative teams, cooperative learning, teacher based advisory programs, flexible scheduling, crossage grouping, departmentalized/core curriculum, adapting curriculum to the needs of culturally diverse populations, and working with families, resource persons, and community groups. Prereq.: COE upper-division status.
- 713. Teaching of Mathematics. Principles and content in learning elementary school mathematics and their application to effective teaching group and individual assessment techniques. Prereq.: MATH 515, 516, 617.
- 714. The Teaching of Social Sciences in the Elementary School. An introduction to the "new social studies." Investigating its rationale, methods, materials and the acquisition of the supportive instructional strategies and knowledge required of the classroom teacher; implications for multicultural education. Prereq.: HIST 605 or 606. 4 q.h.
- *715. The Teaching of Science in the Middle School. Principles in the learning of science and their application to effective teaching. Group assessment techniques. Prereq.: Admission to COE upper-division status, twelve quarter hours of science. 4 q.h.
- 715A. The Teaching of Science in the Elementary School. Principles in the learning of science and their application to effective teaching. Group assessment techniques. Prereq.: Twelve quarter hours of science.

4 q.h.

- 762. Human Relations in the Elementary School (K-8). Application of human relations principles to skills and abilities which are effective in improving human relations among students, between teachers and students, and between teacher and parent. Prereq.: COUNS 761.
- 801. Purposes and Practices of the Elementary School. An analysis of contemporary purposes and practices with emphasis on origins, purposes, strengths and weaknesses. Identification of developmental and special needs, pupil progress and management techniques. Prereq.: EMCE 705.

4 q.h.

810. Phonics in Reading Instruction, Pre K-9. Phonics subject matter, instructional strategies and applications, and planning for intensive, phonic-based word analysis in the early and middle stages of literacy acquisition. Prereq.: Admission to COE upper-division status.

5 q.h.

- 811. Supervised Student Teaching: Pre-Kindergarten. Student teaching consists of a ten-week assignment in a preschool. Grading will be CR/NC. Prereq.: Senior status and approval of department chair, HE 663, 664, 771, 866, EMCE 630, SPED 731.

 1-12 q.h.
- 811A. Pre-Kindergarten Seminar. A seminar intended to give student teachers a better understanding of the basic elements of pre-kindergarten education and one's own role on a professional education team. Grading will be CR/NC. Must be taken concurrently with EMCE 811.
- *812. Developmental Reading Instruction and Literature Strategies Pre K-12. Theories and related models of reading, various approaches to teaching reading and creative integrative literature strategies to meet the needs of diverse learners. Prereq.: Admission to COE upper-division status. 4 q.h.
- *813. Teaching Language Arts in the Middle School. Integrated strategies for enabling diverse students to participate successfully in the activities of a literate society through listening, viewing, and communicating orally and in writing. Emphasis on integration of the language arts, higher order thinking skills, flexibility in applying the language arts across the curriculum and using a variety of technology and media formats. Prereq.: Admission into TEC.
- 814. Language Arts 3. An advanced course in unconventional teaching strategies with emphasis on non-textbook approaches. May include field experiences. Prereq.: EMCE 812. 3 q.h.
- *815. Seminar in Elementary School Science. A critical study of current developments in objectives, methods, materials and evaluation in science education as they affect the elementary science program. The course will include discussions, field trips, demonstrations and laboratory work. Prereq.: EMCE 715.
- 816. Diagnosis and Remediation of Elementary School Mathematics. An in-depth study of diagnosis and remediation as it affects the elementary school mathematics program. It will include discussions, field trips, demonstrations, and laboratory work. Applicable to undergraduate and graduate programs. Required of all elementary education candidates. Prereq.: EMCE 713. 3 q.h.
- 824. Techniques of Teaching K-12. Enables the prospective special subject K-12 teacher to learn instructional planning, strategy implementation, performance and achievement evaluation, and appropriate classroom management skills for use in elementary and middle school settings. Identical with SEDUC 824. Prereq: SEDUC 700 and 704. 706 and 706L recommended.
- 830. Early Childhood Education: Part I. Designed to prepare the student for teaching children, preschool and K-3. A study of the historical, philosophical, sociological and psychological implications of early childhood education.

- 831. Early Childhood Education: Part 2. Designed to prepare the student for teaching children, preschool and K-3. Preparation of a workable environment for the young child with emphasis on his or her physical, mental and social characteristics. Prereq.: EMCE 830.
- 832. Early Childhood Education: Part 3. Designed to prepare the student for teaching children, preschool and K-3. Evaluation and implementation of curriculum, teaching methods and strategies. Attention given to the role of parents as teachers. Prereq.: EMCE 830, 831.
- 841. Supervised Student Teaching: Elementary. Student teaching consists of a twenty week assignment in a kindergarten and/or elementary and/or middle school. May be repeated up to twenty-four hours. Grading will be CR/NC. Prereq.: Completion of the TEC requirement, senior status and approval of the Chair.
- 841A. Elementary Education Seminar. A seminar intended to give student teachers a better understanding of the basic elements of teaching, and to help develop an understanding of one's own role on a professional education team. Grading is CR/NC. Prereq.: Completion of the TEC requirements, senior status and approval of the Chair of the Elementary Education and Reading Department. Must be taken concurrently with EMCE 841.

1-4 q.h.

- 859. Prekindergarten Teaching Methods and Materials. Methods and techniques used to implement the prekindergarten curriculum with emphasis on communication and creative arts, social, emotional and physical development and concept formation. Required for prekindergarten validation of other teaching certificates. Prereq.: HMEC 731 or equivalent. Identical with HMEC 859. 4 q.h.
- 860. Practice in Early Childhood Education. A culminating practicum designed to provide clinical experience with preschool and K-3 children. Students will apply theories related to the development of young children. Prereq.: EMCE 830, 831, 832.

4 q.h.

- 878. Teaching Gifted and Talented Students. Theory and organization of curriculum with design and integration of content subjects including strategies and identification of resources and materials. Also listed as EMCE 878 and SEDUC 878. Prereq.: EMCE 874.
- 880. Reading Applications in Content Areas. A study of the development of comprehension skills, word attack skills, study skills and related problems in the content areas from early childhood through adolescence. Preq.: Admission to COE upper-division status.
- 881. Reading and Language Learning: Assessment and Development. Application of selected formal and informal assessment procedures in the context of reading and language arts instruction. Em-

- phasis on informal, ongoing assessment procedures that teachers can use while guiding learners in the classroom as well as on interpretation of formal, standardized data. Prereq.: EMCE 812. 4 q.h.
- 882. Developmental and Content Area Reading . A study of the development of comprehension skills, word attack skills, study skills, and related problems in the content areas from kindergarten through grade 12. Prereq.: EMCE 812. 3 q.h.
- 883. Secondary School Reading. The teaching of reading in the secondary school. Survey of methods, materials, and programs. Required for Secondary Reading Endorsement. Prereq.: SEDUC 700 and 704.
- 884. Reading Practicum. Supervised experience in reading assessment and instruction in the elementary, middle, or secondary school setting. Students are expected to spend six hours per week in a designated school and to attend a two hour seminar. Prereq.: EMCE 812, 880, 881.
- 890. Elementary Education Workshop. A workshop provides intensive study and related activity in one of the following elementary curricular areas: mathematics, science, reading, social studies or language arts. 890 Elementary Education Workshop may be repeated. Prereq.: EMCE 705. 1-4 q.h.

EMTEC—EMERGENCY MEDICAL TECHNOLOGY

- 501. Emergency Medical Technician-Ambulance . A course that provides the basic knowledge and skills required to be an emergency medical technician. The course meets all U.S. Department of Transportation training standards for the Basic EMT. Three lecture hours per week. Must be taken concurrently with EMTEC 501L. 3 q.h.
- *501L. Emergency Medical Technician-Ambulance-Laboratory. A laboratory experience necessary to acquire skills required to be an Emergency Medical Technician-Ambulance. The course meets all U.S. Department of Transportation training standards for the Basic EMT. Six hours laboratory per week. Must be taken concurrently with EMTEC 501. 2 q.h.
- *506. Principles of Trauma. Study of traumatic emergencies normally encountered with emphasis on pathophysiology, etiology, and symptomatology. Prereq.: Admission to EMT Program or permission of instructor.
- 507. Emergency Medical Techniques 1. Study of techniques necessary to treat the traumatic emergency conditions introduced in EMTEC 506. Must be taken concurrently with EMTEC 506 and 507L.
- *507L. Emergency Medical Techniques 1 Lab. Laboratory includes simulated emergency traumatic situations and actual patient contact emphasizing physical assessment, patient interviewing, and man-

agement techniques. Six hours of combined departmental and clinical laboratory per week. Must be taken concurrently with EMTEC 506 and 507.

2 q.h.

- 509. Introduction to Emergency Medical Technology. Introduction to the roles, responsibilities, EMS Systems, medical and legal considerations of the EMS profession. Prereq.: Admission to EMT Program or permission of instructor.
- *515. Medical Conditions and Management Techniques. Study of pathophysiology, symptomatology, etiology, and management techniques of commonly encountered medical emergencies. Prereq.: EMTEC 506 and EMTEC 507. Concurrent with EMTEC 515L.

4 q.h.

- *515L. Emergency Medical Techniques 2 Lab. Simulated situations and actual patient contact emphasizing performance of emergency medical techniques utilized to manage common medical emergencies. Nine hours of combined departmental and clinical hours per week. Must be taken concurrently with EMTEC 515.
- *522. Cardiovascular Emergencies. Intense study of the pathophysiology and symptomatology of cardiovascular conditions including vascular disease, myocardial infarction, angina pectoris, congestive heart failure, and congenital myocardial problems. Also includes electrophysiology and EKG interpretation. Prereq.: EMTEC 515 or Admission to EMT Program or permission of instructor.
- 524. Emergency Cardiovascular Techniques. Pharmacologic therapy and mechanical techniques utilized to manage the cardiovascular emergencies discussed in EMTEC 522. Prereq.: Admission to EMT Program or permission of instructor. Must be taken con-currently with EMTEC 522, 525 and 526L. 4 q.h.
- *525. Pulmonary Emergencies. Study of pathophysiology, symptomatology and treatment techniques of respiratory conditions and emergencies. Prereq.: Admission to EMT Program or permission of instructor. Concurrent with EMTEC 524 and 526L.

2 a.h.

- *526L. Cardiovascular/Pulmonary Techniques Lab. Performance of fundamental techniques employed in the management of the cardiovascular and/or respiratory emergency. Three hours of laboratory a week. Must be taken concurrently with EMTEC 524, 525 and 527.
- 527. Clinical Experience 1. Hospital clinical experience to include practical management of the airway, endotracheal intubation, physical assessment and patient interviewing in critical care situations. Eight hours of clinical a week. Must be taken concurrently with EMTEC 526L. 2 q.h.
- *528. ALS Field Internship 1. Clinical experience with an approved advanced life support unit under the direct supervision of a selected paramedic field preceptor. Ten hours of clinic a week. Prereq.: EMTEC 515 and 515L.

- 530. Emergency Rescue Techniques. Introduction to common rescue tools and techniques utilized in basic victim disentanglement and extrication. Prereq.: Admission to EMT Program or permission of instructor.
- *605. Emergency Medical Special Topics. Examination of obstetrical/gynecological, pediatric, neonatal, geriatric, and psychiatric emergencies to include pathophysiology, symptomatology, and management techniques. Prereq.: EMTEC 522, EMTEC 524, and EMTEC 525 or permission of instructor. Concurrent with EMTEC 605L. 4 q.h.
- *605L. Emergency Medical Special Topics Lab.
 Techniques necessary to effectively manage conditions in EMTEC 605. Three hours of laboratory a week. Must be taken concurrently with EMTEC 605.
- 606. Clinical Experience 2. Practical experience in obstetric/gynecologic, pediatric, neonatal, and psychiatric emergencies. Eight hours of clinical a week. Must be taken concurrently with EMTEC 605.
- *608. ALS Field Internship 2. Performance of advanced life support procedures in the pre-hospital setting under the direct supervision of a selected paramedic field preceptor. Prereq.: EMTEC 528. Twenty hours of clinical a week.
- 630. Field-Based Study. Student will choose a research project, community program involvement, internship, or act as an instruction assistant after meeting with the program coordinator concerning the project. Study time will vary according to project complexity. Prereq.: EMTEC 610. 1-5 q.h.
- 640. Advanced Pathophysiology for the EMS Practitioner. An in-depth study of the underlying abnormalities and physiologic disturbances resulting from traumatic injuries and medical illnesses as it relates to emergency medical care. Includes analysis of case studies. Three hours of lecture. Prereq.: EMTEC 506, 515, and 605.
- *641. Advanced Assessment and Management Techniques. Emphasis on twelve-lead electrocardiography, thrombolytic therapy, interpretation of laboratory data, and end-tidal carbon dioxide monitoring, and paralytics in the prehospital setting. Four hours of lecture. Prereq.: EMTEC 522, 524, and 605.
- *650. Research Methodology for Emergency Medical Services. Introduction to research problems and hypotheses, research design, sampling designs, data collection methods, and data analysis. Critiques of emergency medicine research and development of a research problem and design will be required. Three hours of lecture. Prereq.: EMTEC 640 and EMTEC 641.
- *660. Multiskilled EMS Practitioner. Presentation of principles, concepts, clinical knowledge, and skills necessary to prepare the multiskilled EMS practitioner. Three hours of lecture. Prereq.: EMTEC 640 and 641.

661. Advanced Clinical and Field Internship Experience. Clinical experience in hospitals and urgent-care settings. Field internship in a variety of advanced life-support units to expose the student to hospital-based, public third service, private, and fire service EMS. Included is a field component involving wilderness rescue and emergency medicine. An average of ten clinical or field internship hours per week. Must be taken concurrently with EMTEC 660. Prereq.: EMTEC 640 and 641. 3 q.h.

ENGL-ENGLISH

English-as-a-Second-Language

508. Writing for Non-native Speakers. Development of composition skills in English with special attention to problems of interference from the parent language. Emphasis on statement of thesis, unity and coherence in development of a thesis, and relationship between thesis and mode of development. Entrance on basis of English-as-a Second-Language placement test. Must be taken until a grade of C or better is achieved. Does not count toward a degree. To be taken concurrently with ENGL 508L. Grading for ENGL 508 is ABC/NC. 4 q.h.

*508L. Workshop for Non-native Speakers. Drills and exercises in English grammar and pronunciation. Emphasis on verb tenses, noun markers, and word order. Entrance on basis of English-as-a-Second-Language placement test. To be taken concurrently with ENGL 508. Must be taken until a grade of C or better is achieved. Three hours per week. Does not count toward a degree. Grading for ENGL 508L is ABC/NC.

509. Academic English for Non-native Speakers. Development of writing and reading comprehension skills in English through outlining, summary, and response. Emphasis on vocabulary, main idea, detail, and conclusion in assigned reading and writing. Entrance on basis of English-as-a-Second-Language placement test. Must be taken until a grade of C or better is achieved. Does not count toward a degree. Grading for ENGL 509 is ABC/NC.

4 q.h.

511. Advanced Academic English for Non-native Speakers. Development of advanced writing and reading skills. Focus on oral-aural fluency, extensive and intensive reading, and formal writing for academic purposes. Entrance on the basis of English-as-a-Second-Language placement test or permission of ESL coordinator. Must be taken until a grade of C or better is achieved. Does not count toward a degree. Grading for ENGL 511 is ABC/NC.

512. English Conversation for Non-native Speakers. Development of conversation skills. Focus on oral-aural fluency, idiomaticity, extracting and organizing information, and situation-oriented communicative strategies. Emphasis on meaningful topics relevant to the students' pursuit of their academic

goals. Entrance on the basis of English-as-a-Second-Language placement test or permission of ESL coordinator. Must be taken until a grade of C or better is achieved. **Does not count toward a degree.** Grading for ENGL 512 is ABC/NC. 4 q.h.

Lower-Division Courses

*520. Introductory College Writing 1. Instruction and practice in effective writing processes, including invention, organization, and revision, with emphasis on editing, coherence, and sentence structure. Focus on general conventions for college essay writing and on developing students' ability to recognize strengths and weaknesses in their own writing and the writing of others. Students meet four hours a week for regular classroom instruction and two hours a week for more individualized instruction in a computer classroom. Does not count toward the graduation requirement in composition. Open to students on the basis of Composition and Reading Placement Test results. Grading for English 520 is ABC/NC. 4 q.h.

540. Introductory College Writing 2. Practice in adapting college-level writing conventions, organizational strategies, and revision and editing techniques to a variety of writing tasks. Focus on responding to written texts in ways that demonstrate expressive, analytical, and evaluative thinking. Students become familiar with conventions for using written sources in essays and learn to integrate reactions of their peers and instructor into their revisions. Does not count toward the graduation requirement in composition. Open to students on the basis of Composition and Reading Placement Test results or upon successful completion of English 520. Grading for English 540 is ABC/NC. 4 q.h.

*550. Composition 1. Strategies for writing essays, from the earliest planning stages to final revisions and editing, with emphasis on the roles of writer, audience, and purpose as they affect a piece of writing. Most essays are written in response to assigned readings. Open to students on the basis of Composition and Reading Placement Test results or upon successful completion of English 540. Grading for English 550 is ABC/NC.

*550H. Honors Composition 1. Strategies for writing essays, from the earliest planning stages to final revision and editing, with emphasis on the roles of writer, audience, and purpose as they affect a piece of writing. Writing assignments treat a broad range of ideas, especially in response to the reading of essays by masters of English prose. Stylistic experimentation is encouraged so that each student can develop a distinctive writing style. Prereq.: eligibility for the Honors Program and permit on the basis of Composition and Reading Placement Test results or upon recommendation of 550 instructor. Grading for English 550H is ABC/NC. 4 q.h.

*551. Composition 2. Practice in writing with emphasis on the process of investigation: exploration of topics, formulation of tentative theses, collection

of data from suitable primary and secondary sources, and clear and appropriate presentation of the results of these inquiries. Prereq.: English 550 or Composition and Reading Placement Test results. Grading for English 551 is ABC/NC. 4 q.h.

*551H. Honors Composition 2. Executing research on a topic of some depth, resulting in a substantial investigative paper. Research is conducted independently and focused on a single project. Prereq.: eligibility for the Honors Program and one of the following: English 550H or equivalent, permit on the basis of Composition and Reading Placement Test results, or recommendation of 550 or 551 instructor. Grading for English 551H is ABC/NC. 4 q.h.

- 560. Language, Ethnicity, and Gender. Basic understanding of relations between ethnicity, gender, and speech style, distinguishing linguistic, sociolinguistic and women's issues. Examination of topics such as language, socialization, oral vs. written language, language and class membership, and inter- and intra-ethnicity variation in urban vernacular English. Listed also as FNLG 560. 4 q.h.
- *601. Intermediate Composition For Teachers. A course to increase proficiency in critical reading and writing. Because the course is designed specifically for students entering the College of Education, readings, discussions, and writing assignments will emphasize current issues in education. Assignments will allow students to practice, collaboratively and individually, the kinds of writing used in teaching. Does not count toward the English major. Prereq.: ENGL 551.
- 602. Media Writing. An introduction to writing for the mass media. Development of writing techniques and examination of styles and approaches used in writing for various mass audiences. Fulfills requirement for Integrated Language Arts Middle Childhood teaching license and may be applied to the Journalism minor and Professional Writing and Editing professional area. Prereq.: ENGL551. Listed also as JOURN 602.
- 609. Introduction to Literature. Primarily British or American works, chosen to illuminate a central topic or theme, are read and discussed critically to promote understanding and enjoyment of reading. Prereq.: ENGL 551.
- 610. Introduction to Classic World Literature. A selection of classics from a variety of cultures from antiquity to 1900. Prereq.: ENGL 551. 4 q.h.
- 617. Women in Literature. Examination of works by and about women, drawn primarily from American and English writers. Prereq.: ENGL 551. 4 q.h.
- 618. American Literature and Society. Writers and works in relation to the changing conditions of American culture, politics, lifestyles, and social movements. Prereq.: ENGL 551. 4 q.h.
- 620. Introduction to African Literature. A survey of the literature of modern Africa, with emphasis on black African writers. Prereq.: ENGL 551.4 q.h.

- 622. Basic Journalism. A study of news reporting and writing, with emphasis on journalistic style, development of news judgment, interviewing, and coverage of special story types. Prereq.: ENGL 551. Listed also as JOURN 622.
- 626. American Journalism. The development of newspaper and magazine journalism in America, the role of the press and its effects on American society, innovations in print media, including those led by women, people of color, and journalists of diverse cultural backgrounds, and journalism as a literary tradition. May be applied toward Journalism minor and Professional Writing and Editing professional area. Prereq.: ENGL 551. Listed also as JOURN 626.
- 631. Mythology in Literature. An introductory study of myths, chiefly classical, with some attention to their origins and cultural significance, and of literary works, both classical and modern, in which myths are used. Prereq.: English 551. 4 q.h.
- 632. Images of Women. An examination through language, literature, film, folklore, and myth, of the ways in which the meanings and representations of woman have been constructed and implemented in Western culture. Introduces key concepts and theoretical frameworks drawn from current scholarship about women. Prereq.: ENGL 551. 4 q.h.
- 633. Peace and War in Literature. An examination of the literature of peace and war and related critical and cultural issues, with emphasis on the twentieth century. Prereq.: ENGL 551. 4 q.h.
- 638. Introduction to Modern World Literature. Fiction, poetry, prose, and drama by writers of the twentieth century from various cultures read to raise questions about how literature represents and criticizes society. Prereq.: ENGL 551. 4 q.h.
- 646. Introduction to Fiction Writing. An examination and application of narrative techniques and conventions designed to introduce the basic elements of writing fiction. Prereq.: ENGL 551. 4 q.h.
- 647. Introduction to Poetry Writing. An examination and application of poetic techniques and conventions designed to introduce the basic elements of writing poetry. Prereq.: ENGL 551. 4 q.h.
- 648. Introduction to Script Writing. An examination and application of dramatic techniques and conventions designed to introduce the basic elements of writing plays and screenplays. May be repeated once. Prereq.: ENGL 551. 4 q.h.
- 651. Introduction to Language. An introduction to language principally for prospective teachers, with emphasis on the nature and function of language and its history, variations, and acquisition. Prereq.: ENGL 551.
- *665. Introduction to Film Study. Principles of film study and interpretation of films through written analysis. Prereq.: ENGL 551. 4 q.h.

690. Introduction to Literary Study. Emphasis on the skills used in reading literature and writing literary analysis. This course is a prerequisite for all upper-division literature. Prereq.: ENGL 551.

4 q.h.

Upper-Division Courses

707. Middle School Literature. A study of fiction and nonfiction genres for students in the middle school grades, including characters and authors from various cultures and ethnicities. Required of middle childhood reading and language arts majors. Prereq.: Any 600-level literature course in English.

708. Children's Literature. A study of the development of children's literature, giving the prospective elementary teacher some ways of judging books for children. Required of all elementary education candidates. Prereq.: Any 600-level literature course in English or permission of department chair.

4 q.h.

- 709. Adolescent Literature. A study of literature for and about adolescents and of related topics, including young adults as readers, critical standards for evaluation, and the use of adolescent literature in secondary schools. Prereq.: Any 600-level literature course in English or permission of department chair.
- 710. Selected Topics in European Literature. A comparative examination of a genre, historical period, or literary movement (e.g., Continental Romanticism, Surrealism, Expressionism, Post-Modernism). Prereq.: any literature course in English or permission of department chair.
- 716. Feature Writing. Development of techniques of writing feature stories, including generating feature ideas, gathering information, and polishing feature style. Practice in writing various types of features. Prereq.: JOURN 622. Listed also as JOURN 716.
- 717. Editorial and Opinion Writing. Techniques, approaches and practice in writing reviews, editorials, and opinion columns. Exercises in criticism of the arts, editorial research, and editorial style are included. Prereq.: JOURN 622. Listed also as JOURN 717.
- *721L. Journalism Workshop. Application through student publications of the principles of Journalism 622 and an introduction to creating publications on computers. May be repeated once. Prereq. or concurrent: JOURN 622. Listed also as JOURN 721L. 3 q.h.
- *723. Make-up and Design. The practice of copy editing, headline writing, layout and design, photo editing, caption writing, and designing publications on computers. Prereq.: JOURN 622 or PREL 750 or ADVER 704. Listed also as JOURN 723. 4 q.h.

- 738. Selected Topics in World Literature. A comparative examination of a genre, historical period, or literary movement (e.g., Nativism, protest literature, colonialism, cultural conflict). Prereq.: any literature course in English or permission of department chair.
- 740. Advanced Writing. A course designed to strengthen proficiency in essay writing, with emphasis on development of ideas, analysis of style, clarity of thought and expression, editing, and proofreading. Prereq.: ENGL 551 and junior standing.
- 741. Advanced Writing for Teachers. A course designed to strengthen proficiency in writing, with emphasis on issues related to the teaching of English. Limited to students seeking English or Comprehensive Communications certification. Prereq.: Admission to upper-division status in the School of Education.
- *743. Professional and Technical Communication. An intermediate composition course to introduce students to essential elements in professional and technical writing: audience analysis; techniques of gathering, interpreting, and presenting information; appropriate styles and formats; an application of computer technology to document design. Prereq.: ENGL 551.
- *744. Proposal and Report Writing. Application of rhetorical strategies and principles of design to the preparation of texts in two specific professional communication genres: the proposal and the report. Prereq.: ENGL 743.
- *745L. Videotext Workshop. Application of journalistic and technical writing principles through student videotext publications. Students will learn the theory and practice of electronically transmitting word-processed text. Prereq.: ENGL 622 or ENGL 743. May be repeated twice.
- 746. Fiction Writing Workshop. A supervised workshop in which students may develop their individual narrative skills, styles, and talents. May be repeated once. Prereq.: ENGL 646 or permission of the instructor based on a portfolio of fiction.

4 q.h.

- 747. Poetry Writing Workshop. A supervised workshop in which students may develop their individual poetic skills, styles, and talents. May be repeated once. Prereq.: ENGL 647 or permission of the instructor based on a portfolio of poetry. 4 q.h.
- 750. Language and Culture. Language structure as an instrument in human behavior and social institutions with emphasis on cross-cultural and intercultural communication. Prereq.: ENGL 551 or equivalent, and ANTHR 602 or equivalent. Listed also as ANTHR 750.
- 755. Principles of Linguistic Study. Survey of elements of linguistic structure, methods of analysis and description, theoretical models, and the role of language in human affairs. Prereq.: ENGL 551.

757. Development of the English Language. Sounds, vocabulary, grammar, and usage—from old to contemporary English. Prereq.: ENGL 755.

4 q.h.

*765. Film Genres. A study of a particular type of film such as comedy, western, documentary, or science fiction. May be repeated once with a different topic. Prereq.: ENGL 690 or 665 or permission of department chair.

770. Historical Periods in American Literature. Poetry and prose in the context of a specific era of U.S. literary history. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair.

780. American Genres. A study of a particular type of literature (e.g., the short story, autobiography, or film) as it developed in the United States. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair.

4 q.h

820. Advising Student Publications. A study of the role and responsibilities of the publication advisor in high school and college. Topics include the unique legal and ethical concerns of student publications, the training of writers and editors, the relationship of the student press to the academic administration, and a range of publication-management concerns. Prereq. JOURN 622. Listed also as JOURN 820.

824. Press Law and Ethics. A study of First Amendment rights of the press; examination of laws concerning libel, privacy, copyright, obscenity, censorship, open meetings and open records in Ohio; and a discussion of press responsibilities. Prereq.: JOURN 622. Listed also as JOURN 824. 4 q.h.

825. Selected Topics in Journalism. Study of approaches to and special aspects of journalism not covered in depth in other journalism courses. May be repeated once with change in topic. Prereq.: JOURN 622 or any 600-level English literature course. Also listed as JOURN 825. 4 q.h.

*849. Professional and Technical Editing. A study of the skills needed to make appropriate changes in the content, grammar, mechanics, style, format, and organization of manuscripts for scholarly, trade, journalistic, and other professional publications. The course deals with stages in the publishing process, hard-copy versus on-line editing, mechanical and substantive editing, and the use of house and press styles. Prereq.: ENGL 551 and junior standing.

850. Sociolinguistics. An investigation of the relationship between language and society. Includes discussion of dialects and standard languages, language planning, linguistic identity, multi- and bilingualism, class, gender, ethnicity, and social interaction. Listed also as FNLG 850. Prereq.: ENGL 755

851. Language Acquisition. A study of research on the learning of first and second languages. Topics include developmental sequences, learner variables, critical periods and conditions for learning, and the roles of input and interaction. The course is designed for those planning to teach languages. Listed also as FNLG 851. Prereq.: ENGL 755.

4 q.h.

855. Advanced Linguistics. In-depth study of selected issues in contemporary linguistic theory. Especially recommended for students pursuing advanced studies or a minor in linguistics or for students planning graduate studies. Prereq.: ENGL 755.

856. TESOL Methods. Introduction to teaching English as a Second Language (ESL), including reading, writing, listening, and speaking. Focus will be on using communicative methods with non-native speakers. Prereq.: ENGL 755. 4 q.h.

857. TESOL Practicum. Supervised teaching in an English as a Second Language (ESL) program. Additionally, weekly seminar attendance is required. Course may be repeated for up to 4 q.h. Prereq.: ENGL 856.

858. English Grammar. Descriptions and analysis of English language structure. Prereq.: ENGL 755. 4 q.h.

859. Selected Topics in Discourse. Study in depth of a specific topic such as stylistics, semantics, or rhetoric. May be repeated once with a different topic. Prereq.: 740 or 741 or 755 as appropriate to topic.

4 q.h.

860. Chaucer and the Medieval World. Chaucer's principal works with some study of his immediate predecessors and contemporaries. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

862. American Literary Circles. A study of one group of American writers who shared a cultural context or who influenced each other's work. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair.

4 q.h.

864. Selected Topics in American Literature. An important aspect of or approach to America's literary heritage not covered in other courses in the curriculum. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair.

*865. Selected Topics in Film. An important aspect of or approach to film not covered in other courses in the curriculum. May be repeated once with a different topic. Prereq.: ENGL 690 or 665 or permission of the department chair. 4 q.h.

871. The Black Experience in American Literature. Literature by and about blacks in America. Prereq.: ENGL 690 or permission of department chair.

4 q.h.

- 881. Shakespeare and the Elizabethan World. Drama of the period, with emphasis on the plays of Shakespeare. Prereq.: ENGL 690 or permission of department chair.
- 882. The English Renaissance. Literature of the age of Spenser, Donne, and Herrick, with emphasis on poetry. Prereq.: ENGL 690 or permission of department chair.

 4 q.h.
- 883. Milton and the Renaissance Legacy. Poetry and selected prose, with emphasis on Paradise Lost. Prereq.: ENGL 690 or permission of department chair.
- 884. The Restoration and Early Eighteenth Century. Literature of the age of Dryden, Pope, and Swift presented in literary and social context. Prereq.: ENGL 690 or permission of department chair.
- 886. The Eighteenth Century. British literature presented and read in the context of the period's culture and history, with emphasis on the novel. Prereq.: ENGL 690 or permission of department chair.
- 887. The Romantic Period. British literature presented and read in the context of the period's culture and history. Prereq.: ENGL 690 or permission of department chair.
- 890. Seminar in Literary Study. A study in depth of a literary figure, group, or aspect of literary theory. Prereq.: 12 hours in upper-division literature courses. 4 q.h.
- 891. The Victorian Period. British literature presented and read in the context of the period's culture and history, with emphasis on poetry and nonfiction prose. Prereq.: ENGL 690 or permission of department chair.
- 892. Nineteenth-Century British Studies. Nineteenth-century writers, works, or themes in cultural context, focusing on but not limited to the novel. Prereq.: ENGL 690 or permission of department chair.
- 895. Early Twentieth-Century British Studies. Literature presented and read in the context of the period's literary movements, culture, and history. Prereq.: ENGL 690 or permission of department chair.
- 896. British Literature from World War II to the Present. Literature presented and read in the context of the period's literary movements, culture, and history. Prereq.: ENGL 690 or permission of department chair.
- 898. Professional Writing Internship. Supervised work-and-learning experience in professional communication under the direction of a University faculty member and an employee of a participating firm. Ten to twenty hours a week of student time are expected. Enrollment is contingent upon the availability of internships. Students are selected on the basis of personal qualifications, including GPA,

courses taken, recommendations, and an interview. May be repeated with the approval of department chair. Prereq.: 16 q.h. in Journalism and/or Technical Writing.

899. Professional Writing Senior Project. Individualized research, analysis, and development of a project that incorporates audience-appropriate writing, design, and/or editing in a useable high-quality product. Taken in successive quarters during the student's final undergraduate year. Prereq.: senior standing and permission of a Professional Writing and Editing advisor.

ENGR-ENGINEERING

*550. Introduction to Engineering. Engineering careers and the different engineering disciplines. Introduction to basic computer skills needed in engineering. Engineering laboratory experiences and student success skills. Two hours lecture and three hours laboratory per week.

3 q.h.

*560. Engineering Communication with CAD. Commercially available software will be used to enhance visualization skills and make standard engineering drawings. The use of solid modeling and Boolean operations to generate objects. An engineering design project will be completed and a professional report presented using tools developed in class. Two hours lecture and three hours laboratory per week. Prerequisite: ENGR 550 and either demonstrating high school drawing proficiency or taking ENGR 560L concurrently.

3 q.h.

*560L. Engineering Communication with CAD Laboratory. Laboratory to be taken concurrent with ENGR 560 for those lacking high school drawing proficiency. Development of visualization skills and drafting conventions including standard views and dimensioning. Three hours laboratory per week. Take ENGR 560 concurrently.

*570. Engineering Computing. Structured programming and other computer skills required in engineering. Engineering problems solved in teams with results professionally presented. Two hours lecture and three hours laboratory per week. Prereq.: ENGR 550.

3 q.h.

*581. Engineering. Introduction to Engineering. Lectures on activities, practices and career opportunities in the various fields of the Engineering profession. Discussion of various engineering curricula as related to the preparation of the engineering student in his/her particular field.

2 q.h.

798. Co-op Assignment I. The course provides the student with co-op experiences whiles enrolled in the College of Engineering and Technology. Students may be assigned to public, corporate, or governmental organizations during alternate or series work periods. Each course represents one quarter of off-campus work experience, practical learning, and training in the student's major field of study. The student is directed to their home department's

Co-op Handbook for rules and regulations regarding the program. Prereq: Junior standing, Engineering major, selection of employer, and approval of student's department co-op committee/coordinator. 2 q.h.

799. Co-op Assignment II. The course provides the student with co-op experiences while enrolled in the College of Engineering and Technology. Students may be assigned to public, corporate, or governmental organizations during alternate or series work periods. Each course represents one quarter of off-campus work experience, practical learning, and training in the student's major field of study. The student is directed to their home department's Co-op Handbook for rules and regulations regarding the program. Prereq: ENGR 798, selection of employer, and approval of student's department co-op committee/coordinator. 2 q.h.

898. Co-op Assignment III. (Students on second-year work assignments). The course provides the student with co-op experiences while enrolled in the College of Engineering and Technology. Students may be assigned to public, corporate, or governmental organizations during alternate or series work periods. Each course represents one quarter of off-campus work experience, practical learning, and training in the student's major field of study. The student is directed to their home department's Co-op Handbook for rules and regulations regarding the program. Prereq.: Successful completion of ENGR 799, Senior standing, engineering major, selection of employer, and approval of student's department co-op committee/coordinator. 2 q.h.

899. Co-op Assignment IV. (Students on secondyear work assignments). The course provides the student with co-op experiences while enrolled in the College of Engineering and Technology. Students may be assigned to public, corporate, or governmental organizations during alternate or series work periods. Each course represents one quarter of off-campus work experience, practical learning, and training in the student's major field of study. The student is directed to their home department's Co-op Handbook for rules and regulations regarding the program. Prereq: Successful completion of ENGR 898, selection of employer, and approval of student's department co-op committee/coordinator. 2 q.h.

ENST—ENVIRONMENTAL STUDIES

501. Profession of Environmental Studies. Students will learn the knowledge, skills and experiences required for environmental careers. Academic and industrial environmental specialists will present lectures about specific environmental problems and current environmental research programs. Required of all Environmental Studies majors. 1 q.h.

*510. Field Trips in Environmental Studies . Field trips to relevant environmental sites, including nuclear power plants, hazardous waste incinerators, etc. Students will learn the basic problems, fundamental science, risks assessment and economics associated with each site. Some classes will meet at, and be hosted by, cooperating two-year colleges. Class meets on selected Saturdays from 9:00 a.m. to 4:00 p.m. 1 q.h.

600. Foundations of Environmental Studies . A survey of the principles and issues of environmental studies including basic ecology, biodiversity, hazardous and solid waste management, sustainable development, energy production and conservation, environmental ethics, air, water and soil pollution. Students who receive credit for ENST 601 or ENST 602 cannot also receive credit for ENST 600. Prereq.: BIOL 509, CHEM 501 or equivalent, or GEOL 505. Concurrent with ENST 600L. 4 q.h.

*600L. Foundations of Environmental Studies Laboratory. A laboratory investigating problems identified in ENST 600. The laboratory will emphasize the scientific method, problem solving and critical thinking skills in environmental assessment techniques, and will actively explore environmental concerns and their solutions. The laboratory meets three hours per week. Concurrent with ENST 600. Students who receive credit for ENST 601L or ENST 602L cannot also receive credit for ENST 600L.

1 q.h.

700. Environmental Chemistry. Study of the fundamental chemical principles underlying common environmental problems, including hazardous wastes, acid precipitation, eutrophication, global warming, smog formation and ozone depletion. Chemistry of common pesticides and other hazardous chemicals will be studied. Prereq.: ENST 601 and CHEM 506.

*710A. Environmental Safety. The proper use of environmental monitoring instruments and personal protective gear. Participation in a series of realistic, hands-on simulation exercises that address a variety of waste clean-up situations. Prereq.: ENST 600.

*710B. Field Sampling. Design criteria for field sampling of environmental data. Quality assurance, quality control, proper documentation and other aspects of environmental sampling are emphasized. Prereq.: ENST 600.

*710C. Soil and Ground-Water Sampling. Use of soil and ground-water sampling equipment, proper decontamination procedures, site investigative planning, data collection, compilation and reporting. Prereq.: ENST 600.

*710D. Air Pollution Control and Sampling. Sampling of air pollutants, emissions calculations and reporting, air pollution control equipment, and meteorology and atmospheric dispersion modeling. Air quality regulations and procedures for planning and conducting source sampling activities are covered. Prereq.: ENST 600.

*710E. Hazardous Waste Handling and Storage. Principles and practices of hazardous waste handling, storage, and transportation. Regulations governing hazardous waste and the requirements for manufacturing, record keeping, and reporting on hazardous waste operations are covered. Prereq.: ENST 600.

*710F. Industrial Hygiene Practices. Basic techniques used by industrial hygiene technicians. Students will develop plans for conducting inspection surveys, report writing, and performing OSHA-type regulatory audits. Prereq.: ENST 600. 2 q.h.

*710G. Waste Water Sampling. Methods for sampling and monitoring waste water in collection and treatment facilities. Use of typical waste water sampling equipment, proper record keeping, and report procedures for regulatory agencies are covered. Prereq.: ENST 600.

730. Air Quality. Sources, dispersions, consequences and abatement of air pollutants emanating from industry and transportation. Topics also include the history, legislation, standards and economics of air pollution. Prereq.: CHEM 506 or 516.

4 a.l

*750. Seminar. Guest lecturers will examine current topics in environmental issues, including current research, application of technology, management strategies to reduce environmental impact, environmental ethics, policy, etc. Prereq.: ENST 600.

1 q.h.

751. Water Quality Analysis 1. An introduction to physical, chemical and biological measurements of water quality. Provides laboratory experience in the analysis of natural waters, drinking water and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Two hours lecture and six hours laboratory per week. Identical to CHEM 751/751L and CEEGR 751/751L. Prereq.: CHEM 603.

4 q.h

*751L. Water Quality Analysis 1. Laboratory experience in the analysis of natural waters, drinking water and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Six hours laboratory per week. Identical to CEEGR 751L. Prereq.: CHEM 603.

0 q.h.

752. Water Quality Analysis 2. Advanced analytical techniques for evaluation of environmental problems. Topics include pollution transport in natural waters, toxic contaminants in drinking water and advanced wastewater treatment. Experience with several modern laboratory instruments is provided. Experiments focus on the analyses of samples from local water bodies and treatment facilities. Two hours lecture and six hours lab per week. Identical to: CHEM 752/752L, and CEEGR 752/752L. Prereq.: ENST 751/751L. 4 q.h.

*752L. Water Quality Analysis 2. Laboratory experience in the analysis of natural waters, drinking water and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Six hours laboratory per week. Identical to CEEGR 752L. Prereq.: ENST 751L or CEEGR 751L.

760. Environmental Regulations. A survey of Federal and Ohio State regulations, to execute legal mandates. Prereq.: ENST 600. 4 q.h.

*780. Environmental Research. A research project that involves problem identification, hypothesis formulation, experimentation, data analysis and interpretation. The research may be either basic or applied. A maximum of 6 q.h. of 780 and 790 will be credited toward the ENST major. Prereq.: Junior standing in Environmental Studies or permission of program director.

2-6 q.h.

790. Internship/Cooperative. Students will work under the direction of a faculty supervisor in a governmental agency or in the private sector as environmental specialists. An activities log and summary report are required. The course may be repeated. A maximum of 6 q.h. of 780 and 790 will be credited toward the ENST major. Prereq.: Junior standing in Environmental Studies. 2-6 q.h.

800. Environmental Impact Assessment. Analysis of the potential environmental effects resulting from the construction of buildings, highways, parking lots, mines, reservoirs, and waste disposal facilities. Standard procedures will be taught for evaluating and reporting the environmental impact of these activities. Prereq.: ENST 760 and senior standing.

*810. Environmental Sampling Methods. Sampling design, including number and type of samples and procedures for taking representative samples of air, water, soil and contents of storage and shipping containers. Three hours of lecture and four hours of laboratory. Prereq.: ENST 600 and STAT 717 (or equivalent).

830. Risk Assessment. An in-depth study of human health and ecological risk assessment. It will include hazard identification, dose-response evaluation, exposure assessment, and the characterization, limitations, management, communication, and perception of risk. Standard procedures to conduct a site-specific baseline risk assessment, to calculate risk-based concentrations that may be used to develop preliminary remediation goals, and to evaluate human health risks during the implementation of remedial alternatives will be taught. Prereq.: ENST 700 and 760, and senior standing. 4 q.h.

*840. *Topics*. Independent study of special topics not included in available courses. Student will do extensive reading in, and write a formal report on, a specific area of Environmental Studies. Prereq.: Junior or senior standing, or consent of instructor.

850. Problems in Environmental Studies. Studentinitiated problem-solving projects in Environmental Studies. Prereq.: Junior or senior standing, or consent of supervising instructor. Permit required. 2-4 q.h.

FIN—FINANCE

Lower-Division Course

orientation to the world of personal financial planning. Emphasis will be on establishing financial goals and monitoring progress towards reaching those goals to improve the individual's quality of life. Topics include budgeting, credit, insurance, selection of investment alternatives, retirement planning. Open to business and non-business majors. Will not count toward finance major. 4 q.h.

Upper-Division Courses

- *720. Business Finance. A study of the financial problems associated with the life cycle of business. This course consists of the analysis of problems relating to estimating the financial needs of an enterprise and to evaluating the alternative means of providing temporary and permanent capital. The relationship of current financial decision with financial policy is analyzed from the viewpoint of management and the investor. Prereq.: ACCTG 603, junior standing, declared major.
- 721. Personal Financial Management. An integration of the comprehensive financial planning process into the individual's financial life cycle which includes the accumulation, preservation and distribution of financial assets. Topics to be covered are financial planning basics and risk management, investment selection, retirement planning and employee benefits, tax considerations, estate and trust basics. Prereq.: FIN 720. 4 q.h.
- 725. Real Estate Investment. Topics covered include real property ownership, real estate markets, valuation methods, financing methods and management of real estate investments. Prereq.: FIN 720.
- 726. Risk Management. The fundamental nature of risk and insurance. Property and liability insurance and other loss-bearing techniques are examined along with the proper use of life insurance in personal and business planning. Prereq.: FIN 720.

730. Investment Analysis and Management. Studies the nature and investment merits of corporate bonds, preferred stocks, common stocks and investment companies from the viewpoint of the individual investor. Principles of portfolio management for individual investors are analyzed. Prereq.: "C" or better in FIN 720.

- *835. Advanced Business Finance. The policies and practices required for effectively planning and controlling the sources and uses of a company's funds are analyzed, with emphasis on the adaptation of financial principle promotion, long-term financing, income administration, expansion, and reorganization. Prereq.: FIN 720. 4 q.h.
- 836. Introduction to Financial Markets, Institutions, and Instruments. An introduction to financial markets, institutions, instruments, and their globalization with an emphasis on how firms and individuals make financing and investing decisions using these markets, institutions, and instruments. Prereq.: FIN 720.
- *839. International Accounting and Finance. A cross-functional introduction to multinational enterprises and multinational financial management with emphasis on foreign currency risk management; measuring and managing accounting and economic exposure; foreign trade and investment analysis; and various other topics in international accounting and finance. Prereq.: FIN 720. 4 q.h.
- 841. Seminar in Investments and Security Markets. An examination of the literature on efficient capital markets with implications for security selection and portfolio management. Prereq.: "C" or better in FIN 730.
- 850. Finance Internship. This course provides students with the opportunity to combine theoretical concepts with business experience. Internships are available in banking, securities brokerage, insurance, real estate and corporate finance. Prereq.: GPA of 2.75, 12 hrs. of Finance.
- 852. Professional Practice in Finance. This course provides students with Cooperative Education experiences in Finance. Students may be assigned to banking, securities brokerage, insurance, real estate, corporate or governmental entities on a quarter to quarter basis. May be for more than one quarter. Prereq.: Junior standing.
- 853. Financial Analysis. Interpretation and analysis of financial strategy and statements from the perspective of managers, investors, competitors, and financial analysts. Prereq.: FIN 720. 4 q.h.
- *870. Small Business Entrepreneurship. A study of the small business environment and the problems in starting a business. Students study how small businesses apply the managerial functions in using their resources. Prereq.: Senior standing or consent of the instructor. Crosslisted with MGT 870 and MKTG 870.
- *871. Small Business Enterprise. Students work with actual problems faced by small businesses under faculty supervision. Problems are defined, analyzed and researched. Recommendations are developed and presented to clients for evaluation. Prereq.: MGT 870 or permission of the instructor. Crosslisted with MGT 871 and MKTG 871.

F&PA—FINE AND PERFORMING ARTS

500. The Creative Arts. A survey highlighting the diversity of artistic achievement. Topics including art, dance, music and theater will be taught by professionals from those areas. The course will feature a wide variety of instructional methods, including audio-visual materials and live performances. May be applied to the University's area requirement in the humanities; does not fulfill music literature requirement for the music major or art history requirement for the major.

FNLG—FOREIGN LANGUAGES

*501,*502,*503. Elementary Foreign Language Topic 1, 2, 3. Basic study of a foreign language stressing the fundamental skills of speaking, reading, writing, and understanding the spoken language as well as an introduction to the culture of its speakers. Language to be announced each time the course is offered. May be repeated if language is different. The prerequisite for 502 is 501 or equivalent; the prerequisite for 503 is 502 or equivalent. 4+4+4.

560. Language, Ethnicity and Gender. Basic understanding of relations between ethnicity, gender, and speech style, distinguishing linguistics, sociolinguistic and women's issues. Examination of topics such as language, socialization, oral vs. written language, language and class membership, and inter-and intra-ethnic variation in urban vernacular English. Listed also as ENGL 560. 4 q.h.

560H. Language Ethnicity, and Gender . Basic understanding of relations between ethnicity, gender, and speech style, distinguishing linguistics, sociolinguistics, and women's issues. Examination of topics such as language, socialization, oral vs. written language, language and class membership and intra-ethnicity-variation in Urban Vernacular English.

850. Sociolinguistics. An investigation of the relationship between language and society. Includes discussion of dialects and standard language, language planning, linguistic identity, multi- and bilingualism, class, gender, ethnicity, and social interaction. Listed also as ENGL 850. Prereq.: ENGL 755.

851. Language Acquisition. A study of research on the learning of first and second languages. Topics include developmental sequences, learner variables, critical periods and conditions for learning, and the roles of input and interaction. The course is designed for those planning to teach languages. Listed also as ENGL 851. Prereq.: ENGL 755.

4 q.h.

ASL—American Sign Language

501, 502, *503. Elementary American Sign Language 1, 2, 3. Introduction to the language most often used by the deaf adult community of North America. Development of visual discrimination and memory skills through visual, gestural exercises. Basic sentence structure and vocabulary will be covered along with cultural information regarding the deaf community. The prerequisite for 502 is ASL 501 or equivalent; the prerequisite for 503 is ASL 502 or equivalent.

*601, *602. Intermediate American Sign Language 1, 2. Additional vocabulary and grammatical features with emphasis placed on continued development of receptive and expressive skills. Discussions of American Sign Language from both a historical and a cultural perspective will be included. The prerequisite for 601 is ASL 503 or equivalent; the prerequisite for 602 is ASL 601 or equivalent.

4+4 q.h.

FRNCH—French

Lower-Division Courses

*501, *502, *503. Elementary French 1, 2, 3. Fundamental principles of grammar taught through oral and written exercises and the reading of simple prose. The stress is on aural-oral facility. The prerequisite for 502 is FRNCH 501 or equivalent; the prerequisite for 503 is FRNCH 502 or equivalent.

4+4+4 q.h.

*510. Functional Approach to French. Basic French for travel and everyday situations. Development of speaking ability and listening comprehension through practice, with a minimum of grammar. Students with 3 years of high school French or credit for French 601 or higher receive no credit for French 510.

*601. Intermediate French 1. Grammar reviewed through oral and written exercises. Reading of modern prose and poetry. Prereq.: FRNCH 503 or equivalent.

*602. Intermediate French 2. Continuation of French 601. Prereq.: FRNCH 601 or equivalent

4 a.h.

615. Intermediate French Readings. Intensive reading of modern authors, intended primarily to prepare students for the survey courses. Prereq.: FRNCH 602 or equivalent. 4 q.h.

640. Selected Topics. Development of language skills through study of a topic that has practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if topics are different, for a maximum of 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: FRNCH 602 or equivalent, or permission of instructor.

655. Conversational French 1. Facility in oral expression through exercises on, and discussion of, assigned topics, and through prepared and extemporaneous situational dialogs. Prereq.: FRNCH 602 or equivalent.

675. French Composition. Skill in writing developed through directed composition, starting at the intermediate level. Prereq.: FRNCH 602 or equivalent.

Upper-Division Courses

705. Survey of French Literature 1. Middle Ages to 1800. Prereq.: FRNCH 615 or permission of instructor.

706. Survey of French Literature 2. 1800 to the Present. Prereq.: FRNCH 615 or permission of instructor. 4 q.h.

*710. Applied French Phonetics. A systematic study of French phonetics to correct defects in pronunciation and intonation and give students a better understanding of the differences between the French and English sound systems. Prereq.: FRNCH 602.

740. Introduction to Business French. A survey of business practices specific to French-speaking countries, with emphasis on France and Canada; development of oral communication in business situations; principles of effective letter and report writing. Prereq.: FRNCH 675 or equivalent. 4 q.h.

750. French Civilization and Culture. A study of contemporary French civilization and culture, focusing on what the French consider typical of their character, as exemplified by their traditions, magazines, films, and heroes. Readings and class work in French. Prereq.: FRNCH 602, or consent of instructor.

755. Conversational French 2. Development of auditory comprehension through the use of taped materials featuring a variety of native voices; development of speaking ability through discussion of pre-assigned topics of current interest. Prereq.: FRNCH 655, or consent of instructor. 4 q.h.

771, 772. Advanced French Grammar 1, 2. A review in depth of French grammar through analysis of the stylistic devices of literary works, and through exercises, translation, and original composition. Prereq. for 771: FRNCH 675 or consent of instructor; for 772, FRNCH 771.

820. Selected Topics in 18th Century French Literature. The study of major works from the ""Age of Enlightenment," focusing on one of the following: one or more genres; themes; literary movements; specific authors; or some other areas of interest. Topic announced each time course is offered. May be taken twice if topics are different. Prereq.: FRNCH 615, and one of the following: FRNCH 675, 705, 706, 750, 771, 772.

830. Selected Topics in 19th Century French Literature. The study of major works of the 19th century, focusing on one of the following: one or more genres; themes; literary movements; specific authors; or some other area of interest. Topic announced each time course is offered. May be taken twice if topics are different. Prereq.: FRNCH 615 and one of the following: FRNCH 675, 705, 706, 750, 771, 772.

845. Selected Topics in 20th Century French Literature. The study of major 20th century works, focusing on one of the following: one or more genres; themes; literary movements; specific authors; or other areas of interest. Topic announced each time course is offered. May be taken three times if topics are different. Prereq.: FRNCH 615 and one of the following: FRNCH 675, 705, 706, 750, 771, 772.

4 q.h.

850. Selected Topics in French Literature Outside of France. The study of major works written in the 20th century (or late 19th century) by French-speaking authors from one or more of these geographical areas: Africa, Belgium, Canada, The Caribbean, Lebanon, Louisiana, Luxembourg, Southeast Asia, Switzerland, and including such genres as novels, short stories, poetry, essays, the theatre. Topic announced each time course is offered. May be taken twice if topics are different. Prereq.: FRNCH 615 and one of the following: FRNCH 675, 705, 706, 750, 771, 772.

873. Textual Analysis. Detailed study of excerpts from prose, drama, poetry, and non-literary texts, focusing on stylistic devices, structures, and vocabulary. Development of skills in various critical methods and techniques. Prereq.: FRNCH 615 and one of the following: FRNCH 705, 706, 771, 772. 4 q.h.

874. Advanced French Composition. A course designed to develop skills in free composition on assigned topics. Prereq.: FRNCH 772 or consent of instructor.

885. Special Topics. Studies in French language, literature, or civilization ranging from medieval to modern times. Topic announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: A 700-level French course appropriate to the current topic, or consent of instructor.

GERMN—German

Lower-Division Courses

*501, *502, *503. Elementary German 1, 2, 3. A basic study of the German language stressing the fundamental skills of speaking, reading, writing, and understanding the spoken language as well as an introduction to German culture. The prerequisite for GERMN 502 is GERMN 501 or equivalent; the prerequisite for GERMN 503 is GERMN 502 or equivalent.

- 505, 506. German Reading for Translation 1, 2. An introduction to German grammar stressing techniques of translation into English, including general, technical, and scientific texts, vocabulary and word formation to facilitate reading skills. The prerequisite for GERMN 506 is GERMN 505 or equivalent.
- *601, *602. Intermediate German 1, 2. A review of fundamental grammatical principles with further development of abilities in sentence structure, reading, writing, speaking and understanding the spoken language. The prerequisite for GERMN 601 is GERMN 503 or 2 years of high school German or equivalent; prerequisite for GERMN 602 is GERMN 601 or 3 years of high school German or equivalent.
- 610. German Translation. Techniques of translating complex sentence structures into English from general, business, technical, and scientific materials. Prereq.: GERMN 503 or GERMN 506, or equivalent.
- 615. Intermediate German Readings. Designed to improve reading ability in German. The readings are from a wide range of interest areas. Prereq.: GERMN 602 or equivalent. 4 q.h.
- 618. Intermediate German Conversation. Practice in speaking German based upon directed conversation. Listening comprehension, pronunciation and vocabulary building are emphasized. Prereq.: GERMN 602 or equivalent. 4 q.h.
- 620. Intermediate German Composition . Designed to develop skill in writing German through directed composition. Prereq.: GERMN 602 or equivalent.
- 625. Contemporary Germany. Modern Germany and her role in the European tradition as seen in political and cultural developments during the last 100 years. Topics on the Geography of central Europe and ethnic Germans; the socio-political-economic history of modern Germany; the influence of German creativity in architecture, religion, fine and performing arts; German unification. Taught in English.
- 640. Selected Topics. Development of language skills through the study of a topic, with practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if the topics are different. Total credit in GERMN 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: GERMN 602 or equivalent, or permission of instructor.
- 680. German-Americans. Contributions of German immigrants to American life from the earliest adventurers to the present. An examination of immigration history; religious and political groups; German language, press, and schools; Mennonite and Amish communities including Germans in Ohio, especially in the Mahoning Valley. Taught in English.

Upper-Division Courses

- 730. Advanced German Grammar. An intensive study and practice of selected problems in German grammar. Prereq.: GERMN 620. 4 q.h.
- 750. German Cultural Heritage 1. A survey of German civilization from the beginnings to 1949, including such topics as literature, history, music, and art. Prereq.: GERMN 615. 4 q.h.
- 751. German Cultural Heritage 2. A survey of German civilization since 1949, including such topics as literature, history, music, and art. Prereq.: GERMN 615. 4 q.h.
- 755. Advanced German Conversation. Continued practice in oral expression and listening comprehension through prepared and spontaneous exercises, discussions and situational dialogues. Prereq.: GERMN 618, or GERMN 615 and permission of instructor.
- 765. Advanced German Translation 1. German to English translation for the professional translator. Introduction to polysemy, collocation, word level equivalence, cultural equivalence, cohesion, coherence and concept systems. Use and evaluation of translation software. Development of terminology and text summarization. Treatment of scientific, medical, technological, business and literary texts. Prereq.: GERMN 610. 4 q.h.
- 860. Selected Masterpieces of German Literature. A critical study of an author, a genre, or a period of German literature from the 9th century to World War II. Topic will be announced each time the course is offered. May be taken twice for credit if content is not repeated. Prereq.: GERMN 615 or permission of instructor.
- 861. Contemporary German Literature. A critical study of an author, a genre, or a literary trend since World War II. Topic will be announced each time course is offered. May be taken twice for credit if content is not repeated. Prereq.: GERMN 615 or permission of instructor.
- 865. Advanced German Translation 2. Advanced German to English translation strategies for the professional translator with emphasis on transposition, amplification, implicitation, compensation, and modulation. Advanced terminology, vocabulary techniques and translation software applications. Techniques of parallel/background texts and post editing. Treatment of semi-professional texts in business, science, technology, journalism, literature, history and culture. Prereq.: GERMN 765. 4 q.h.
- 874. Advanced German Composition. Practice in original German composition with emphasis on appropriate stylistics. Prereq.: GERMN 730, or GERMN 620 and permission of instructor. 4 q.h.
- 885. Special Topics. Studies in German language, literature, or civilization ranging from medieval to modern times. Topic announced each time course is offered. May be taken for a maximum of 12 hours credit, if content is not repeated. Prereq.: GERMN 615 or permission of instructor.

GREEK-Greek (Ancient)

Lower-Division Courses

*501, *502, *503. Elementary Greek 1, 2, 3. Grammar, syntax, and simple composition; readings from various Greek writers and the New Testament. The prerequisite for GREEK 502 is GREEK 501 or equivalent; the prerequisite for GREEK 503 is GREEK 502 or equivalent.

*601. Intermediate Greek 1. Readings in one or more authors; some review of elementary Greek if needed. Prereq.: GREEK 503 or equivalent, or consent of instructor. 4 q.h.

*602. Intermediate Greek 2. Continuation of Greek 601. Prereq.: GREEK 601 or equivalent, or consent of instructor. 4 q.h.

640. Selected Topics. Development of reading skills through the study of a selected work of literature. May be taken three times for credit if the topics are different. Total credit in GREEK 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the minor. Prereq.: GREEK 602 or equivalent, or permission of instructor.

ITALN—Italian

Lower-Division Courses

*501, *502, *503. Elementary Italian 1, 2, 3. Fundamental principles of grammar taught through oral and written exercises and the reading of simple prose. The stress is on aural-oral facility. The prerequisite for ITALN 502 is ITALN 501 or equivalent; the prerequisite for ITALN 503 is ITALN 502 or equivalent.

*601. Intermediate Italian 1. Elementary composition and conversation based on grammar review. Reading material is chosen both to furnish a basis for study of Italian literature and to provide a working knowledge of the modern language. Prereq.: ITALN 503 or equivalent.

*602. Intermediate Italian 2. A continuation of ITALN 601. Prereq.: ITALN 601 or equivalent.

4 a.h

640. Selected Topics. Development of language skills through the study of a topic with practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if topics are different. Total credit in ITALN 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: ITALN 602 or equivalent, or permission of instructor.

2-4 q.h.

Upper-Division Courses

708. Italian Civilization 1. A condensed study of the geography, history, literature, and social heritage of Italy, from the fall of the Roman Empire to the end of the 16th century. The course is taught in

Italian; includes class discussion for improvement of oral facility. Prereq.: ITALN 602 or equivalent.

4 q.h.

709. Italian Civilization 2. A condensed study of the geography, history, literature, and social heritage of Italy, from the beginning of the 17th century to the present. The course is taught in Italian and includes class discussion. Prereq.: ITALN 602 or equivalent.

720, 721. Advanced Italian Grammar and Composition. Study in depth of Italian grammar through exercises and original composition. Need not be taken in sequence. Prereq.: ITALN 602 or equivalent. 4+4 q.h.

730, 731. Conversational Italian. Designed to develop oral facility through exercises and discussion of assigned topics, and through prepared and extemporaneous situational dialogues. Need not be taken in sequence. Prereq.: ITALN 602 or equivalent.

801. Italian Literature of the 14th Century. A study of the Italian literature of the 14th century with concentration on Dante's Divine Comedy. Prereq.: One 700-level Italian course. 4 q.h.

802. Italian Literature of the 16th Century. A course dealing with the literature of the Renaissance and concentrating on Ariosto, Bandello, Machiavelli, and Tasso. Prereq.: One 700-level Italian course.

830. Italian Literature of the 19th Century . A study of the literature of the 19th century with concentration on Leopardi, Manzoni, Pascoli, and Carducci. Prereq.: One 700-level Italian course. 4 q.h.

840. Italian Literature of the 20th Century. A study of the literature of the 20th century and its movements and innovations, with concentration on D'Annunzio, Ungaretti, Quasimodo, Montale, Moravia, and Pirandello. Prereq.: One 700-level Italian course.

885. Special Topics. Studies in Italian language, literature, or civilization ranging from medieval to modern times. Topic announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: One 700-level Italian course.

LATIN—Latin

Lower-Division Courses

*501, *502, *503. Elementary Latin 1, 2, 3. Essentials of Latin grammar and some reading of connected prose. Designed for pre-law students and English and modern language majors as well as for students planning to continue in Latin. The prerequisite for LATIN 502 is LATIN 501 or equivalent; the prerequisite for LATIN 503 is LATIN 502 or equivalent.

- 540. Latin and Greek Elements in English. A systematic study of English vocabulary derived directly and indirectly (e.g., through French) from Latin and Greek.
- *601. Intermediate Latin 1. A rapid review and expanded study of Latin grammar, with prose exercises, accompanied or followed by careful reading of selections from Catullus, Ovid, and other writers. Prereq.: LATIN 503 or equivalent. 4 q.h.
- *602. Intermediate Latin 2. Reading of selections from Cicero and other writers. Prereq.: LATIN 601 or equivalent. 4 q.h.
- 660. Women in the Ancient World. Study of various aspects of the lives of women in Ancient Greece and Rome. Emphasis will be on examination and evaluation of primary sources. All readings will be in English.

Upper-Division Courses

- 707. Cicero's Orations. Selections from one or more of Cicero's orations with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.
- 708. Prose Epistle. Selections from the letters of a Roman epistolographer (e.g., Cicero, Seneca, Pliny) with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.
- 709. Lyric Poetry. Selections from Catullus' Carmina, and Horace's Odes with attention to style, meter, and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.
- 717. Readings from Roman Philosophy. Selections from the works of a Roman philosophical writer (e.g., Cicero, Seneca) with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.
- 718. Readings from Roman Drama. Selections from one or more of the plays of Plautus and Terence with attention to style, content, and practical considerations of dramatic production in Rome. Grammatical review and composition. Prereq.: LATIN 602 or equivalent.
- 719. Readings from Roman History. Selections from the works of a Roman historian (e.g., Sallust, Livy, Tacitus) with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.
- 727. Readings from Epic Poetry . Selections from a Roman epic other than Virgil's Aeneid (e.g., Ovid's Metamorphoses, Lucan's Civil War) with attention to style, meter, and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.
- 729. Vergil's Aeneid 1. An introduction to the Aeneid based on a reading of the whole poem in English and of significant passages from Books 1-6 in Latin, with attention to style and content. Prereq.: LATIN 602.

- 804. Advanced Composition and Syntax. A synthesizing review of the principles of Latin syntax and practice in writing Latin, with special attention to differences in idiom, structure, and style between English and classical Latin. Prereq.: Any 700-level Latin course.
- 829. Vergil's Aeneid 2. A continuation of Latin 729 concentrating on reading significant passages of Books 7-12 in Latin and examination of relevant scholarly studies of the poem. Prereq.: Latin 729.

4 g.h.

885. Special Topics. Studies in Latin language, literature, or Roman civilization. Topic is announced each time course is offered. May be taken three times for credit, if content is not repeated. Prereq.: Any 700-level Latin course.

RUSSN-Russian

Lower-Division Courses

- *501, *502, *503. Elementary Russian 1, 2, 3. Introduction to Russian language as a functional system, development of novice-level skills in communicative competence and cultural literacy. Daily reading, writing and listening assignments; oral work in pairs and groups. The prerequisite for RUSSN 502 is RUSSN 501 or equivalent; the prerequisite for RUSSN 503 is RUSSN 502 or equivalent.
- 505, 506. Russian Reading for Translation 1, 2. An introduction to Russian grammar stressing techniques of translation into English, including general, technical, and scientific texts, vocabulary, word formation, and dictionary usage to facilitate reading skills. The prerequisite for RUSSN 506 is RUSSN 505 or equivalent.
- *510. Functional Approach to Russian. Basic Russian for specific purposes, including, but not limited to, everyday and travel situations. Classwork will focus on intensive practice in speaking and listening skills, using resources available through YSU Language Learning and Resource Center. Students with three years of high school Russian or credit for Russian 601 or higher receive no credit for Russian 510.
- *601, *602. Intermediate Russian 1, 2. Continuation of skills development begun in elementary Russian. Completes "survival skill" basics in reading, writing, speaking, listening, and cultural competence. The prerequisite for RUSSN 601 is RUSSN 503 or its equivalent; the prerequisite for RUSSN 602 is RUSSN 601 or its equivalent.
- 604. Intermediate Russian Conversation. Intensive practice in common patterns of speech. Emphasis on construction, control, and use of idiomatic expressions. A student who has credit for RUSSN 763 may not receive credit for RUSSN 604. Prereq.: RUSSN 602 or equivalent.

615. Intermediate Russian Readings. Reading and structural analysis of unsimplified selections from literature, journals, and newspapers. A student who has credit for RUSSN 762 may not receive credit for RUSSN 615. Prereq.: RUSSN 602 or equivalent.

4 q.h.

- 620. Contemporary Russian Culture. An introduction to life in Russia and the former Soviet Union during the contemporary period. Examination of recent literature, films, and journalistic media. Taught in English, with optional Russian-language component.
- 640. Selected Topics. Development of language skills through study of a topic that has practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if the topic is not repeated. Total credit in RUSSN 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: RUSSN 602 or equivalent, or permission of instructor.

2-4 q.h.

660. Russian Literature in Translation. Studies in selected authors, genres, or themes in Russian literature, read in English translation. Topic is announced each time course is offered. May be repeated once for credit if topic is different. 4 q.h.

Upper-Division Courses

- 700. Third-year Russian Practicum. Individualized development of language skills for students who have completed one course beyond Russian 602. Concurrent enrollment in another Russian area course is expected. May be taken up to three time for credit for a maximum of 6 q.h. 2 q.h.
- 715. The Russian Cultural Heritage 1. Themes and variations in Russian folklore, literary, religious, and philosophical writings, arts, and architecture, from Kievan Rus' to Imperial Petersburg. Readings, lectures, and discussion in English. Prereq.: Any Russian area course, or sophomore standing, or permission of the instructor. Satisfies the university area requirement in the humanities.

 4 q.h.
- 716. The Russian Cultural Heritage 2. Decembrists through Octobrists: a survey of Russian literature, philosophy, and the arts in the Nineteenth and Twentieth Centuries, as they reflect changing views of a distinct national culture. Readings, lectures, and discussions in English. Prereq.: Any Russian area course, or sophomore standing, or permission of the instructor. Satisfies the university area requirement in the humanities.
- *765. Practical Russian Phonetics. Theory and practice of Russian speech, pronunciation, stress, rhythm, and intonation. Phonemic and morphemic analysis. Prereq.: RUSSN 602 or permission of the instructor.
- 770. Advanced Russian Grammar and Composition. A review in depth of Russian grammar through exercises, translation, original composition, and

- analysis of stylistic devices of literary works. Prereq.: RUSSN 602 or permission of the instructor. 4 q.h.
- 800. Fourth-year Russian Practicum. Individualized development of language skills for students who have completed 12 or more q.h. beyond Russian 602. Concurrent enrollment in another Russian area course is expected. May be taken up to three times for credit, for a maximum of 6 q.h. 2 q.h.
- 808. Russian Literature of the 19th Century. Reading and interpretation of works by Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy, Chekhov, and Goncharov. Prereq.: Any 700-level Russian course. 4 q.h.
- 809. Russian Literature of the 20th Century. Reading and interpretation of works by Gorky, Blok, Mayakovsky, Fedin, Sholokhov, Fadeyev, Pasternak, and others. Prereq.: Any 700-level Russian course.

 4 q.h.
- 885. Special Topics. Studies in Russian language, literature, or civilization ranging from medieval to modern times. Topic is announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: Any 700-level Russian course.

 2-4 q.h.

SPAN—Spanish

Lower-Division Courses

- *501, *502, *503. Elementary Spanish 1, 2, 3. Fundamental principles of grammar taught through oral and written exercises and the reading of simple prose. The stress is on aural-oral facility. The prerequisite for SPAN 502 is SPAN 501 or equivalent; the prerequisite for SPAN 503 is SPAN 502 or equivalent.

 4+4+4 q.h.
- *504. Intensive Elementary Spanish. A review course covering the material of SPAN 501, 502 and 503 in one quarter. Students who have received credit for SPAN 503 cannot receive credit for SPAN 504. Prereq.: 2 years of high school Spanish. 4 q.h.
- *601. Intermediate Spanish 1. Review of grammar through oral and written exercises. Reading of modern prose and poetry. Prereq.: SPAN 503 or equivalent.
- *602. Intermediate Spanish 2. Continuation of SPAN 601. Prereq.: SPAN 601 or equivalent. 4 q.h.
- 615. Intermediate Spanish Readings. Intensive reading of a wide variety of 20th century texts including literature, essays, film scripts, journalistic and scholarly writing, designed to improve students' reading and interpretive skills in Spanish. Prereq.: SPAN 602 or equivalent or permission of instructor.
- 640. Selected Topics. Development of language skills through study of a topic that has practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if topics are different. Total credit in SPAN

640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: SPAN 602 or equivalent, or permission of instructor. 2-4 q.h.

645. Commercial Spanish. Principles of effective commercial letter and report writing and oral communication in business in the Spanish-speaking world. Prereq.: SPAN 602 or permission of instructor.

655. Spanish Conversation 1. Techniques of oral expression to develop fluency and accuracy. Practical strategies to help students communicate effectively in a variety of social contexts. Listening comprehension, pronunciation drills, functional vocabulary. Laboratory practice. Prereq.: SPAN 602 or equivalent or permission of instructor. 4 q.h.

Upper-Division Courses

*724. Spanish Pronunciation. Theory and practice of Spanish pronunciation. Description of production of Spanish speech sounds and general characteristics of Spanish pronunciation. Topics on intonation will be included. Audio-lingual practice in class and in language laboratory. Prereq.: SPAN 602 or equivalent or permission of instructor.4 q.h.

735. Spanish Grammar 1. A review of Spanish grammar through written and oral exercises, description and analysis of morphological topics, with emphasis on noun and verb systems. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 615 or equivalent or permission of instructor.

736. Spanish Grammar 2. A review of Spanish grammar through written and oral exercises, description and analysis of syntactical topics, with emphasis on pronoun system, word order, as well as sentence formation and combination. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 735 or equivalent or permission of the instructor.

737. Spanish Composition. Development of techniques of writing Spanish prose through composition exercises, summaries, letters, essays, reports, papers. Prereq.: SPAN 736 or equivalent or permission of instructor.

752. Spanish Civilization and Culture 1: Origins to 1700. The development of the civilization of Spain (including Basque, Catalan, and Galician culture) from its origins to the end of the Golden Age as revealed in the literature, art, social and economic organization, folklore, crafts, and music characteristic of the period. Prereq.: SPAN 615 or equivalent or permission of instructor.

753. Spanish Civilization and Culture 2: 1700-1931. The development of the civilization of Spain (including Basque, Catalan, and Galician culture) from the beginning of the Bourbon dynasty to the Second Republic as revealed in the literature, art, social and economic organization, folklore, crafts, and music characteristic of the period. Prereq.: SPAN 615 or equivalent or permission of instructor. 754. Spanish Civilization and Culture 3: 1931 to Present. The contemporary civilization of Spain (including Basque, Catalan, and Galician culture) with emphasis on the period since 1975. Includes an examination of the literature, art, social and economic organization, music, and popular culture of the era. Prereq.: SPAN 615 or equivalent or permission of the instructor.

755. Spanish Conversation 2. Development of oral expression through discussion of current topics in the context of worldwide Hispanic culture, politics, and economics. Expansion of vocabulary. Laboratory work according to individual needs. Prereq.: SPAN 655 or equivalent or permission of the instructor.

756. Latin America Civilization and Culture 1: From 1492 to 1820. The cultural development of Latin America from the Discovery to the Wars of Independence as displayed in the literature, art, social and economic organization of the period. Prereq.: SPAN 615 or equivalent or permission of the instructor.

757. Latin America Civilization and Culture 2: From 1820 to 1910. The development of Latin American culture from independence to 1910, and the role played by movements, such as Romanticism, Realism and modernism, in the development of the culture. Prereq.: SPAN 615 or equivalent or permission of the instructor.

758. Latin America Civilization and Culture 3: From 1910 to the Present. The contemporary civilization and culture of Latin America. Processes and problems of modernization. The development of a distinctive Latin American culture from native as well as foreign literary and cultural movements. Prereq.: SPAN 615 or equivalent or permission of the instructor.

855. Topics in Spanish Language and Linguistics. An introduction to the terminology, concepts, bibliography and current issues in Spanish language and linguistics. Major topics include phonology, morphology, semantics, syntax, applied linguistics, transformational grammar, and other topics related to language variation and society. May be repeated once when topic varies. Prereq.: SPAN 615 and one 700-level Spanish course or equivalent or permission of the instructor.

870. Topics in Spanish Literature. Study of an author, a genre, or a movement in Spanish literature from 1492 to the present. The topic will be announced each time the course is offered. May be taken three times if content is not repeated. Prereq.: SPAN 615 plus one 700-level course or equivalent or permission of the instructor.

885. Special Topics. Studies in Spanish language, literature, or civilization ranging from medieval to modern times. Topic is announced each time course is offered. May be taken three times for credit, if content is not repeated. Prereq.: SPAN 615 plus one 700-level Spanish course.

890. Topics in Latin America Literature. Study of a movement, a genre or an author in Latin America from 1492 to the present. The topic will be announced each time the course is offered. May be taken three times if content is not repeated. Prereq .: SPAN 615 plus one 700-level Spanish course or equivalent or permission of the instructor. 4 q.h.

FNUTR—FOOD AND NUTRITION

- 502. Nutrition Fundamentals. Basic nutrition principles and their relation to growth, development, and the maintenance of health. Not applicable to Food and Nutrition major or minor. 4 q.h.
- 543. Personal Nutrition. Basic normal nutrition adaptable to individual lifestyles throughout the lifespan. Emphasis on valid nutrition information, wellness and healthful food choices. 2 q.h.
- 551. Normal Nutrition 1. The fundamentals of normal nutrition as they apply to health; nutritional needs during various stages of the life cycle; dietary guides and their application to the selection of adequate diets; problems of nutritional deficiencies and excesses. Prereq.: CHEM 501 or equivalent.

- *551L. Nutrition Laboratory. Principles, procedures, techniques used in assessing the normal diet and nutritional status in healthy individuals. Four hours of lab a week. Prereq.: MATH 511 or 515 or high school equivalent; FNUTR 551 (or concurrent). Permit required.
- 552. Food Management. Nutritional, aesthetic, social, and economic factors in planning and preparation of meals.
- *552L. Food Management Laboratory. Application of principles from FNUTR 552. Four hours laboratory per week. Must be taken concurrently with FNUTR 552. 2 q.h.
- 603. Diet Therapy. Principles and methods of diet modifications for common diseases; planning and evaluation of modified diets; application of computers for diet analysis. Must be taken concurrently with 603L. Prereq.: FNUTR 551L; BIOL 552. 4 q.h.
- *603L. Diet Therapy Lab. Application of basic principles of diet therapy; nutritional assessment; diet calculations. Two hours laboratory per week. Must be taken concurrently with FNUTR 603.

1 q.h.

606. Food Science. The physical and chemical properties of food. Basic principles and methods in selection, purchase and preparation. Prereq.: High school laboratory science course; MATH 500 or equivalent; FNUTR 552 or high school food course.

*606L. Food Science Laboratory. Application of principles from HMEC 606. Must be taken concurrently with FNUTR 606. Six hours of laboratory weekly. 2 q.h.

- *609. Food Systems 1: Operations. The fundamentals of food system operations including menu planning, purchasing of foods and equipment, care of foods and equipment, efficient work methods, budget and cost control in foodservice departments. Prereq.: FNUTR 552 and 552L or FNUTR 606 and
- 609L. Food Systems 1: Clinical Experience . Observation of foodservice facility organization and management function; participation in the operations of a clinical foodservice facility. Six hours of clinical experience per week. Prereg.: ACCT 602 with a grade of C or better, prerequisite or concurrent with FNUTR 609 and 610. Permit required. 2 q.h.
- 610. Organization and Management. Concepts of organization and management related to hospitality/health care; selecting, training, developing and supervising for the advancement of personnel. Emphasis will be placed on labor-management relations and legal aspects of the management-guest relationship with particular attention to personal and property liability. 4 q.h.
- 611. Food Systems 2: Production and Service. Standards, principles and techniques in quantity food production and "front-of-the-house" management and service. Must be taken concurrently with HMEC 611L. Prereq.: FNUTR 609. Permit required.
- *611L. Food Systems 2: Laboratory. Application of quantity food production principles and procedures to the preparation and service of regularly scheduled luncheons for groups in the Home Economics facilities. Nine hours of laboratory a week. Must be taken concurrently with FNUTR 611. Permit required. 3 q.h.
- 613L. Nutritional Care Clinical Experience. Application of nutritional care process in a hospital or other clinical setting. Includes conferences, 2 hour on-campus seminar, and 6 hours supervised clinical experience per week. Prereq.: FNUTR 603, 603L, and attendance at Infection Control Seminar prior to site work. Permit required.
- 618. Preclinical Skills. Employee evaluation and client assessment: interviewing, counseling, documentation, application of educational and socioeconomic principles in planning/teaching positive behaviors. Prereq.: FNUTR 551L. 3 q.h.
- 628. Practicum in Dietetic Technology. Experience in supervision of food production; assessment, documentation and teaching of the individual patient or client groups; community nutrition. Overall GPA of 2.5 required. Twenty-one hours of clinical experience per week. Prereq.: FNUTR 609L, 611, 611L, 613L; CHEM 505; and application filed with instructor one quarter prior to registration for course. Permit required. 3 q.h.
- 650. Seminar in Dietetic Technology. The role of the dietetic technician in the health care delivery system; overview of current opportunities in the

foodservice field; standards of professional responsibility, practice and self-development. Must be taken concurrently with FNUTR 628. Permit required.

750. Orientation to Dietetics. Orientation to the clinical and administrative aspects of the dietetic profession. Prereq.: Admission into CPD. 1 q.h.

759. Normal Nutrition 2. Integrated approach to nutrition and health, emphasizing metabolism and functions of nutrients at the cellular level; nutritional needs for optimum health; problems of overnutrition and undernutrition. Prereq.: FNUTR 551, BIOL 552, CHEM 705 (or concurrent). 4 q.h.

*759L. Normal Nutrition 2 Laboratory. Selected clinical experiences providing opportunities for developing an understanding and working knowledge of the nutritional care process with focus on problems encountered in normal nutrition. Two hours of laboratory and two hours of lecture per week. Taken concurrently with FNUTR 759.

760. Clinical Nutrition. The nature and etiology of diseases and the relationship of diet to good health and to disease processes; the special dietary needs of abnormal conditions. Prereq.: FNUTR 603, 759.

*760L. Clinical Nutrition Laboratory. Selected clinical experiences providing opportunities for application of the nutritional care process to individuals exhibiting special nutritional needs. Six hours of laboratory and one hour of lecture per week. To be taken concurrently with FNUTR 760.

3 ah

761. Nutrition and the Athlete. Facets of nutrition of special relevance to athletes, such as carbohydrate-loading, protein intake, electrolyte imbalances, and crash diets. Prereq.: HSC 590. 3 q.h.

810. Experimental Foods. Advanced study of food science and technology; methodology of food research including evaluation by sensory and objective methods. Prereq.: CHEM 506; FNUTR 606. Permit required. 3 q.h.

*810L. Experimental Foods Laboratory. Application of scientific principles and experimental procedures to cooking processes. Must be taken concurrently with FNUTR 810. Three hours laboratory per week. **Permit required.** 1 q.h.

825. Current Nutrition Concepts. Readings and critical appraisal of research literature in nutrition. Prereq.: FNUTR 759, CHEM 705. 4 q.h.

*858. Foodservice Systems Management. Advanced foodservice systems management principles and processes as they relate to resources and operating sub-systems. Focus will be on subsystem interrelationships. Prereq.: FNUTR 611 and a minimum of 20 hours of Human Ecology credit. 6 q.h.

858L. Foodservice Systems Management Laboratory. Application of the management process to the hospital foodservice system. Twenty-five hours of supervised practice and one hour of lecture per week. Taken concurrently with FNUTR 858.

6 a.h.

860. Advanced Clinical Nutrition. Advanced study of the nature and etiology of disease conditions with focus on the complex dietetic problems accompanying them. Prereq.: FNUTR 760 or permission of instructor.

*860L. Advanced Clinical Nutrition Laboratory. Clinical experiences providing opportunities for application of nutritional care process to individuals exhibiting complex abnormal nutritional needs. Ten hours of directed practice and one hour lecture per week. To be taken concurrently with FNUTR 860.

3 q.h.

862. Food and Culture. Food practices of selected world cultures. Evaluation of these practices in meeting dietary needs with consideration of the existing social, economic, and environmental conditions. Prereq.: CHFAM 731.

*862L. Food and Culture Laboratory. Must be taken concurrently with FNUTR 862. Three hours laboratory weekly. 1 q.h.

872. Maternal and Child Nutrition. Principles of the nutritional care process as it relates to the maternal and pediatric population. Prereq.: FNUTR 760.

*872L. Maternal and Child Nutrition Laboratory. Selected clinical experiences providing opportunities for application of nutritional care process to the maternal and child population. Five hours of clinical experience and one hour of lecture per week. Taken concurrently with FNUTR 872. 2 q.h.

873. Nutrition and Aging. Nutritional needs of the elderly as influenced by the aging process and disease states; factors affecting the food availability, food intake and nutritional status of the elderly; nutrition services for the elderly. Prereq.: FNUTR 760. 4 q.h.

874. Community Nutrition. Public Health nutrition programs and their services to the community. Special emphasis on needs of at-risk population groups such as the elderly. Prereq.: FNUTR 603.

2 q.h.

*874L. Community Nutrition Laboratory. Selected clinical experiences providing opportunities for application of the nutritional care process to individuals in community health care settings. Five hours of clinical experience and one hour of lecture per week. Taken concurrently with FNUTR 874.

2 q.h.

885. Practicum in Dietetics. Clinical experiences providing opportunities to integrate content and process principles of management and clinical dietetics into dietetic practice. Emphasis in the classroom is placed on current trends and practice in the field. Two hours of lecture and thirty-five hours of clinical experience per week. Prereq.: 860L, 858L, and senior standing.

FOUND—FOUNDATIONS OF EDUCATION

Lower-Division Courses

501. Introduction to Education. Designed to offer students a common core of experiences facilitating learning about schools, their functioning and their various programs. Examination of requirements for admission to the College of Education, issues relating to licensure, and some basic principles and issues in the economic, historical, sociological, and philosophical foundations of American schooling. 30 hours of field experiences are required. Prerequisite for any other course in education unless waived by the dean of the College of Education.

4 q.h.

710. Educational Measurement and Guidance. Construction, administration, scoring, and interpreting of objective examinations; selection and administration of standardized tests and scales, and their use in vocational and educational guidance. Required of all candidates for teaching certificates.

4 q.h

Upper-Division Courses

Students who have not been admitted to upperdivision status in the College of Education, or who are not working toward teacher licensure may be admitted to FOUND 708, 872, 873, 875, 876, 877, 879, 889 or 899.

*702. Instructional Media. Instructional modules for the development of educational media materials used in the classroom and procedures for operating equipment such as filmstrip, slide, overhead, motion picture and opaque projectors. One hour of lecture and two hours of laboratory a week. Prereq.: Admission to upper-division status in the College of Education. Required for all candidates for teaching certificates.

708. Education and Society. The school as an interactive institution. Examination of interactions of home, religion, state, economic and cultural norms with schooling plans, problems and procedures. A field experience of 24 hours is required to aid students in further development of an understanding of the effects and functions of formalizing education in American society. Required of all candidates for teaching certificates.

870. Problems of the Classroom Teacher. Adjustment of teaching surroundings; seeking practical and acceptable solutions to problems through rethinking of philosophy, instructional methods, and ethics; the professional, legal, and social status of the teacher; teacher-pupil relations, and other problems.

871. Pupils' Problems. The problems of school routine, such as discipline, attendance, public school delinquency, child labor, and school-parent relationship: practical cases. Social agencies as auxiliaries to the school program.

3 q.h.

*872. Statistical Methods in Education. An introductory course in frequency distributions, measure of central tendency, measure of variability, calculation and meaning of percentiles, the normal curve, reliability and validity of measures and simple correlation.

873. Comparative Education. A survey of the national school systems of selected foreign countries to facilitate comparisons with the U.S. structure.

3 q.h

875, 876, 877. Seminar in Foundations of Education. Various topics of current interest in the foundations area selected by the staff. Maximum 15 q.h. 1-4 q.h.

879. Educational Sociology Seminar. Students will be required to participate in an extensive field project designed to give them an understanding of minority groups in our population and their cultures. This field experience coupled with seminar sessions will be the basis for a written paper.

2-4 q.h.

880. Inner-City Educational Workshop. A survey of some of the more creative and innovative approaches being used in inner-city schools: lectures, discussions, visual aids; nationally recognized experts in the field employed as consultants. A review of economic, social, and psychological forces which have changed our cities, and the educational implications thereof. A critical evaluation of personal attitudes which lead to prejudice, misunderstanding, and fear. Prereq.: Certificated Teachers Employed in Inner-City Schools.

*889. Small Computer Applications in the Classroom. Focus on computer awareness, literacy, and the implications of learning theory on computer application. Students will develop the knowledge and skills necessary to utilize and integrate microcomputing into the learning environment. 3 q.h.

899. The Community School. The basic principles in the organization and administration of community school activities. Observations of community schools and their varied programs together with textual and research materials. The Flint Community Schools will receive particular attention. Open to non-majors.

GEOG-GEOGRAPHY

Physical Geography

The University's science/mathematics requirements are satisfied by the following geography courses.

Lower-Division Courses

503. Introduction to Physical Geography. An introductory analysis of selected elements of man's natural habitat and their distributions. The course examines topography, soil, vegetative cover and the hydrographic components of the natural landscape.

4 q.h.

603. Human Impacts on the Environment. The interactions between natural systems and human activities that result in environmental change or degradation of the earth's atmosphere, waters, soil, vegetation and animal life. Conservation, mitigation, and sustainable resource strategies are discussed.

4 q.h.

*610. Map Use and Interpretation. The use of maps, aerial photography and satellite imagery to depict physical and cultural landscapes. Topics covered include map elements and how to locate, read and interpret maps and remotely-sensed imagery.

4 q.h.

630. Weather. An examination of basic weather elements, their interrelationships and the natural laws that govern them. Focus is on both globalscale atmospheric processes and localized factors that influence weather conditions and patterns. 4 q.h.

Upper-Division Courses

730. Global Climates. An examination of the earth's climates and the processes and controls responsible for their occurrence, distribution and change. Prereq.: GEOG 630. 4 q.h.

*735. Severe Weather. General weather principles applied to the causes and distributions of droughts, floods, tornados, thunderstorms, hurricanes, blizzards and electrical storms. Prereq.: GEOG 630.

4 q.h.

*737. Soils and Land Use. Examination of soil characteristics influencing land use planning and development. Topics include the basic physical and chemical properties of soil, soil water, the soil-forming factors, the use and interpretation of county soil reports, and soil characteristics beneficial and detrimental to selected land use practices. Participation in field trips is required. Prereq.: GEOG 503 or GEOL 505; High school chemistry or CHEM 501 recommended.

820. Special Problems in Physical Geography. An indepth study of a specific problem in physical geography. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of Geography.

823. Special Problems in Atmospheric Studies. An in-depth study of a specific problem related to atmospheric studies. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of Geography.

825. Geography Internship. Practical application of geographic principles and skills in the public or private workplace. A minimum of thirty clock hours per credit hour per quarter are required in the work setting. An activities log must be maintained and oral and written reports of the internship experi-

ence are required. May be repeated for up to 8 q.h. Prereq.: 4 q.h. upper-division geography; by permit only.

2-4 q.h.

Human and Regional Geography

The University's social studies requirements are satisfied by the following courses.

Lower-Division Courses

626. World Geography. A comparative study of representative regions of the world. Attention is focused on an examination of the physical, cultural, social and political attributes of selected regions.

4 q.h.

640. Human Geography. An examination of the place to place variation in people's utilization of the earth. Topics examined include the distribution of people, spatial variations in culture, urbanization and politization of space.

4 q.h.

650. Global Economic Landscapes. Geographic patterns of economic activities such as agriculture, manufacturing, retailing and services and regional patterns and issues in the emerging global economy.

4 a.h

Upper-Division Courses

*710. Remote Sensing. The use of aerial imaging systems and satellite sensors to study the earth's physical and cultural phenomena through manual and digital analyses. Students who have completed GEOG 661 will not receive credit for this course. Prereq.: GEOG 610 or junior standing. 4 q.h.

715. Geography of the Caribbean. Spatial patterns found in the physical and cultural landscapes of the Caribbean. Prereq.: GEOG 626 or 640 or junior standing. Not available to students with credit for 7501.

717. Geography of Europe. Spatial patterns found in the physical and cultural landscapes of Europe. Prereq.: GEOG 626 or 640 or junior standing. Not available to students with credit for 750E. 4 q.h.

719. Geography of United States . Spatial patterns found in the physical and cultural landscapes of the United States. Prereq.: GEOG 626 or 640 or junior standing. Not available to students with credit for 750Y.

721. Geography of Ohio. Spatial patterns found in the physical and cultural landscapes of Ohio. Prereq.: GEOG 640 or 626 or junior standing. Not available to students with credit for 7500. 4 q.h.

722. Historical Geography of the United States. Spatial patterns in the United States over time. Topics include discovery and exploration, regional variation in settlement, ethnicity and material culture, and the role of transportation in the American landscape. Prereq.: GEOG 626 or 640 or junior standing.

726. Urban Geography. A study of the changing spatial patterns associated with the rise of urbanism, comparative urban developments and cities as a part of the urban system. Prereq.: GEOG 640.

4 a.h

- *731. Thematic Map Design . Principles of compilation, design, and cartographic communication for constructing specific-purpose maps. Prereq.: GEOG 610 or junior standing. Not available to students with credit for GEOG 660.
- *732. Computer Cartography. A course emphasizing map production, data manipulation, and an examination of the problems and techniques of using computers to create maps. Prereq.: GEOG 610 or 731 or junior standing.
- 740. Business Geographics. The application of geographic concepts and techniques to business problems, with emphasis on the use of geographic data, locational decision-making and the analysis of markets. Prereq.: GEOG 640 or 650 or junior standing.
- 741. Transportation Geography. Spatial properties of interregional and intraurban transportation. Topics include network development, movement patterns of people and commodities and the impact of transportation on other activities. Prereq.: GEOG 626 or 640 or 650 or junior standing.
- 745. The Automobile in American Culture. The impact of the automobile on the economic, cultural and environmental landscapes of the United States from a geographic standpoint. Prereq.: GEOG 640 or junior standing.
- 750. Topics in Regional Geography. Application of the regional method to selected areas of the world. Topic is announced each time the course is offered. May be repeated three times for credit, if content is not repeated. Maximum credit twelve hours. Prereq.: GEOG 626 or 640 or junior standing.

4 q.h.

755. Tourism Geography. Spatial components of leisure travel and the travel industry. Topics include travelers' origins and destinations; transportation modes and routing; impacts on communities, regions and nations and the role of the government and professional organizations. Prereq.: GEOG 626.

4 q.h.

- 756. Tourism Planning. Examination of the resources, site characteristics, analysis techniques and marketing for potential tourist development. Emphasis is placed on the planning process. Prereq.: GEOG 755. 4 q.h.
- *760. Analysis of Geographic Data. Techniques of data description; introduction to statistical methods, with emphasis on problems unique to geographic data. Prereq.: 8 credit hours of Geography or permission of instructor.
- *765. Geographic Information Systems. The components of a GIS, the characteristics of spatial data

and exploration of GIS applications. Prereq.: GEOG 710 or 732 or 760, or junior standing. 4 q.h.

- *813. Field Methods. Practical experiences in geographic data collection. Emphasis is on applying the techniques of observation, sampling, interviewing and mapping to both physical and human phenomena having geographical dimensions. Students will apply these techniques at several scales: The local campus, the Youngstown-Warren SMSA, a larger metropolitan region, and other nearby regions. Participation in field trips is mandatory. Prereq.: junior standing, eight hours of geography, and consent of instructor.
- 821. Special Problems in Human Geography. An in-depth study of a specific problem in human geography. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of Geography.
- 822. Special Problems in Cartography. An indepth study of a specific problem in cartography. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of geography.

 1-4 q.h.
- 830. Topics in City and Regional Planning. Selected issues related to planning. Topics are announced each time the course is offered. May be taken up to three times for credit, if topics are not repeated. Replaces GEOG 805 and GEOG 809. Prereq.: GEOG 726 recommended or consent of the instructor.
- 840. Seminar in Geography. Selected aspect of geography not covered in existing courses. Topic to be announced each time the course is offered. May be taken up to two times for credit, if topic is not repeated. Prereq.: Twelve hours of Geography.

1-4 a.h.

850. International Area Study. A course in the geography and history of a selected international area with emphasis on cultural development by traveling in the selected region. The class and travel is supervised by the geography and/or history faculty. The course grade is based upon a term paper which must be submitted within 60 days after the end of the course. Prereq.: By permit only.

4-12 q.h.

GEOL—GEOLOGY

Lower-Division Courses

505. Physical Geology. A study of the various physical and chemical processes acting on and within the earth and their products. Credit for this course may be applied towards the University science requirements.

4 q.h.

- 505H. Honors Physical Geology. Concepts of the earth as a dynamic planet, investigated through a variety of lectures, text and journal readings, and independent library-research assignments. Prereq.: Eligibility for the Honors Program or consent of instructor.
- *508. Geology of Gem Stones and Allied Materials. Formation, occurrence, and distribution of gem materials. Properties and identification of gem stones; factors affecting their value. Introduction to synthetic/artificial gem materials. Not applicable toward a geology major.

 4 q.h.
- *509L. Geoscience Laboratory. Problem solving and assessment of case histories to illustrate the scientific method and geologic principles and concepts. Two hours laboratory per week. Prereq. or concurrent: Geol 505 or 505H.
- 510. Geology of National Parks. Geologic history of national parks; geologic processes observed in North American parks and Hawaii. Simulated field trips to several major parks. Not applicable toward a geology major.
- 513. Physical Evolution of North America. Origin and evolution of the continent of North America; focus on the geologic evidences and physical changes through geologic time; global role of plate tectonics. Prereq.: GEOL 505.
- *514. Life of the Geologic Past. Origin, classification, and evolution of plants, invertebrates and vertebrates through geologic time as evidenced by the fossil record; contemporary understanding of the extinction of various life forms, such as the dinosaurs. Three hours lecture, two hours lab. 4 q.h.
- 602. Introduction to Oceanography. Survey in geological, physical, chemical, and biological oceanography; description and distribution of properties and their relationship to circulation, shorelines, ocean features, sediments, organisms, and environments.
- *608. Geology Laboratory. Identification of minerals and rocks, the interpretation of topographic and geologic maps and outside work as a practicum for geologic problem solving. Four hours lab, two hours lecture. One full-day field trip is required. Prereq.: GEOL 505 or 611.
- *611. Geology for Engineers. Study of geologic principles, processes, and materials; focus on recognition geologic factors as they apply to engineering operations and projects. Laboratory work includes examination of minerals, rocks, maps, and case histories. Three hours of lecture and three hours of laboratory a week.

 4 q.h.
- 614. Mesozoic Dinosaurs and Other Reptiles . A survey of major mesozoic dinosaurs and reptiles, including discussion on their environment, organic evolution, diversity and controversies pertaining to their classification and extinction. Prereq.: GEOL 513.

- 615. Geology and the Environment I. A study of the interrelationship of human activity and the geologic environment. An examination of geologic hazards, geological considerations in waste disposal, resource utilization, and land use. Prereq.: GEOL 505 or 611.
- 699. Individual Study. The introductory study of problems or issues in geology, or a review of literature relating to a specific geologic topic. A maximum of 4 quarter hours may be taken. Prereq.: 12 q.h. in geology in appropriate courses, consent of Geology Department Chair and Instructor.1-4 q.h.

Upper-Division Courses

*700. Mineralogy. The occurrence, composition, and crystallography of common and economically important minerals. Identification of minerals using physical properties, chemical tests, and X-ray diffraction. Four hours of laboratory and two hours of lecture per week. Prereq.: GEOL 608 and CHEM 501 or equivalent. Students who have completed GEOL 801 may not take this course for degree credit.

4 q.h

- *701. Geomorphology. A study of landforms and the processes which create them, using aerial photographs, geologic maps, and topographic maps. The laboratory work emphasizes recognition and interpretation of landforms. Three hours of lecture and three hours of laboratory a week. Prereq.: GEOL 608.
- 702. Glacial Geology. A study of glacier types: their origin, movement, erosional/depositional contributions, and their relationship to various non-glacial features. Emphasis is on the Pleistocene glacial succession in North America. Field trips are an integral part of the course. Prereq.: GEOL 505.

4 q.h.

- 704. Structural Geology. Description and interpretation of geologic structures, mechanical properties; stress-strain relationships, regional structure of North America, and major tectonic theories. Prereq.: GEOL 608. Geology majors must take 704L concurrently with 704.
- *704L. Structural Geology Laboratory. Structural geology techniques and analyses, including orthographic solutions, stereographic projections, and interpretation of maps. One hour lecture, two hours of lab per week. Prereq. or concurrent: GEOL 704 and MATH 520, or consent of instructor. 2 q.h.
- 706. Geology of Economic Mineral Deposits. A study of the occurrence, origin, and distribution of mineral deposits; with special attention to their economic use. Field trips are mandatory. Prereq.: GEOL 608.
- *707. Applied Geophysics. Applications of geophysics to geological problems; geophysical exploration for mineral and fuel resources. The study will include fundamentals of terrestrial electricity, seismology, geomagnetism, terrestrial heat, and terres-

trial gravity in addition to the structure and composition of the earth as determined by geophysical methods. Prereq.: GEOL 505, PHYS 503; MATH 571 recommended. 4 q.h.

*709. Subsurface Investigations. An introduction to subsurface investigative methods. Instruction provided in a combined lecture, laboratory, and field setting. Students are presented with the task of solving an actual subsurface geological problem, using rock, soil, and water samples, maps, reports, well logs, and geophysical data. Two field trips required. Three hours lecture and two hour lab per week. Prereq.: GEOL 608 or 611; MATH 571 recommended.

*713. Optical Mineralogy. The theory and use of the polarizing microscope and its application to the study of crystalline material, including asbestos materials. Cannot be taken for credit by students who have completed GEOL 803. Two hours of lecture and four hours of laboratory a week. Prereq.: GEOL 700.

*714. Principles of Paleontology. A detailed study of fossil invertebrates, including their origin, classification, paleoecology and stratigraphic utilization. Three hours of lecture and three hours of laboratory per week. Prereq.: GEOL 514 or consent of instructor.

*716. Environmental Impact of Abandoned Mines. Mining methods, types of mines, information retrieval, mine stabilization, and the effects of abandoned mines on the environmental and human activities, especially of deep coal mines in the Mahoning Valley and adjacent areas. Prereq.: CIS/CSCI/520 or equivalent plus GEOL 505 and either 608 or 611. Three hours of lecture and two hours of laboratory per week.

*717. Geochemistry. An examination of chemical principles that are applicable to the study of geologic processes and materials. Topics include geochemical cycles, stable and radioactive isotopes and phase equilibria. Prereq.: GEOL 700 and CHEM 517 or consent of instructor.

*718. Igneous and Metamorphic Petrology . An indepth study of the petrogenesis of igneous and metamorphic rocks based upon their chemical and petrographic characteristics. Three hours of lecture and three hours of lab per week. Prereq.: GEOL 713.

720. Field Investigations in Geology. A field-based approach to the study of geological concepts and problems. Class and travel supervised by Geology faculty; location, duration of stay, hours, credit, and grading criteria dependent on the site and nature of the geological concepts and problems investigated. The course may be repeated. A maximum of 5 quarter hours may be applied toward Geology major requirements. Prereq.: By permit only.

1-5 q.h.

*802. Stratigraphy and Sedimentation. The formation and physical characteristics of stratified rocks; principles of correlation; criteria for classification of sedimentary rocks, depositional environments, and paleogeographic reconstructions. Three hours of lecture and two hours of laboratory a week. Prereq.: GEOL 513 and 608.

*804. Ground Water. A study of the geologic and hydrologic factors controlling the occurrence and behavior of water beneath the earth's surface. Three hours lecture and two hours lab per week. Prereq.: GEOL 608 or 611; MATH 571 recommended.

4 q.h.

805. Special Problems in Geology. A study in depth of a specific problem in one of the branches of geology. The problem will depend on the student's interest and qualifications and the equipment available. A maximum of 10 quarter hours may be taken. Prereq.: Consent of the department chair and the consent of the instructor. 1-5 q.h.

*806. Introduction to X-Ray Diffraction. An introduction to the theory of X-ray diffraction and spectroscopy with respect to crystalline substances and the use and application of the Debye-Scherrer Powder Camera, the back-reflection single-crystal laue camera, X-ray diffraction, X-ray spectroscopy (fluorescence) in the determination of the crystalline structure, composition and identification of inorganic and organic materials. Two hours of lecture and three hours of laboratory a week. Prereq.: GEOL 700 or consent of the department chair.

3 a.h.

*807. Engineering Geology. An introduction to the principles and applications of geology in the solution of geotechnical problems. Topics include: soil and rock mass classification; project site selection considerations; slope stability analysis; runoff control; and erosion control. Three hours of lecture and two hours of laboratory per week. Prereq.: GEOL 708 or consent of instructor; MATH 525.

4 a.h.

*812. Sedimentology. Study of the geology of sedimentary deposits, including sedimentary tectonics, petrology, and environments; emphasis on clastic and carbonate rocks. Two hours of lecture and one hour of laboratory a week. Prereq. or concurrent: GEOL 802 or permission of instructor. 2 q.h.

815. Geology and the Environment II. In-depth examination of earth processes, earth resources and properties of earth materials as they relate to human activities and their geologic consequences. Prereq.: GEOL 615 or ENST 602 or junior standing with consent of instructor.

*817. Environmental Geochemistry. An application of low-temperature aqueous geochemistry and geochemical computer modeling to environmental problems such as acid mine drainage, geochemical cycling of trace elements and nutrients, hazardous waste remediation, nuclear waste disposal, and surface and ground-water contamination. Prereq:: GEOL 717 and CIS/CSCI 520 (or equivalent) or consent of instructor. 4 q.h.

*818. Advanced Igneous and Metamorphic Petrology. Physiochemical principles of igneous and metamorphic mineral assemblages and methods of interpreting the paragenesis of igneous and metamorphic rocks. Two hours of lecture and four hours of laboratory per week. Prereq.: GEOL 718. 4 q.h.

824. Tectonics. Geodynamics and the workings of plate tectonics. Kinetics and dynamics of plate motion, plate driving forces, thermal structure of the Earth, and thermal convection in the Earth. Tectonic and structural features on the Earth. Geophysical, stratigraphic and structural signatures of extensional rifting, strike-slip faulting, subduction zones, plate collisions and mountain belts. Prereq.: GEOL 704, GEOL 718 and GEOL 802.

German

See FNLG.

Greek

See FNLG.

HIST-HISTORY

Lower-Division Courses

511. Introduction to World History 1. Origins and growth of the major civilizations of the world from earliest times to about 1300. 4 q.h.

511H. Introduction to World History 1. An honors course in the origins and growth of the major civilizations of the world from earliest times to about 1300 with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor.

4 q.h.

512. Introduction to World History 2. Development of the major civilizations of the world from about 1300 through 1800. 4 q.h.

512H. Introduction to World History 2. An honors course in the origins and growth of the major civilizations of the world from about 1300 to 1800 with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor.

4 q.h.

513. Introduction to World History 3. Transformation of major civilizations of the modern world from 1800 to the present. 4 q.h.

513H. Introduction to World History 3. An honors course in the origins and growth of the major civilizations of the world from 1800 to the present with emphasis on the analysis and critical evalua-

tion of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor. 4 q.h.

590. Introduction to Women's Studies. Introduces students to key concepts, theoretical frameworks, and inter-disciplinary research drawn from current scholarship about women. The course includes cross-cultural and historical analyses but concentrates on major issues relevant to the status and roles of contemporary American women including an examination of the effects of sexism, racism, ethnicity, and class distinction. Does not count toward the history major: does not fulfill the Social Studies requirement. Prereq.: ENGL 550. 4 q.h.

601. American Military History. A survey of American military history from the origin of the United States Army to the present, with emphasis on how military policies and strategies have been influenced by the domestic and foreign affairs of the United States. Identical with MILSC 601.

4 q.h.

605. History of the United States 1. A general survey of the political, social, and economic development of the United States to 1877. 4 q.h.

605H. History of the United States 1. An honors course concerning the political, social, and economic development of the United States to 1877 with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor.

4 q.h.

606. History of the United States 2 . A general survey of the political, social, and economic development of the United States from 1877 to the present. HIST 605 is not a prerequisite. 4 q.h.

606H. History of the United States 2. An honors course concerning the political, social, and economic development of the United States from 1877 to the present with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor.

4 q.h.

611. Latin America. A survey of Latin America from its beginnings to the present. Emphasis is on late 19th and 20th century developments. 4 q.h.

630. The Black Experience in American History. A historical study of black people's roles in and contribution to the political, social, and economic development of American society.

4 q.h.

655H. History of Western Civilization 1. An honors course in Western Civilization to 1715 with emphasis on analysis of historical developments. Prereq.: high ACT or SAT verbal scores and/or A or B in high school World History, and/or recommendation of instructor in History 512, 513, or 656H.

4 q.h.

- 656H. History of Western Civilization 2. An honors course in Western Civilization from 1715 to present with emphasis on analysis of historical developments. Prereq.: high ACT or SAT verbal scores and/or A or B in high school World History, and/or recommendation of instructor in History 511, 512 or 655H.
- 661. Middle Eastern Civilization. A survey of North Africa, the Middle East, and the Indian Subcontinent from ancient times to the present, with special emphasis on nationalist movements in these regions in the past two centuries.

 4 q.h.
- 662. History of Asian Civilization. Institutions and cultures of East Asia from ancient times to date. Emphasis on modern times. 4 q.h.
- 663. African Civilization. A survey of the cultural, political, social, and economic development of Africa from antiquity to the present, viewed in the context of world history.

 4 q.h.
- 699. History of Medicine. Practices and theories of healing, and their relation to social and intellectual context, from ancient times to the present.

4 q.h.

Upper-Division Courses

- 701. Colonial America. A thorough examination of the origins and development of English colonization in America to the middle of the 18th century, with special emphasis on colonial social structure, economic patterns, and political behavior. Prereq.: HIST 605.
- 702. The Revolution and the Constitution. The causes of the American Revolution, both British and Colonial, and its consequences; the origins of the Constitution and the creation of the American Republic. Prereq.: HIST 605.
- 704. The Age of Jefferson and Jackson. An intensive study of the age of Jefferson and Jackson, covering the period 1789 to 1840. Prereq.: HIST 605.

4 q.h

- 706. America Before the Civil War, 1840-1860. An intensive study of the deepening sectionalism of the country culminating in the outbreak of the Civil War. Prereq.: HIST 605.
- 708. The Civil War and Reconstruction. An intensive study of the war's military aspects; problems of the confederacy: the effects of the war on American society; and problems of reconstruction in both North and South. Prereq.: HIST 605. 4 q.h.
- 710. Emergence of Modern America. The United States from reconstruction to the Treaty of Versailles: the transformation of this nation from a rural to an urban society and the role played by immigrant-ethnic-minority groups in early 20th century political development. Emphasis will be placed on historical interpretation. Prereq.: HIST 606. 4 q.h.
- 712. Recent America. Domestic and international affairs from World War I through World War II, with

- emphasis on historical interpretation of the twenties and thirties. Prereq.: HIST 606. 4 q.h.
- 713. Contemporary America. The United States in contemporary times. Emphasis will be placed on economic, social, political, and cultural issues of historical significance dividing and uniting the nation in the period from World War II to the present. Prereq.: HIST 606.
- 715. Introduction to Historic Preservation . Introduction to the field of historic preservation. Provides historical context for the discipline as well as a basic grounding in the concepts and opportunities of the field. Prereq.: HIST 605 and 606. 4 q.h.
- 723. History of American Sports. An examination of sports within America from earliest times to the present. Special emphasis will be placed upon the manner in which sports and society have influenced each other, such as racial and class relationships, social mobility, politics, religion, and foreign policy. Prereq.: HIST 605 or 606.
- 725. Lyrics in American Folk Music. A historical survey of the content, development, and significance of American folk music lyrics within a historical framework by means of the historical method. Types of folk music, such as ballads, blues, country, protest, and contemporary, are the tools for a historical examination of the stabilizing and divisive elements that are a part of the American heritage. Prereq.: HIST 605 or 606, or consent of instructor.
- 726. History of Women in the United States. Analysis of the various roles and contributions of women in American history. Prereq.: HIST 590 or 605 or 606.
- 727. Mexico and the Caribbean. Includes Mexico, Colombia, Venezuela, and the Central American Republics. Special consideration is given to 20th-century Mexico. Prereq.: HIST 611 or consent of instructor.
- 728. History of South America. The Spanish-American Republics and Brazil. Prereq.: HIST 611 or consent of instructor. 4 q.h.
- 732. The West in American History 1. The American frontier from the colonial period to 1800, with emphasis on the role of the Indians; the social, political, and economic currents in frontier life. Prereq.: HIST 605.
- 733. The West in American History 2. The advancing 19th-century frontier in the United States and its effect on the political, economic, and social conditions of the country with emphasis on the role of the Indian. Prereq.: HIST 605.
- 734. History of Organized Crime in the United States. The history of organized crime emphasizes the organization of the criminal underworld, the ethnic, racial, and religious composition of criminal groups and the impact of organized crime on prostitution, gambling, prohibition and drugs. Prereq.: HIST 605 or 606.

736. History of American Cities . City politics, social change, ethnic and racial issues, industrialization and city planning during the nineteenth and twentieth centuries. Other issues such as the provision of city services, the rivalry between cities, and the development of the federal-urban relationship are addressed. Prereq.: HIST 605 or 606. 4 q.h.

738, 739. The South in American History 1, 2. Origins and development of local institutions, ideology, culture, economics, politics, and racial difficulties (I) through the Civil War, and (II) since then. Emphasis is on the period 1800-1865 and on the problems faced by the southern regional attitude following reconstruction. Special attention is given, in 739, to the difficulty the South faced in the 20th century. Prereq.: HIST 605 for 738; 606 for 739.

4+4 q.h.

740. The Vietnam War. American involvement in Southeast Asia from the days of French rule to the fall of the Saigon government and beyond. Includes the war debate at home, and other consequences of the war. Prereq.: HIST 513, 606 or 662. 4 q.h.

741, 742. Diplomatic History of the United States 1, 2. A study of American foreign relations as determined by interaction between domestic and international pressures (I) to 1900 and (II) since 1900. Prereq.: HIST 605 for 741; 606 for 742. 4+4 q.h.

743. Labor in American History. The impact of labor and the labor movement upon American history, with emphasis on the historical context surrounding labor conditions and on the political and social implications of the labor movement. Prereq.: HIST 606.

744. The History of American Business. Business enterprise and its historical setting from 1800 to the present: the interaction of economic and political forces as a factor in the position occupied by business enterprise in American society today. Prereq.: HIST 605 or 606.

748. History of Ohio. The important events and movements that have shaped Ohio history in the social, economic, religious and political areas. Prereq.: HIST 605 or 606.

749. History of African-United States Relations. Survey of African-U.S. relations from the transatlantic slave trade to the present with emphasis on the 20th century. Prereq.: HIST 663 or consent of instructor.

750. History of Modern Africa South of the Sahara. The impact of colonialism on the people of Africa south of the Sahara, especially in the 20th century: colonial administration, rise of nationalism, Pan-Africanism, decolonization, and problems of modern Africa. Prereq.: HIST 663 or consent of instructor.

751. History of Southern Africa. From the beginning of the 19th century to the present. Prereq.: HIST 513, 605, 606, or 663.

752. History of Greece. Aegean civilization from the third millennium to 275 B.C. Prereq.: HIST 511.

753. History of Rome. The Roman world from its mythological foundations in the 8th century B.C.E. through the Principate. Prereq.: HIST 511. 4 q.h.

754. Early Middle Ages. History of the Mediterranean world from the fourth to the tenth century. The course will examine the causes of the decline of the Roman Empire as well as the rise of Christianity and Islam, the Germanic invasions, the development and decline of the Carolingian Empire and the emergence of a Western European culture following the disintegration of the Mediterranean world. Prereq.: HIST 511.

755. High Middle Ages. History of western and eastern Europe from the tenth to the fourteenth century. The course will emphasize the following developments: the rise of the feudal monarchies and of the Papacy, the growth of urbanization and trade, the Renaissance of the Twelfth Century, the flowering of Romanesque and Gothic architecture and the appearance of vernacular literature. Prereq.: HIST 511.

758. Renaissance Europe. A survey of European history from the end of the High Middle Ages to the sixteenth century. Emphasis will be on the rise of humanism and of Renaissance culture in Italy, its dissemination beyond the Alps as well as the development of national states and the flowering of the Late Medieval tradition in western and eastern Europe. Prereq.: HIST 512.

759. The Reformation Era. The history of Europe from the Lutheran Revolt to the Peace of Westphalia in 1648. The major themes of study will be the causes of the Reformation, the impact of Luther, Calvin and of the Radical Reformation, the Catholic Reform movement, the Wars of Religion and the rise of the modern secular states. Prereq.: HIST 512. 4 q.h.

760. The Making of Modern Europe, 1648-1789. The history of Europe from the Peace of Westphalia (1648) to the outbreak of the French Revolution in 1789. The emphasis is on France under Louis XIV and Louis XV, Old Regime society, and the intellectual creativity of the Eighteenth-Century Enlightenment. The course also focuses on the widening confrontation between science and religion, the growth of Europe's overseas empires, and the emergence of the modern nation-state. Prereq.: HIST 512.

4 q.h.

761. The French Revolution and Napoleon (1789-1815). The French Revolution is examined in detail, especially from its outbreak to the fall of Robespierre. The last portion deals with the rise of Napoleon, his political role, his military campaigns, the reconstruction of Europe, and his fall at Waterloo. Prereq.: HIST 512.

762. The Second World War. An examination of the war's diplomatic and ideological origins; social,

economic, and political factors; and strategic, tactical, and technological dimensions of the conflict in all major theaters. Prereq.: HIST 606 or 513. 4 q.h.

763. Modern France, 1815-1914. The history of France from the fall of Napoleon to the outbreak of World War I. Emphasizes the unique pace of nineteenth-century economic and social development, the ideologies of royalism, liberalism, and socialism, and the political instability which gave rise to the revolutionary crises of 1830, 1848, and 1871. Prereq.: HIST 513.

764. Contemporary France, 1914-present. The history of France from the outbreak of World War I to the present. Examines the relative decline of France in the twentieth century with special emphasis on the impact of the two World Wars, the social and political crisis of the 1930s, France's postwar revival, the student riots of 1968, and the changes which have transformed French politics and society in the 1980s. Prereq.: HIST 513.

765. Europe From the Congress of Vienna to the Franco-Prussian War (1815-1871). Such movements as Nationalism, the impact of the Industrial Revolution, Marxism, the growth of Democracy, Liberalism, and Conservatism, Romanticism and Realism, Reform and Revolution, form the main themes of this period. The course is divided into two historic periods, from 1815 to the Revolutions of 1848 and from 1848 to 1871 with the emphasis on the unification of Italy and of Germany and the New Europe that arose as a consequence. Prereq.: HIST 513.

766. Europe from the Franco-Prussian War to World War I. The impact of the Paris Commune; revolutionary movements and their contradictions; imperialism, political anti-semitism, and the images of war; the Bismarckian international order and its suicide. Prereq.: HIST 513.

767. Europe From World War 1 to the Present. War, revolutions, and the European Order; Versailles and its contradictions; the Fascist response to Communism and Depression; the interaction of Democracies, Fascism, and Stalinism in the making of the Cold War and World War II. Prereq.: HIST 513.

4 q.h.

768, 769. History of Germany 1, 2. The struggle for supremacy in Germany; the Prussianization of Germany; Weimar and Hitler. Emphasis on the relationship of domestic to foreign policy, civil to military power, and political institutions to social developments. Prereq.: HIST 513. 4+4 q.h.

770. The Far East. Arts and philosophy, economic development, social and political institutions, and international relations from ancient times to the beginning of modernization, including China, Japan, and Korea. Prereq.: HIST 662 or consent of instructor.

771. China in Traditional Times. China's history, arts, philosophy, religion, political and social insti-

tutions, and international relations from beginnings to the mid-19th century. Prereq.: HIST 662, ANTHR 772, or consent of instructor.

772. History of Modern China. China from the mid-19th century to date, with emphasis on Western impact, industrialization, intellectual trends, the Revolution of 1911, national reconstruction, student movements, the rise of Communism, and the contemporary scene. Prereq.: HIST 662 or consent of instructor.

776. History of Modern Japan. Japan's History from the Meiji Restoration to date, including industrialization, the party movement, intellectual development, the rise and fall of militarism, postwar reconstruction, and current problems. Prereq.: HIST 662 or consent of instructor.

777, 778. History of the Russian Empire 1, 2. A concise study of the history of Russia from the rise of Muscovy to 1825, and from 1825 to the dissolution of the empire, with special attention to the Russian Revolution. Prereq.: HIST 512 for 777; 513 for 778 or consent of instructor.

779. History of the Soviet Union. Soviet history, diplomacy, and tactics from the Bolshevik Revolution to the present; the achievements and shortcomings of Communism in Russia, its satellites, and non-Russian Soviet nations. Prereq.: HIST 513 or consent of instructor.

780, 781. History of Eastern Europe 1, 2. The histories of the varying nations that have made up Eastern Europe from earliest times to 1600 and from 1600 to the present, and their contributions to world civilization. Prereq.: HIST 512 for 780; 513 for 781.

4+4 q.h.

782. History of the Balkans. Southeastern Europe from the fourth century to the present, including the Byzantine and Ottoman influence on this area, with stress on developments prior to and since World War I. Prereq.: HIST 512 or 513 or consent of instructor.

785. History of Modern Italy, 1815-present. A survey of Italian history from the Risorgimento to the present. Emphasis will be placed on the reasons for the late emergence of Italian nationhood, the rise of Italian nationalism, unification, the weakness of Italian democracy, the rise of Fascism, and the political instability Italians have experienced since 1945. Prereq.: HIST 513.

787. History of Women in Europe. Analysis of the various roles and contributions of women in European history from the Renaissance to the present. Prereq.: HIST 512 or 513.

788. The Holocaust. Study of the attempted genocide against the Jews in World War II. Special emphasis on racial theories that gave rise to Nazism, politics of collaboration, various forms of resistance, and ethical problems associated with the concentration camps. Prereq.: HIST 513.

789. Jewish History. An overview of Jewish history in the past twenty centuries, with emphasis on achievements in the arts, sciences, and politics, and on precedents for the Holocaust. Prereq.: HIST 511 and 513.

790. English History 1. England from the earliest times to 1714. Emphasis is on the early political and cultural evolution of the English people, the expansion of interests in the Elizabethan Age, and the establishment of parliamentary government in the Stuart era. Prereq.: HIST 511 or 512.

791. English History 2. Great Britain from the accession of the Hanovers to the present. Emphasis is on domestic affairs of Great Britain and Ireland the intellectual impact of Newton and Darwin, commercial and industrial developments, and the attendant social and political problems. Prereq.: HIST 513.

4 q.h

792, 793. The British Empire and Commonwealth 1, 2. British Empire from the collapse of the old empire in 1783 to 1867, and from 1867 to the present. Colonial institutions, colonial policy, suppression of slave trade, expansion of empire, growth of colonial nationalism, and evolution of the Commonwealth. Prereq.: HIST 513.

794. The First World War. An examination of the origins of the war, the social, economic, intellectual and political repercussions, and the technical and military developments. Prereq.: HIST 513. 4 q.h.

796. The Ancient Near East. Civilizations in Mesopotamia and Egypt from the fourth millennium B.C. to the Graeco-Persian Wars, with emphasis on literary materials from Sumer, Babylon, and Egypt. Prereq.: HIST 661 or 511.

797. Early Islamic Civilization. The Middle East from the Jahiliyah Period to the Mongol invasions, with special emphasis on the religious reformation of Muhammad and Islamic culture under the Abbasids. Prereq.: HIST 661 or 511.

798. The Ottoman Empire. History of the Ottoman Turkish Empire from its origins to its decline in the nineteenth century. Emphasis on Crusades of South Slavs, the conquest of Constantinople, the regime of Suleiman, wars with Russia, failed reforms of Tanzimat, and the Armenian tragedy. Prereq.: HIST 661.

799. The Middle East in Modern Times. An intensive study of this region since World War I. Special emphasis upon the clash of Arab nationalism, Zionism, oil, diplomacy, and colonialism. Prereq.: HIST 661 or 513.

801. Select Problems in American History. Specific problems in American History in such areas as economics, political theory, and cultural and intellectual history. May be repeated with different content. Prereq.: Consent of instructor. 4 q.h.

808. American Architectural History. Development of structural style and trends within the United States. Includes formal and vernacular developments. The community serves as a basic laboratory. Prereq.: HIST 605 and 606.

809. Documentation and Interpretation of Historic Sites. Methods of documenting historic properties especially as related to the National Register of Historic Places. Includes interpretation of historic sites for public exhibit. Prereq.: HIST 715. 4 q.h.

810 Conservation of the Historic Built Environment. The theory and practice of preserving and rehabilitating all aspects of the historic built environment. Provides broad exposure through field experience. Prereq.: HIST 715.

811. Practicum in Historic Preservation. Experience in historic preservation through student participation in a wide variety of historic preservation projects. Prepares students for internships outside the university. Prereq.: HIST 715 and permission of historic preservation committee.

4 q.h.

812. Historic Preservation Internship. Practical application of principles and methods in the field of historic preservation with the goal of producing a completed project. Internship to be selected by student in conjunction with program director. May be repeated once. Prereq.: HIST 715, senior standing, and approval of internship committee.

4-8 q.h.

815. American Material Culture. A discussion and analysis of the use and importance of material artifacts as texts for the recovery of the American past. Emphasis will be on sources not traditionally utilized by historians. Examples include the contextual analysis of children's books, foodways, and sacred spaces. Prereq.: HIST 605 and 606, or AMER 601 and 701.

850. International Area Study. A course in the geography and history of a selected international area with emphasis on cultural development by traveling in the selected region. The class and travel is supervised by the Geography and/or History faculty. The course grade is based upon a term paper which must be submitted within 60 days after the end of the course. Prereq.: By permit only.

4-12 q.h.

851. Select Problems in European History . Specific problems in European history in such areas as economics, political theory, and cultural and intellectual history. May be repeated with different content. Prereq.: Consent of instructor. 4 q.h.

860. Select Problems in Third World History. Specific issues in African, Asian, Latin American, or Middle Eastern History in such areas as economics, political theory, and cultural and intellectual history. May be repeated once, with different content. Prereq.: Consent of instructor.

870. Senior Research Seminar. A seminar that requires the writing of an extensive paper based mainly on primary material. All history majors must take this course. Prereq.: Senior standing and completion of four upper-division history courses with a grade of C or better. By permit only. 4 q.h.

HMEC-HUMAN ECOLOGY

550. Family and Consumer Sciences Profession. History, philosophy, current trends and careers; interrelationships of the specialized areas of family and consumer sciences; development of personal and professional attitudes and values relevant to practice in each specialization. Prereq.: CRPT placement in English 550 or completion of English 540.

2 q.h.

- *771. Presentation Techniques. Application of demonstration, audio-visual, and public relations tools and techniques in communicating family and consumer sciences information to target groups from pre-schoolers to adults. Two hours of lecture and four hours of lab per week. Prereq.: Eight hours of human ecology credit and ENGL 550 and SPCH 550 or equivalent speech course.
- 780. Consumer Economics. Managing the family's economic resources through use of the decision-making process. Current consumer issues and sources of information for consumers. Prereq.: ECON 610 or ECON 630.
- 799. Vocational Education. History, philosophy, scope and requirements of vocational family and consumer sciences educational programs. Prereq.: EDUC 501 and HMEC 550. 2 q.h.
- 800. Teaching in Family and Consumer Sciences. Methods of organization, instruction and evaluation for teaching in vocational family and consumer sciences. Prereq. or concurrent: HMEC 799. 4 q.h.
- 802. Research Methods in Human Ecology. Overview of research methodology and applications in the field of nutrition, dietetics, and human ecology. Prereq.: MATH 714 or EDUC 872. 2 q.h.
- *802L. Research Methods in Human Ecology Laboratory. Applications of basic concepts of research methodology and statistics to dietetic practice. Four hours of laboratory each week. To be taken concurrently with HMEC 802. 2 q.h.
- 830. Homemaker Rehabilitation. Analysis of the changes needed for the worker and the work environment of the home. Consideration of the personal and financial costs of homemaker disability to the individual and the family. Prereq.: CHFAM 731 or equivalent.
- 835. Field Experience in Human Ecology. Internship in a community agency or commercial enterprise related to home economics. Four hours of experience or two hours of seminar weekly equal one credit hour. May be repeated for up to eight (8) hours of credit. Prereq.: Twelve hours of human ecology credit and junior standing. Student must file application one quarter prior to registering. Permit required.
- *850. Contemporary Issues. Interrelationships of the specializations in human ecology in addressing public policy issues as they affect the family and the profession. Prereq.: HMEC 550 and CHFAM 731;

junior standing and 30 hours of Human Ecology Department courses required. 2 q.h.

- 852. Family Resource Management. A systems view of family functioning with emphasis on managerial decision making and effective use of resources. Prereq.: CHFAM 731 or PSYCH 707 or SOCIO 705.

 4 q.h.
- 853. Family Management Experience. Application of family resource management theory to specific perennial family problems. Two hour seminar and 4 hours of experience in consumer and homemaking activities. Prereq. or concurrent: HMEC 852.

3 q.h.

- 870. *Human Ecology Workshop*. Special workshops in a professional area of home economics as needed. Prereq.: Junior standing. 2-4 q.h.
- 875. Directed Individual Study. Individual study or research of a special problem or issue related to human ecology. Application must be made with the department prior to registration. Prereq.: 12 hours of home economics credit and senior standing. Permit required.
- 890. Occupational Family and Consumer Sciences Education. Methods of organization, instruction, and evaluation in vocational-technical programs based on family and consumer sciences. Required for certification of occupational family and consumer sciences teachers. Prereq. or concurrent: HMEC 799.
- 892. Community Programming. Development of home economics programs for special populations including adults, aging, disadvantaged, displaced homemakers, teenage parents, handicapped and others with special needs. Prereq.: CHFAM 731.

4 a.h.

893. Work and Family. Interaction of work and family systems; implications for education, business and human services; development of programs to assist individuals in balancing multiple roles. Prereq.: CHFAM 731, SOCIO 705 or PSYCH 707.

3 q.h.

895. International Studies in Human Ecology. Professional areas of human ecology and their relationship to native cultures are the focus of travel to designated countries. Class sessions and travel as well as pre-tour and post-tour assignments and evaluation based on course objectives are supervised by Human Ecology faculty. Prereq.: CHFAM 731, Junior Standing, and permission of instructor and HMEC department chair.

HMGT—HOSPITALITY MANAGEMENT

500. Hospitality Industry. Overview of the field as a single, interrelated industry encompassing the restaurant business, institutional foodservice, hotel-motel operations, and tourism. Importance of technical skills, management skills, and service orientation.

575. Travel and Tourism. The study of history, growth and future of travel and tourism to include the significance of the economic, social and political impact. Focus on planning, safety, trends and developing travel destinations.

3 q.h.

*600. Front Office Procedures. Operation and supervision of a hotel-motel front office. Computerized property management systems, reservations, registration, checkout, guest accounting, and handling guest needs. Three hours lecture, two hours lab. Prereq.: CSIS 514; CSIS 500. 4 q.h.

*612. Hospitality Managerial Accounting 1. Using the "Uniform System of Accounting for Small Hotels, Motels, and Motor Hotels," this course introduces the unique requirements of hospitality industry recordkeeping. Focus is on using financial data to safeguard assets, control costs, budget and plan, and practice yield management.

5 q.h.

620. Hospitality Security. Security techniques used to enhance safety of persons and property, including loss prevention, administration, organization, emergency planning and liability. Prereq.: MGT 511; HMGT 500.

690. Hospitality Internship. Directed practice with emphasis on communications, in a hospitality operation. Written and oral reports required. One hourseminar and average of 10 hours per week (100 total hours) supervised work experience required. Prereq.: ENGL 550, HMGT 620, 725; FNUTR 611, 611L; CSIS Elect. Permit required. 3 q.h.

691. Hospitality Cooperative Work Experience. Work experience in which the student is expected to assume supervisory responsibilities within an assigned foodservice or lodging facility. One hour seminar and 20 hours work experience per week. Prereq.: HMGT 690. Permit required. 3 q.h.

719. Facilities Management. Maintenance and engineering principles for lodging and food service properties. Includes technical information, preventative maintenance, engineering and housekeeping department roles, electrical, plumbing, sewer, swimming pool, HVAC, elevator, acoustic and sound control, and environmental management. Prereq.: HMGT 620.

*725. Food and Beverage Management. Managerial authority and responsibilities in setting goals; forecasting, controlling quality and costs; establishing policy in the successful operation of a food and beverage department. Prereq.: FNUTR 609.3 q.h.

745. Hospitality Industry Marketing. The application of marketing principles to sales of hospitality services; methods, techniques, and services for successful meetings and conventions; and computer application/simulation transferrable to industry. Includes a classroom-based industry marketing activity. Prereq.: MKTG 703; HMGT 500, 575; CSIS elective.

804. Hospitality Industry Law. The legal aspects of managing a hotel, resort, or restaurant. Provides an understanding of preventative measures to avoid or successfully deal with litigation. Also includes legal research, licensing, and innkeepers' obligations. Prereq.: MGT 604; HMGT 619; FNUTR 609.

846. Event Management. Focusing on the career of meeting and convention management, this course includes adult learning theory, finance, promotion, post meeting evaluation, facility selection, budgeting, exhibit management, physical facilities, and pre-event planning. Prereq.: HMGT 745. 4 q.h.

*896. Hospitality Operations Management. A "capstone" course requiring a broad application of knowledge and skills. Students solve operational dilemmas and make decisions reflecting the diverse nature of managing a hotel, resort, and foodservice property. Prereq.: 1,000 hours industry experience and senior status in hospitality management. 4 q.h.

HONOR—HONORS PROGRAM

University Honor Studies

599. Special topics. An introductory-level examination of some topic appropriate for honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Program or permission of instructor and director of Honors.

4 q.h.

601, 602, 603. Honors Seminar. An interdisciplinary seminar series dealing with topics appropriate to students in the Honors Program. The subjects include, but are not limited to, creativity, the organization and function of the University, the total human being, critical thinking, current events, etc. Prereq.: Eligibility for the Honors Program.

1-2 q.h. each

699. Special Topics. A close examination of some topic appropriate for lower-division honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Program or permission of instructor and director of Honors.

4 q.h.

701,702,703. *University Honors Seminar*. A critical investigation of selected ideas underlying civilization, embracing and integrating the particular studies of science, society, and the humanities. Prereq.: Eligibility for the Honors Program.

3+3+3 q.h.

799. Special Topics. A close examination of some topic appropriate for upper-division honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Program or permission of instructor and director of Honors.

4 q.h.

899. Special Topics. An advanced examination of some topic appropriate for honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Program or permission of instructor and director of Honors.

HPES—HUMAN PERFORMANCE AND EXERCISE SCIENCE

Activity Classes

The following activity classes meet the University activity requirement and are scheduled as two contact hours a week for one hour's credit, three contact hours a week for two hour's credit, or four contact hours a week for three hour's credit.

- 502. *Volleyball 1.* Basic rules and fundamental skills of volleyball including serves, bump, overhead pass, and block. 1 q.h.
- 503. Basketball. Fundamental skills and techniques in basketball. Offensive and defensive team play and strategy. 1 q.h.
- 504. Softball. Skills, techniques, rules, and strategy of softball. 1 q.h.
- 505. *Touch Football*. Skills, rules, and techniques of touch football. 1 q.h.
- 507. *Volleyball 2.* Intermediate-to-advanced volleyball skills including diving, rolling, and various team offensive and defensive strategies. Prereq.: HPES 502 or equivalent. 1 q.h.
- *508. *Ice Skating*. Ice skating for the novice or nonskater. Classes at Mill Creek Park Skating Rink. Students must furnish their own skates or rent them there.
- *510. Archery. Techniques of target archery. Selection, care, and repair of equipment. 1 q.h.
- *511. Badminton. Skills, mechanics, and rules of badminton. 1 q.h.
- 512. Bowling 1. Fundamentals of bowling the straight ball. Equipment selection, correction of errors, and scoring. Classes meet at McGuffey Classic Lanes. A fee is charged. For beginning bowlers.

513. Bowling 2. Intermediate bowling. Refinement of bowling skills and use of the hook delivery. Tournament planning, team strategy, and competition. Classes are at McGuffey Classic Lanes. A fee is charged. Prereq.: HPES 512 or 100 average.

1 q.h.

- *514. Fencing 1. Fundamentals of foil fencing. Methods of attack and parry, and elementary bouting and judging. 1 q.h.
- *515. Fencing 2. Intermediate techniques and strategy of foil fencing and bouting. Prereq.: HPES 514 or consent of instructor. 1 q.h.
- 516. Gymnastics 1. Fundamentals and methods of stunts and tumbling with gymnastic conditioning. 1 q.h.
- 517. Gymnastics 2. Fundamental techniques and methods of appropriate gymnastic apparatus and routine composition. Prereq.: HPES 516 or consent of instructor. 1 q.h.
- *519. Racquetball. Racquetball rules and techniques for singles and doubles play. Basic strategy and skill development are emphasized. 1 q.h.
- *520. Golf 1. Fundamental skills of golf. Includes grip, stance, swing patterns, and putting as well as rules of course play.

 1 q.h.
- *521. Golf 2. Intermediate Golf. Refinement of swing patterns, methods of instruction, and correction of errors. Emphasis on use of various clubs and types of shots. Prereq.: HPES 520 or intermediate skill.
- *522. Tennis 1. Fundamental skills of tennis including forehand and backhand drives and service. Basic rules, strategy, and methods. 1 q.h.
- *523. *Tennis 2*. Theory and practice of intermediate-to-advanced tennis skills and play. Prereq.: HPES 522 or intermediate skill level. 1 q.h.
- *524. Physical Fitness and Exercise Programs. Discussion of and participation in activities designed to develop and improve the health related aspects of physical fitness including weight and stress control.
- *526. *Marksmanship*. The safety and practice of handling firearms. Target shooting in prone, kneeling, and standing positions. Same as military science 610.
- *528. Advanced Physical Fitness and Exercise Programs. Discussion of and participation in strenuous activities designed to develop and improve the health- and performance-related aspects of physical fitness. Prereq.: Men: Run 1.50 miles in less than 13:00; Women: Run 1.25 miles in less than 13:00.

1 q.h.

*529. Recreational Games. Fundamentals, skills, techniques, strategy, and rules of racquetball, paddle tennis, table tennis, shuffleboard, and other recreational games. 1 q.h.

- *530. Aquatics 1. Introduction to swimming and survival skills, floating, drownproofing, basic swim strokes (side, elementary back and front crawl), beginning diving, and simple aquatic games. This course is designed for the student who cannot swim; it is not open to swimmers.
- *531. Aquatics 2. Intermediate Swimming. Introduction to back crawl, breaststroke, and butterfly. Techniques in underwater swimming; use of mask, snorkel, and fins. Elementary lifesaving skills and refinement of basic springboard diving. Prereq.: HPES 530 or its equivalent.
- *537. Aquatic Exercise. Fitness through aquatic conditioning exercises tailored to the individual needs of the student. Open to swimmers and non-swimmers.
- 540. Modern Dance 1. Elementary techniques of body movement. Rhythmic fundamentals and improvisation. 1 q.h.
- 541. Modern Dance 2. Intermediate modern dance technique, composition, and improvisation. Prereq.: HPES 540 or consent of instructor. 2 q.h.
- 542. Dance Composition. Basic principles of form and structure to choreography. Prereq.: HPES 541 or consent of instructor. 1 q.h.
- 544. Step Aerobics. Rhythmic exercise and conditioning activities performed to music, utilizing a step platform as the foundation for the workout. Designed to improve cardio-respiratory endurance and flexibility. Emphasis will be placed on understanding the five basic components of fitness and basic principles and techniques involved in step training.
- 545. Folk and Square Dance 1. European and Mediterranean folk dances. American square dances, and mixers. Beginning materials and practice.

 1 q.h.
- 548. Aerobic Dance. Rhythmic exercises and conditioning activities performed to music. Designed to improve cardiovascular fitness, flexibility and general muscle tone.
- 549. Varsity Competition. Credit toward the University Activity requirement may be obtained through competition in varsity athletic programs. Prereq.: Consent of the coach.
- 554. Fitness Walking. Provides students with information on the benefits of walking for fitness. Such things as health advantages, appropriate conditioning, pace, warm-up and cool-down will be covered. Practical experience in the skills needed to achieve success in developing and adhering to a walking program.
- 555. *Jogging*. A holistic approach to the theory and practice of jogging with emphasis on the physiological benefits. 1 q.h.
- *556. Racquetball 2. Advanced racquetball techniques, strategy, conditioning, and mental preparation for singles, doubles, and tournament play.

- Emphasis is on use of various advanced shots, positioning and officiating. Prereq.: Racquetball I or intermediate skill level. 1 q.h.
- *557. Weight Training. Introduction to progressive resistive exercise for men and women. Topics covered include strength training, types of equipment, exercise techniques, circuit training, competitive weightlifting, body building, and injury prevention.
- 558. Physical Fitness for Life. Participation in exercise and physical activities, and identification of resources and assessment instruments utilized in developing an individualized, well-rounded, effective, lifelong physical fitness program. 1 hour lecture/2 hours lab.
- *561. Cross-Country Skiing. The skills of cross-country ski touring and recreational cross-country skiing. A cost will be incurred by those who have to rent equipment.

 1 q.h.
- 564. Bicycling. Instruction and practice in bicycling skills, techniques, and procedures necessary for intermediate or long trips. Students must provide their own three-, five-, or ten-speed bicycle.

1 a.h.

- 565. Self-Defense. The defensive techniques of Judo and Aikido signed to counter attacks with a club, knife, gun, or bare fist. Balance, control, safety, and falling are stressed.

 1 q.h.
- 566. Judo. An introduction to the history, philosophy and techniques of judo. Fundamental techniques include: falls, hand and leg throws, grappling, various holds and joint locks. 1 q.h.
- 570. Tap and Jazz 1. Principles and practices of the basic techniques of tap dance, soft shoe, jazz, and combinations of the fundamental forms of movement. Designed to introduce the student to various forms of dance and movement combinations performed in musical theatre. Prereq.: HPES 540 or consent of instructor. May be applied as 2 q.h. toward the fulfillment of the University HPES activity requirement. This course is identical with SPCH 663.
- 571. Tap and Jazz 2. Emphasizes basic tap combinations and routines. Continuation of HPES 570. Prereq.: HPES 570 or consent of instructor. May be applied as 2 q.h. toward the fulfillment of the University HPES activity requirement. This course is identical with SPCH 664.
- 572. Ballet 1. Theory and practice of classical ballet with emphasis on body placement and muscular awareness. Stressing fundamentals of vocabulary, structure, and placement. This course may be applied as 2 q.h. toward the fulfillment of the University activity requirement. Identical with SPCH 568.
- 573. Ballet 2. Continuation of HPES 572, expanding upon vocabulary and establishing patterns of balletic movement. Prereq.: Ballet I or consent of

instructor. This course may be applied as 2 q.h. toward the fulfillment of the University activity requirement. Identical with SPCH 569. 2 q.h.

- *580. *Tennis 3*. Theory and practice of advanced skills, strategy and play. Prereq.: Tennis 2 or consent of instructor. 1 q.h.
- 588. Selected Activities in Human Performance and Exercise Science. Knowledge of and practice in a particular area of dance, fitness or sport. Activity will be announced each time the course is offered. May be repeated up to four credit hours with change in topic.
- 622. Motor Skill Analysis for the Elementary Teacher. Performance and analysis of locomotor, non-locomotor, and manipulative skills. Basic movement, movement education, and materials for elementary children. Characteristics of children and their relation to physical education and concept development. Credit can be applied toward University activity requirement. Prereq.: sophomore standing, Elementary Education major, or permission of instructor.
- *630. Lifeguard Training. Water rescue, preventive lifeguarding techniques, emergency procedures, etc. Red Cross certificate granted upon satisfactory completion of all requirements. Prereq.: 500 yd. continuous swim and deep water dive.

 3 q.h.
- *631. Water Safety Methods for Instructors. Techniques for teaching and supervising swimming, emergency water safety and basic water safety courses. Introduction to infant and preschool aquatic programs. A water safety instructor's certificate will be granted upon satisfactory completion of certification requirements. Prereq.: Current lifeguard training certificate or emergency water safety certificate.
- *632. Skin and Scuba Diving. Basic skin-diving with the use of mask, fins, and snorkel. Scuba diving skills with the use of tank and regulator. Emphasis on diving physics, physiology, lifesaving, first aid, and safety skills related to skin and scuba diving. Two hours of lecture and two hours of lab. Student must furnish mask, fins, and snorkel. Prereq.: 400-yard swim within 15 minutes. 3 q.h.
- *635. Openwater Scuba Diving. Practical experiences in physiological and psychological stress, underwater navigation, effects of hypothermia, decompression, repetitive diving, and rescue techniques. Students completing this course receive basic scuba certification. Five hours of lecture and 10 hours of laboratory quarterly Prereq.: HPES 632. 1 q.h.

Lecture-Laboratory Classes for Majors or Minors only

506. Performance and Analysis of Track and Field. Skills, techniques and rules of track and field events. Includes progressions and organizational strategies for teachers. Intended for majors/minors. Two hours lab per week.

- 567. Performance and Analysis of Team Sports 1. Analysis and practice in performing and strategies for teaching team sports including soccer, team handball and variations of hockey and football. Intended for majors/minors. One hour lecture and two hours lab per week. 2 q.h.
- 568. Performance and Analysis of Team Sports 2. Analysis and practice in performing and strategies for teaching team sports including softball, volleyball, and basketball. Intended for majors/minors. One hour lecture and two hours lab per week.

- *574. Performance and Analysis of Lifetime Sports. Analysis and practice in performing and teaching golf and bowling. Intended for majors/minors. Two hours lab per week. 1 q.h.
- *575. Performance and Analysis of Racquet Sports. Analysis and practice in performing and teaching tennis, racquetball, badminton and other racquet sports. Intended for majors/minors. One hour lecture and two hours lab per week. 2 q.h.
- *577. Performance and Analysis of Aquatic Activities. Analysis and practice in performing and teaching swimming, diving, water safety skills, and aquatic exercise. Intended for majors/minors. One hour lecture and two hours lab per week. 2 q.h.
- *589. Scientific Principles of Personal Fitness. Introduction to components of physical fitness and their physiologic basis. Participation in various training regimens and application of training techniques used in exercise and sport. Emphasis is on the selection and proper use of exercise equipment. 1 hour lecture/2 hours lab. 2 q.h.
- 595. Introduction and Concepts of Human Performance and Exercise Science. An introduction to physical education and related professions. The concepts, goals, and objectives upon which various types of programs are based.
- *610. Introduction to Outdoor Pursuits . Philosophy and content of outdoor education including participation in canoeing, back-pacing, orienteering and initiative activities. Intended for majors/minors. Two hours lab per week.

 1 q.h.
- 613. Methods of Teaching Rhythmic Aerobic Activity. Rhythm and movement fundamentals related to aerobic dance and step aerobics. Methods and materials of teaching rhythmic aerobic activity culminating in practical teaching experience in the classroom. Two hours lecture and two hours laboratory per week. Prereq.: HPES 589. 3 q.h.
- *616. Exercise Leader Practicum. Introductory exercise testing, exercise programming and exercise analysis of activities. Practical supervised experience in exercise leadership skills will involve at least 8-12 hours per week. This course covers behavioral objectives for Exercise Leaders as advocated by the American College of Sports Medicine. Prereq.: HPES 589.

618. Practicum. A supervised experience in an approved fitness or sports related program (e.g. health spa or racquetball club) under the direction of a qualified individual. This is designed to give the student a controlled field experience with periodic observation by an assigned full-time faculty member. May be repeated for a maximum of 6 hours. This course will involve at least 4-8 hours per week Prereq.: HPES 595 and 4 activity classes.

2 q.h.

- 620. Fitness Equipment Management. Students will learn procedures for selection and purchase and gain experience in maintenance and repair of fitness equipment. Prereq.: HPES 616. 2 q.h.
- *623. Physical Education for the Pre-School Child. Methods, materials, equipment, and class management techniques appropriate for pre-school age children, including field experience with pre-school children. Two hours lecture and two hours of lab and/or field experience.

 3 q.h.
- 628. Movement for Primary Grades. Laban's movement approach to teaching educational dance, gymnastics, games, and creative activities for grades K-2. 2 hours lecture/2 hours lab. 3 q.h.
- *661. Games Analysis. The selection, adaptation and creation of games for varying developmental levels and environmental situations in grades 3-12 physical education. Large group, coeducational, self-challenging and multicultural activities are included. Prereq.: 6 quarter hours of HPES activity credits. 4 hours lab per week. 2 q.h.
- 671. Principles and Analysis of Motor Development. Designed to help the prospective physical educator critically analyze movement patterns and understand their relationships to a lifespan motor behavior approach. Motor patterns are studied and applications to teaching are made. Prereq.: HPES 595 and 6 quarter hours of HPES activity credits. 3 hours lecture/2 hours lab. 4 q.h.
- *697. Camping. The specific skills and problems encountered in camping: shelter, clothing, food, transportation, and site selection. One hour of lecture and two hours of laboratory. 2 q.h.
- 698. Survey of Dance. The role of dance in culture and history, tracing the evolution of various folk, social and concert forms. Structural and stylistic elements important for the appreciation of movement and dance will be examined. 4 q.h.
- 699. Sport in American Culture. Sport in American culture from the colonial period to the present as it relates to such areas as education, literature, film and drama, minorities, politics, professional sport, religion and urbanization.

 4 q.h.
- 702. Pedagogical Aspects of Exercise Science . Effective instructional practices and development of organizational skills and characteristics required for teaching in exercise programs. Three hours lecture and two hours laboratory per week. Prereq.: HPES 595 and 616.

- *722. Physical Education in Elementary Grades for the Classroom Teacher. Principles, methods, materials, and organization of activities for elementary school children. Active participation required, including approximately 15 hours of field work in area schools. Prereq.: HPES 622 and third-quarter sophomore standing.

 3 q.h.
- 723. Fitness Management Skills Practicum. Intermediate exercise testing, exercise prescriptions, exercise analysis, and other technical skills for exercise programs. Practical supervised experience in exercise leadership skills will involve at least 8-12 hours per week. This course covers behavioral objectives for Health Fitness Instructor certification as advocated by the American College of Sports Medicine. Prereq.: HPES 720. 4 q.h.
- 750. Principles of Coaching. The scientific, psychosocial, and management aspects of coaching. Includes ethics and legal responsibilities, personnel management, community relations, conditioning, and other related topics. Prereq.: 10 quarter hours of activity credits, or junior standing and consent of the instructor.
- *765. Athletic Training 1. Practical and theoretical aspects of the prevention of athletic injuries. Topics include supplies, taping and wrapping, techniques of conditioning, protective equipment and environmental risks. One hour lecture and 2 hours lab per week. Prereq.: Biol. 551 and 552, HPES 589 and HSC 601.
- 767. Teacher Behavior in K-12 Physical Education. Effective teaching practices and development of skills including classroom management, lesson planning, and selection of appropriate methods of instruction. Clinical experiences (observations and peer teachings). Prereq.: Admission to upper division in HPES (HPES 595, 671, 661 and 628). 3 hours lecture/2 hours lab.
- 770. Physical Activity and Aging. Designed for students who will be working with older adults in exercise-physical activity programs. Emphasis placed upon the physical aspects of aging, physical limitations, modification in programs, and the role of physical activity in the senior population. 15 hours of field work per quarter. Prereq.: HPES 589.

3 q.h

- 780. Methods of Teaching Dance. Rhythm and movement fundamentals and forms: folk, square, social and aerobic. Methods and materials of teaching dance culminating in clinical or field experiences. Prereq.: Admission to upper division in HPES (HPES 595, 671, 661 and 628).
- 795. Kinesiology and Applied Anatomy. Muscular structure and function in relation to physical movement; analysis of fundamental movements. Prereq: BIOL 551 and 552. 4 q.h.
- *803. Issues and Trends in Exercise Science. Indepth study of current issues and trends and their impact on exercise science and the general public

as they relate to the American College of Sports Medicine behavioral objectives for various professional certifications. Two hours lecture. Prereq.: HPES 723. 2 q.h.

*805. Exercise Test Technologist Practicum. Advanced exercise testing and exercise prescriptions for special populations. Practical supervised experience in health/fitness facilities will involve at least 8-12 hours per week. This course covers behavioral objectives for Exercise Technologists as advocated by the American College of Sports Medicine. Prereq.: HPES 803.

807. Exercise Testing and Prescription. Theory, procedures and techniques of exercise testing and prescription. Special topics: exercise and human development/aging, pregnancy, and individuals with chronic lung disease, diabetes mellitus, hypertension, myocardial infarction, obesity, or vascular disease. Prereq.: Admission to Physical Therapy Program and BIOL 792. 3 hours lecture/2 hours lab.

810. Strength Training and Conditioning. Scientific principles, concepts, and adaptations to resistance exercise. Practical application of lifting and spotting technique, testing procedures, program design, and organization and administration of the strength and conditioning facility. Two hours lecture and two hours laboratory per week. Prereq.: HPES 795.

851. History and Philosophy of Physical Education and Sport. A survey of major historical developments and philosophical issues in physical education and sport from ancient times to the present. Prereq.: Junior standing in HPES. 3 q.h.

852. Psychosocial Aspects of Physical Education and Sport. A survey of major psychosocial principles, developments and concerns as they relate to the participant in physical activity and sport. Prereq.: Junior standing in HPES. 3 q.h.

855. Organization and Administration of Human Performance and Exercise Science Programs. Organizational patterns and administrative methods of activities, including instructional programs, intramurals and recreation. Prereq.: Junior standing in HPES. 4 q.h.

*860. Tests and Measurements. The various tests in the field of physical education, including uses and interpretation of elementary statistical techniques. Three hours lecture and two hours laboratory per week. Prereq.: Senior standing in HPES.

4 q.n.

*865. Athletic Training 2. Advanced techniques of athletic training with emphasis on evaluation, treatment and rehabilitation of athletic injuries. Topics include application of therapeutic modalities, reconditioning programs and the role of the athletic trainer in sports medicine. Two hours lecture and two hours lab per week. Prereq.: HPES 765. 3 q.h.

*876. Teaching of Elementary Physical Education. Curriculum principles, methods and materials for teaching elementary physical education. Class activities also include the development of a portfolio and field work in area schools. Prereq.: HPES 767. 3 hours lecture/2 hours lab. 4 q.h.

*878. Teaching of Middle and Secondary Physical Education. Curriculum, principles, methods and materials for teaching secondary physical education. Class activities also include the development of a reflective teaching journal and portfolio and field work in area schools. Prereq.: HPES 876. 3 hours lecture/2 hours lab.

887. Internship. A full-time culminating experience in an approved fitness or sports related setting under the direct supervision of a qualified individual and coordinated by a supervising faculty member. This course will require 40 hours per week. Prereq.: Senior standing and HPES 616 or 618, 795.

888. Selected Topics in Human Performance and Exercise Science. The in-depth study of special subject matter within the field of physical education. Topics will be announced each time the course is offered. May be repeated for a maximum of 8 q.h. with change in topic. Prereq.: Senior standing or consent of instructor.

894. Workshop in Human Performance and Exercise Science. Concentrated study of a selected topic related to Human Performance and Exercise Science education and/or athletics. The department selects and announces the topic and determines the credit hours based on frequency and duration of workshop meetings. May be repeated for a maximum of eight hours with change in topic. Prereq.: HPES 750, 768, or consent of instructor.

895. Adapted Physical Activity. The organization of physical education activities selected to meet the individual needs of exceptional students. Approximately 15 hours of field work required. Prereq.: HPES 795 or HPES 722.

896. Physiology of Exercise. Acute responses and chronic adaptations of the body to the physiological demands of physical activity. Topics related to the optimization of performance in sport and exercise include: neuromuscular and cardiorespiratory function, energy production and utilization, and environmental influences. Three hours lecture per week and taken concurrently with HPES 896L. Prereq.: HPES 795 or consent of instructor. 3 q.h.

*896L. Physiology of Exercise Laboratory . Experiments and basic laboratory procedures in the field of exercise physiology. Prereq.: Must be taken concurrently with HPES 896. 1 q.h.

898. Seminar: Human Performance and Exercise Science. Special and current problems in Human Performance and Exercise Science. Prereq.: senior standing.

HSC—HEALTH SCIENCES

*590. Strategies for Health and Wellness. Designed to help the student improve personal health/wellness. Emphasis on prevention, risk reduction, decision making, and problem solving. Areas of study include emotional/social well being, stress, nutrition, sexuality and relationships, sexually transmitted diseases, contraception, violence, alcohol, nicotine, and other drugs.

3 q.h.

596. Foundations of Health Education. An overview of Health Education including its principles and objectives in school and community settings.

2 g.h

*601. First Aid and Emergency Care. Personal safety and emergency care practices. Advanced certification will be offered. 2 hours lecture and 2 hours laboratory.

3 q.h.

*604. Cardio-Pulmonary Resuscitation. Basic lifesupport methods including artificial circulation and clearing obstructed airways. Certification will be offered. Two hours laboratory practice per week.

1 q.h.

606L. Pre-Professional Experience. Students participate in an approved school health or a community health education program under faculty supervision. The students observe and assist in the organization and/or teaching of programs. Prereq.: HSC 596.

608. Issues in Environmental Health Education. The role of health education in the study of issues related to the environment. Emphasis placed on the acquisition of skills needed to become an agent of positive environmental change. Prereq.: HSC 590 or GEOG 603.

*609. Elementary Statistics for Health Educators. Introduction to statistics for the health professional with an emphasis on practical application. Includes descriptive statistics, correlation and introduction to measurement, interpretation of data tables, understanding of the use of graphic methods, T-tests and chi-square analysis. Two hours lecture and two hours lab. Prereq.: MATH 512 or equivalent.

3 q.h.

*680. School Health Program. School health programs with emphasis on school health services, healthful school living, and administration. Prereq.: HSC 590. 4 q.h.

691. Health and Stress. Stress and its relationship to health and wellness. Emphasis on causes, prevention and management. Prereq.: HSC 590.

3 q.h.

692. Human Sexuality. An interdisciplinary approach to the study of human sexuality. Holistic approach dealing with questions that concern the college student of today. Includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Factual information will be given in the areas of physi-

ological reproduction, contraception, venereal disease, sexual dysfunctions, techniques, and response. Listed also as BIOL 692, PSYCH 692, and SOCIO 692. Prereq.: HSC 590. Does not count toward general University requirements.

693. Consumer Health Issues. An examination of health services, products, information, resources and safety issues that relate to the consumer's decision-making process. Students receiving credit for HSC 730 will not receive credit for HSC 693. Prereq.: HSC 590.

*700. Community Health Materials and Methods. Effectively providing community health information to special population groups. Emphasis on the selection of appropriate methods and materials. Prereq.: HSC 596, COMM 550, or consent of instructor; 2 hours lecture and 2 hour of lab and/or field experience.

*721. Health Education in the Elementary Grades. Lecture includes curricula, principles, planning, methods and materials for the teaching of health in the elementary schools. Approximately 15 hours of laboratory and/or field work required. Prereq.: HSC 590 and upper division status in the College of Education.

*731. Drug Use and Abuse. Drugs and their relationship to health and wellness. Emphasis on physiological effects, patterns of drug use and abuse, and drug abuse prevention. Students receiving credit for HSC 730 will not receive credit for HSC 731. Prereq.: HSC 590.

*755. Health and Communicable Disease. A study of the major communicable diseases affecting human health. Emphasis is on etiology and prevention. Prereq.: BIOL 551 and 552. 3 q.h.

*756. Health and Chronic Disease. A study of the major chronic diseases affecting human health. Emphasis is on etiology and prevention. Prereq.: BIOL 551 and 552. 4 q.h.

*791. Community Health. A study of the need for organized community health efforts: problems of chronic and communicable diseases, environmental health, world health, etc., and the public and private agencies involved in their solutions. Prereq.: HSC 590.

*792. Community Health Planning. Designed to provide the health educator with the fundamental techniques for developing community health programs. Includes planning, needs assessment, measurement, data collection, marketing, implementation and evaluation. Prereq.: HSC 606L and 791; and one of the following 691, 693, 731.

*794. Secondary School Health Education. Curricula, principles, planning, methods, and materials for teaching health in secondary schools. Laboratory and/or field work required. Two hours lecture, four hours laboratory a week. Prereq.: Upper division status in the College of Education.

- *799. Health Promotion in the Community Setting. The application of the fundamental techniques of planning specific programs in the workplace, hospital or community settings. Two hours lecture, two hours lab. Prereq.: HSC 792 3 q.h.
- 800. Selected Topics in Health Education. The indepth study of special subject matter within Health Education. Topics will be announced each time the course is offered. May be repeated with change in topic up to eight hours. Prereq.: Junior standing or consent of instructor.
- 801. Field Work in Health Education. Designed to provide the health education major with a supervised teaching or agency experience. Four hours per week is required. Prereq.: HSC 791 and either 794 or 799.
- *820. Computer Applications in Health Education. Integrating the use of computers in school and community health education. No previous computer experience necessary. Two hours lecture, two hours lab. Prereq.: HSC 590, 596, 680 and 791 or permission of instructor. 3 q.h.
- *827. Health Program Evaluations. Strategies to assess the impact of health education in the school and health promotion in the community. Emphasis placed on basic evaluative methods and applications. Prereq.: HSC 794 or HSC 799; HSC 820, HSC 609. Two hours lecture and two hours of lab and/or field experience.
- *828. Grant Writing for Health Professionals. Methods and techniques for writing grant proposals related to health. Emphasis on competence in development of narrative, program plan, evaluation design, time line, identifying grant sources and managing funded projects. Prereq.: HSC 792 and 827 or consent of instructor.
- 891. Community Health Internship. Supervised experience designed to provide an opportunity to plan, implement and evaluate a program in an approved community health setting. Approximately 35 hours per week. Prereq.: Completion of all required health education courses in the Bachelor of Arts degree program.
- *892. The Teaching of Controversial Topics in Health Education. To prepare educators to teach in such areas as human sexuality, alcohol, drugs, and values. Two hours lecture and two hours lab. Prereq.: HSC 792 or any educational methods course.

 3 q.h.
- 893. Workshop in Health Education. Concentrated study of a selected topic related to health education. The department will select and announce the topic and determine the credit hours based on frequency and duration of workshop meetings. May be repeated for a maximum of eight hours with change in topic. Prereq.: HSC 721 or consent of instructor.
- *899. Seminar: Health. Special and current problems in health education. Prereq.: senior standing and consent of instructor. 2 q.h.

ISEGR—INDUSTRIAL AND SYSTEMS ENGINEERING

- *620. Engineering Statistics. Applications of data collection and analysis techniques to engineering problems. Techniques for data structuring, data modeling, parameter estimation, and design of experiments utilizing engineering data. Prereq.: ENGR 570.
- 625. Industrial Organization and Management.

 The general principles of industrial organization and management.

 4 q.h.
- *636. Methods Engineering. Techniques for analysis of task performance, the use of process charts and various methods of work simplification, human-machine relation analysis. Theory and practice of time study and other methods of measuring and establishing performance level and productivity. Prereq.: ISEGR 620.
- *636L. Methods Engineering Laboratory. Practice in analyzing and recording tasks. Determination of time standards and productivity requirements. Analysis and evaluation of actual plant operations. Taken concurrently with ISEGR 636. Three hours of laboratory per week.
- *642. Engineering Computations. Flow diagramming, problem layout and problem structuring for the numerical solution of elementary engineering problems on a digital computer. Engineering problems will be solved by using a structured language on digital computers. Prereq.: MATH 572. 4 q.h.
- *716. Principles of Systems Analysis and Design. Introduction to the analysis and design of information systems for industry. Decomposition of large systems into subsystems. Analysis, modeling, and design of the subsystems. Integration of components, start-up, steady-state operation, and termination of the system. Analysis and design of information systems applied to the material flow network within a firm. Prereq.: ISEGR 642. 4 q.h.
- *720. Statistical Quality Control. Concepts of data-based quality control techniques. Intermediate design of experiments as an off-line quality control technique using ANOVA techniques. Process control chart construction and applications as online quality control techniques. Basics of acceptance sampling systems and standards. Prereq.: ISEGR 620.
- *724. Engineering Economy. The analysis and evaluation of factors that affect the economic success of engineering projects. Topics include interest, depreciation, cost classification, comparison of alternatives, make-buy decisions, replacement models and after-tax analysis. Prereq.: MATH 673, ISEGR 642.
- 725. Manufacturing Processes. Modern continuous, batch and hybrid manufacturing processes; metrology, tolerances, testing and inspection; semi-finished product manufacturing; macro-processing

(forming, casting, powder metallurgy, metal working composite fabrication); joining; non-traditional manufacturing processes; and surface processing. Prereq.: MATH 705, ISEGR 642. Prereq. or concurrent with MTEGR 606.

*725L. Manufacturing Processes Laboratory. Experimental work in measurement and gaging, practice in the operation and analysis of several machining, joining and molding processes. Operation of numerically controlled machines and simple NC programming. Three hours of laboratory. Prereq. or concurrent with ISEGR 725.

*727. Simulation of Industrial Engineering Systems. Techniques for the digital simulation of industrial engineering systems which can be represented via discrete event models. The generation of random variables, shaping of probability distributions, model structuring, model verification, and the simulation of inventory, queuing, and quality control systems will be done in a high-level structured programming language. A special-purpose simulation language will be used in expanding the class of problems which can be economically modeled. Prereq.: ISEGR 620, ISEGR 642. 4 q.h.

745. Accounting for Engineers . Fundamentals of financial and cost accounting as applied to engineering. Prereq.: ISEGR 724. 4 q.h.

*801. Operations Research 1. Formulation and solution of engineering problems using linear programming. Model formulation, the primal, dual and transportation simplex methods, duality theory, and sensitivity analysis. Prereq.: MATH 705. 4 q.h.

810. Special Topics. Special topics and new developments in Industrial Engineering. Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing in Industrial Engineering or consent of instructor.

*815. Production Planning and Control. The application of the fundamentals and techniques of forecasting, aggregate planning, material requirement planning, scheduling, machine assignment and inventory to the design of production control systems. Prereq.: ISEGR 620, ISEGR 801. 4 q.h.

820. Advanced Quality for Engineers. Application and practices of quality control in industry. Engineering and administrative aspects of quality control programs, process control, and acceptance sampling. Application of quantitative methods to the design and evaluation of engineered products, processes, and systems. Prereq.: ISEGR 720. 4 q.h.

*821-*822. Facilities Design. The application of engineering techniques to the analysis, design, and justification of production facilities which may be product and/or service oriented. Equipment selection, process flow, material flow and material handling will be considered in the design of facilities. The system design will involve field investigation, acquisition and analysis of data, use of computer-

aided facilities planning and design software, preparation of drawings and writing a final report. Prereq.: ISEGR 636 and ISEGR 725. Prereq. or concurrent: ISEGR 850 and 150 hours of engineering degree credit completed.

*823. Automation and Computer-Aided Manufacturing. Fundamental concepts in manufacturing, automation and automation strategies. Analysis of high volume discrete parts production lines. Automated flow lines and line balancing. Introduction to numerical control, Computer-Aided Manufacturing/Design and Robotics. Fundamentals of manufacturing support systems, group technology and flexible manufacturing systems. Prereq.: ISEGR 725.

*825. Advanced Engineering Economy. An extension of the topics in engineering economy. Analysis of rationale and norm of decision making, risk and uncertainty models, utility theory, measurement of productivity; and advanced project comparison methods. Prereq.: ISEGR 724.

830. Human Factors Engineering. Various aspects of human factors in the design of human-machine systems and environments. Study of human sensory, perceptual, mental, psychomotor, and other characteristics; techniques of measuring human capabilities, limitations, safety, comfort, and productivity. Prereq.: ISEGR 620.

*840. Reliability Engineering. Introduction to reliability as a probabilistic concept, including: measurement, control, maintenance, repair and replacement, and life testing. Prereq.: MATH 705. 4 q.h.

841-842-843. *Industrial Engineering Thesis.* The student prepares a written report of at least 2,500 words on an investigation of a subject selected by the student and agreed upon by the major advisor and the department chair. Conferences scheduled as required. Prereq.: 150 hours of degree credit completed.

2+2+2 q.h.

*850. Operations Research 2. Formulation and solution of industrial engineering problems using operations research models. Topics covered include queueing models and the specialization of linear models to equipment replacement, project planning, assignment, and transshipment problems. Prereq.: ISEGR 801.

*860. Operations Engineering. Application of analytical tools of operations research and linear programming to operational problems of industry. Emphasis on the practical aspects of applying the tools, including data collection, modeling, model verification, and the interpretation, documentation, and presentation of the results. Prereq. or concurrent: ISEGR 727. Prereq.: ISEGR 801, ISEGR 850. 4 q.h.

*870. Robotics. Manipulator kinematics, robot dynamics and programming, sensors and machine vision, machine intelligence and robot planning. Prereq.: MATH 705.

880. Management of Technology. The course addresses two important aspects of technology management. The general aspect of forecasting, planning for adoption, and the effective use of technology in a production/service environment. The technological aspects of the projects as related to the design, production, and support of the products and systems. Prereq.: Senior standing or the consent of the instructor.

4 q.h.

JOURN-JOURNALISM

Lower-Division Courses

602. Media Writing. An introduction to writing for the mass media. Development of writing techniques and examination of styles and approaches used in writing for various mass audiences. Fulfills requirement for Integrated Language Arts Middle Childhood teaching license and may be applied to the Journalism minor and Professional Writing and Editing professional area. Prereq.: ENGL 551. Listed also as ENGL 602.

622. News Reporting. A study of news reporting and writing, with emphasis on journalistic style, development of news judgment, interviewing, and coverage of special story types. Prereq.: ENGL 551. Listed also as ENGL 622.

626. American Journalism. The development of newspaper and magazine journalism in America, the role of the press and its effects on American society, innovations in print media, including those led by women, people of color, and journalists of diverse cultural backgrounds, and journalism as a literary tradition. May be applied toward Journalism minor and Professional Writing and Editing Professional area. Prereq.: ENGL 551. Listed also as ENGL 626.

Upper-Division Courses

716. Feature Writing. Development of techniques of writing feature stories, including generating feature ideas, gathering information, and polishing feature style. Practice in writing various types of features. Prereq.: JOURN 622. Listed also as ENGL 716.

717. Editorial and Opinion Writing. Techniques, approaches and practice in writing reviews, editorials, and opinion columns. Exercises in criticism of the arts, editorial research, and editorial style are included. Prereq.: JOURN 622. Listed also as ENGL 717.

*721L. Journalism Workshop. Application through student publications of the principles of Journalism 622 and an introduction to creating publications on computers. May be repeated once. Prereq. or concurrent: JOURN 622. Listed also as ENGL 721L.

*723. Make-up and Design. The practice of copy editing, headline writing, layout and design, photo editing, caption writing, and designing publications

on computers. Prereq.: JOURN 622 or PREL 750 or ADVER 704. Listed also as ENGL 723. 4 q.h.

820. Advising Student Publications. A study of the role and responsibilities of the publication advisor in high school and college. Topics include the unique legal and ethical concerns of student publications, the training of writers and editors, the relationship of the student press to academic administration, and a range of publication-management concerns. Prereq.: JOURN 622. Listed also as ENGL 820.

824. Press Law and Ethics. A study of First Amendment rights of the press; examination of laws concerning libel, privacy, copyright, obscenity, censorship, open meetings and open records in Ohio; and a discussion of press responsibilities. Prereq.: JOURN 622. Listed also as ENGL 824. 4 q.h.

825. Selected Topics in Journalism. Study of approaches to and special aspects of journalism not covered in depth in other journalism courses. May be repeated once with change in topic. Prereq.: JOURN 622 or any 600-level English literature course. Also listed as ENGL 825.

LING—LINGUISTICS

ENGL 755. Principles of Linguistic Study. Survey of elements of linguistic structure, methods of analysis and description, theoretical models, and the role of language in human affairs. Prereq.: ENGL 551.

Group 1

ENGL 651. Introduction to Language. An introduction to language principally for prospective teachers, with emphasis on the nature and function of language and its history, variations, and acquisition.

4 q.h.

ENGL 750. Language and Culture. Language structure as an instrument in human behavior and social institutions, with emphasis on cross-cultural and intercultural communication. Prereq.: ENGL 551 or equivalent and ANTHR 602 or equivalent. Listed also as ANTHR 750.

ENGL 757. Development of the English Language. Sounds, vocabulary, grammar, and usage-from old to contemporary English. Prereq.: ENGL 755.

ENGL 850. Sociolinguistics. An investigation of the relationship between language and society. Includes discussion of dialects and standard languages, language planning, linguistic identity, multi- and bilingualism, class, gender, ethnicity, and social interaction. Prereq.: ENGL 755. 4 q.h.

ENGL 855. Advanced Linguistics. In-depth study of selected issues in contemporary linguistic theory. Especially recommended for students pursuing advanced studies or a minor in linguistics or for students planning graduate studies. Prereq.: ENGL 755. 4 q.h.

ENGL 858. English Grammar. Descriptions and analysis of English language structure. Prereq.: ENGL 755. 4 q.h.

FRNCH 710. Applied French Phonetics. A systematic study of French phonetics to correct defects in pronunciation and intonation and gives students a better understanding of the differences between the French and English sound systems. 4 q.h.

FRNCH 771, 772. Advanced French Grammar 1, 2. A review in-depth of French grammar through analysis of the stylistic devices of literary works, and through exercises, translation and original composition. Prereq. for 771: FRNCH 675 or consent of instructor; for 772, FRNCH 771. 4+4 q.h.

FRNCH 885. Special Topics. Studies in French language, literature, or civilization ranging from medieval to modern times. Topic is announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: Any 700-level French course appropriate to the current topic, or consent of instructor.

GERMN 730. Advanced German Grammar. An intensive study and practice of selected problems in German grammar. Prereq.: GERMN 620. 4 q.h.

GERMN 885. Special Topics. Studies in German language, literature, or civilization ranging from medieval to modern times. Topic announced each time course is offered. May be taken for a maximum of 12 hours credit if content is not repeated. Prereq.: GERMN 615 or permission of instructor. 2-4 q.h.

ITALN 720,721. Advanced Italian Grammar and Composition. Study in-depth of Italian grammar through exercises and original composition. Need not be taken in sequence. Prereq.: ITALN 602, or equivalent.

ITALN 885. Special Topics. Studies in Italian language, literature, or civilization ranging from medieval to modern times. Topic is announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: One 700-level Italian course.

RUSSN 770. Advanced Russian Grammar and Composition. A review in-depth of Russian grammar through exercises, translation, original composition, and analysis of stylistic devices of literary work. Prereq.: RUSSN 602 or permission of instructor.

RUSSN 765. Practical Russian Phonetics. Theory and practice of Russian speech, pronunciation, stress, rhythm, and intonation. Phonemic and morphemic analysis. 4 q.h.

RUSSN 885. Special Topics. Studies in Russian language, literature, or civilization ranging from medieval to modern times. Topic is announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: Any 700-level Russian course.

SPAN 724. Spanish Pronunciation. Theory and practice of Spanish pronunciation. Description of production of Spanish speech sounds and general characteristics of Spanish pronunciation. Topics on intonation will be included. Audio-lingual practice in class and in language laboratory. Prereq.: SPAN 602 or equivalent or permission of instructor.

4 q.h.

SPAN 735. Spanish Grammar 1. A review of Spanish grammar through written and oral exercises, description and analysis of morphological topics, with emphasis on noun and verb systems. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 615 or equivalent or permission of instructor.

SPAN 736. Spanish Grammar 2. A review of Spanish grammar through written and oral exercises, description and analysis of syntactical topics, with emphasis on pronoun system, word order, as well as sentence formation and combination. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 735 or equivalent or permission of the instructor.

SPAN 855. Topics in Spanish Language and Linguistics. An introduction to the terminology, concepts, bibliography and current issues in Spanish language and linguistics. Major topics include phonology, morphology, semantics, syntax, applied linguistics, transformational grammar, and other topics related to language variation and society.

4 q.h.

ANTHR 750. (See ENGL 750).

4 q.h.

Group 2

ENGL 851. Language Acquisition. A study of research on the learning of first and second languages. Topics include developmental sequences, learner variables, critical periods and conditions for learning and the roles of input and interaction. The course is designed for those planning to teach languages. Prereq.: ENGL 755.

ENGL 856. TESOL Methods. Introduction to teaching English as a Second Language (ESL), including reading, writing, listening, and speaking. Focus will be on using communicative methods with non-native speakers. Prereq.: ENGL 755.

4 q.h.

ENGL 857. TESOL Practicum. Supervised teaching in an English as a Second Language (ESL) program. Additionally, weekly seminar attendance is required. Course may be repeated for up to 4 q.h. Prereq.: ENGL 856.

ENGL 858. *English Grammar*. Descriptions and analysis of English language structure. Prereq.: ENGL 755. 4 q.h.

ENGL 859. Selected Topics in Discourse. Study in depth of a specific topic such as stylistics, semantics or rhetoric. May be repeated once with a different topic. Prereq.: ENGL 740 or 741 or 755 as appropriate to topic.

PHIL 619. *Introduction to Logic*. Introduction to syllogistic or classical logic, symbolic and inductive logic. 4 q.h.

PHIL 703. Symbolic Logic. The structure and properties of axiomatic systems; the theory of propositional and relational logic; the algebra of classes; related topics.

4 q.h.

PHIL 814. Philosophy of Language. An introduction to modern philosophical investigation of such topics as semantics and language analysis, the functions of language, modes of meaning, and the relation of linguistic structures to metaphysics. 4 q.h.

CSCI 835. Artificial Intelligence. Study of the theory an application of intelligent systems. Topics may include general problem-solving techniques, knowledge representation and expert systems, vision and perception, concept formation and learning, natural language processing, AI systems and languages.

4 q.h.

PSYCH 761. Cognition. Experimental methods, research findings, and current theories concerned with human cognitive processes. The information-processing approach, focusing on how information is transformed, stored, manipulated and retrieved will be emphasized. Topics include attention, pattern recognition and categorization, memory and language.

4 q.h.

PSYCH 762. Verbal Learning and Memory: This course provides and overview of the problems, methods, experimental findings and current classical theories stemming from research on verbal learning and the temporary and long-range retention of that learning.

4 q.h.

PSYCH 764. Psycholinguistics. An overview of language production, use and comprehension including the biological basis of speech and language, language development, social aspects of language and bilingualism. Concurrent: PSYCH 764L.

4 ah

PSYCH 764L. Psycholinguistics Laboratory. Research techniques in basic and applied psycho-linguistics. Three hours per week. Concurrent: PSYCH 764. 1q.h.

PSYCH 850. Seminar. (When topic is psycho-linguistics) 3 g.h.

ANTRH 753. Anthropological Linguistics. An introduction to elementary linguistic theory from an anthropological viewpoint with practical work in phonetics, phonology, morphology, syntax, and transformational grammar.

LREL—LABOR RELATIONS

Upper-Division Courses

833. Collective Bargaining and Arbitration. Marginal productivity theory as a restraint in labor negotiations; bargaining theory and practice; utiliza-

tion of third party facilitators; government intervention and control. Listed also as ECON 833. Prereq.: ECON 610 and junior standing. 4 q.h.

835. Labor Law. Development of labor legislation and case law in the U.S.; analysis and economic implications of the effects of the common law, state and federal legislative enactments, judicial decisions, and administrative rulings on labor-management relations. Prereq.: ECON 632. 4 q.h.

841. Occupational Health and Safety Legislation. Economic effects of occupational safety and health legislation on the well-being and productivity of the American labor force; relative efficiency of the U.S. in global competition. Prereq.: ECON 632. 4 q.h.

843. Equal Employment Opportunity and Income Security. Public policy related to discrimination in hiring, pay and fringes, training, promotion and retention of the legally-protected classes. Listed also as ECON 843. Prereq.: ECON 610 and junior standing.

845. Theory, Operation, and Problems of Labor Organizations. Policies and practices of unions in protecting and expanding the interests of their constituencies in a dynamic technological world. Prereq.: ECON 632.

849. Seminar in Labor Relations. Selected current topics in labor-management relations. Prereq.: ECON 632. 4 q.h.

MATEC—MEDICAL ASSISTING TECHNOLOGY

*501. Medical Terminology. Structure of medical words, pronunciation and meaning of medical terms.

4 q.h.

502. Medical Law and Ethics. Types of medical practices. Legal relationship of physician to patient, i.e., professional liability, implied and informed consent, malpractice, invasion of privacy. Emphasis on professional attitude and behavior.

4 q.h.

600. Medical Insurance Forms. A study of private group and government insurance programs; medicare, medicaid, Workers' Compensation and Disability Insurance and the completion of required forms. Prereq.: MATEC 501.

602. Medical Diagnostic and Procedural Coding. Emphasis will be on identifying and use of coding systems (ID-9-CM, CPT) directly related to medical practices and current government regulations. Prereq.: MATEC 501 or instructor's permission.

3 q.h.

*605. Introduction to Pharmacology. Identification and interactions of drugs used in patient care including the pharmacological action and effects on the patient. Various modes of administration and patient education regarding the effects of common drugs are included. Prereq.: CHEM 505, BIOL 552 or concurrently. 610. Introduction to Disease Processes. Introduction to the disease process including diagnostic symptoms and treatment aspects. Emphasis is placed on the physical, psychological and environmental conditions which influence the individual's well being. Prereq.: MATEC 501. 4 q.h.

*611L. Clinical Procedures Lab. Techniques of patient interviewing and history taking, performance of patient assessment, application of principles of body mechanics and instructions for examinations and diagnostic procedures. Three hour lab. Prereq.: MATEC 501 and 502.

612. Medical Records Management. Includes medical record administration in order to create, maintain, protect, and preserve records. Emphasis will be on the development and maintenance of appropriate filing systems and the ethical and legal requirements and restrictions of medical records. Prereq.: MATEC 501, MATEC 502. 3 q.h.

*614. Medical Office Procedures. Fundamentals in patient reception, appointment scheduling, communication techniques, office management systems and preparation of an office policy manual. Three hours lecture, six hours of assigned practicum per week. Prereq.: BIS 523, MATEC 501, MATEC 502.

4 q.1

620. Advanced Clinical Procedures. Orientation to minor surgical and specialized examination techniques, physical examinations, preparation and administration of medication, performing electrocardiograms, application of physical therapy, and X-ray techniques including maintaining medical supplies and inventory. Prereq.: MATEC 610, 611L, BIOL 552 and concurrently with MATEC 620L.

3 a.h

*620L. Advanced Clinical Procedures Lab. Laboratory experience in minor surgical and specialized examination techniques, preparation and administration of medications, electrocardiograms, physical therapy, and X-ray procedure. Taken concurrently with MATEC 620. Three hours laboratory a week.

680. Laboratory Procedures for the Medical Office. An introduction to diagnostic laboratory procedures performed in the physician's office. Principles and techniques of laboratory procedures are studied. Prereq.: MATEC 610 and MATEC 611L and BIOL 560 or taken concurrently.

*680L. Laboratory Procedures for the Medical Office Lab. Practice in diagnostic laboratory procedures. Emphasis on collection, proper handling, and identification of specimens. Basic hematologic procedures, urinalysis, bacteriological exams, serology, and pregnancy tests. Must be taken concurrently with MATEC 680. Three hours of laboratory a week.

692. Medical Assisting Externship. A practical experience in offices of qualified physicians, accredited hospitals, and/or clinics. The student will

spend twenty-one hours a week (total 210 per quarter) at the site and attend an hour weekly seminar. Prereq.: MATEC 620, 620L, 680, 680L, and 614.

4 q.h.

MATH—MATHEMATICS

Lower-Division Courses

500, 501. Elementary Algebra A, B. Arithmetic of integers and of rational numbers; linear equations and inequalities in one variable; polynomials, factoring, algebraic fractions, radicals and quadratic equations; linear systems in two variables; graphs. Credit will not be given for both 502 and 501 or for both 502 and 500. Grading will be CR/NC. MATH 500 is prerequisite for MATH 501. Students taking both of these courses must take an additional 8 quarter hours to complete the requirements for graduation. 4 + 4 q.h.

502. Elementary Algebra. A faster-paced version of 500, 501. Intended for people who have passed algebra recently and want a review. Credit will not be given for both 500 and 502 or for both 501 and 502. Grading will be CR/NC. A student taking this course must take an additional 5 quarter hours to complete the requirements for graduation. 5 q.h.

503, 504. Intermediate Algebra A, B. Relations and functions with graphing by algebraic techniques; relations of graphs to solutions of equations and inequalities; exponential and logarithmic functions with graphs and applications; conics and introduction to non-linear systems. Credit will not be given for both 504 and 505 or for both 503 and 505. A student taking 503 must take an additional 4 hours to complete the requirements for graduation. The prerequisite for 503 is one unit of high school algebra or MATH 501, or MATH 502. MATH 503 is the prerequisite for MATH 504. Grading for 503 (but not 504) is CR/NC.

505. Intermediate Algebra. A faster-paced version of MATH 503, 504. Intended for people who have passed intermediate algebra recently and want a review. Credit will not be given for both 503 and 505 or for both 504 and 505. Prereq.: one unit of high school algebra or MATH 501, or MATH 502.5 q.h.

506. Mathematics of Business. A general study of business mathematics embracing number and algebraic concepts. Percentage, discounts, simple and compound interest, present values, polynomials, exponents, first degree equations, logarithms, and progressions with business applications are studied. Prereq.: One year of high school mathematics.

5 q.h

511. Geometry. A first course in geometry. Grading will be CR/NC. Prereq.: one unit of high school algebra or MATH 501 or MATH 502. A student taking this course must take an additional 5 quarter hours to complete the requirements for graduation.

513. Intensive Intermediate Algebra. A faster paced version of MATH 505. This course is intended for students of Engineering Technology. Credit will not be given for both 504 and 513 or 505 and 513. Prereq.: One unit of high school Algebra (or MATH 501 or MATH 502) and one unit of high school Geometry (or MATH 511).

520. Trigonometry. An analytical study of trigonometric functions and their inverses, identities, equations, and applications. Prereq.: MATH 505 or equivalent.

4 q.h.

523. Survey of Mathematics. Mathematics course for non-science majors emphasizing some of the basic ideas in mathematics. The stress is on concepts rather than on manipulatory skills. Prereq.: MATH 505 or equivalent.

525. Precalculus Mathematics. Concepts and techniques required for the calculus sequence. Topics to be covered include solution of inequalities, graphing of algebraic and transcendental functions, and a brief review of other subjects from algebra, trigonometry and analytic geometry which will be needed for the study of calculus. Prereq.: High school trigonometry or MATH 520.

535, 536, 537. Mathematics for Elementary Teachers 1, 2, 3. Content includes topics from algebra, number theory, probability, geometry, measurement, and statistics. Problem solving, appropriate use of technology, mathematical reasoning, oral and written communication of mathematics, and connections between topics will be emphasized. Prereq.: High school geometry and intermediate algebra for 535, 535 for 536, and 536 for 537.

550. Calculus for Social, Managerial and Life Sciences. Calculus of functions of one variable. Intended for students in business, the social sciences, or the biological sciences or for any student who desires to learn the basic concepts of calculus. Topics include limits, derivatives and integrals with applications. Credit will not be given to students who have completed MATH 561, 570 or 571. Prereq.: MATH 504 or equivalent; or two high school units of Algebra (with an average of "C" or better); and a satisfactory score on the Math Placement Exam.

5 q.h.

560, 561, 562 Functions and Calculus 1,2, 3. A sequence of integrated courses covering a study of functions, derivatives, and integrals. Students completing MATH 562 will be at the same level in mathematics as students completing MATH 572. Students completing MATH 561 will be at or beyond the level of students completing MATH 571. Credit will not be given for both MATH 560 and MATH 525, for both MATH 561 and MATH 571, or for both MATH 562 and MATH 572. Prereq.: MATH 560 requires either four high school units of mathematics (including trigonometry) and a satisfactory score on the Math Placement Exam, or MATH 520. MATH 560 is required for MATH 561. MATH 561 is required for MATH 562. 5+5+5 q.h.

570, 670, 770. Calculus for Engineering Technology 1, 2, 3. The elements of differential and integral calculus, with emphasis on applications. Analytical geometry, differentiation and integration techniques, series representations, and numerical methods. Introduction to differential equations, transform calculus, and to Fourier analysis. This is a basic methods course particularly adapted for those who require applied topics in mathematics. It is not applicable toward the Mathematics major. Prereq.: MATH 520 is required for 570. 570 is required for 670 and 670 is required for 770.

571, 572, 673, 674. Calculus 1, 2, 3, 4. A sequence of integrated courses in analytic geometry and calculus. A detailed study of limits, derivatives, and integrals of functions of one and several variables with applications. Credit will not be given for both MATH 571 and MATH 561 or for both MATH 572 and MATH 562. Prereq.: MATH 571 requires either four high school units of mathematics (including trigonometry) with an average of "C" or better and a satisfactory score on the Math Placement Exam, or MATH 525. MATH 571 is required for 572; MATH 572 or MATH 562 for 673; and MATH 673 for 674. 5+4+5+4 q.h.

*580H, *581H, 681H. Biomathematics 1, 2, 3. An integrated course in mathematics and computer science having as a central theme the role of mathematical models in explaining and predicting phenomena in the life sciences. Specific topics include: computer programming, differential and integral calculus, matrix operations, linear programming, differential and difference equations, probability, Markov chains, and applications to the biological sciences. Prereq.: Admission to NEOUCOM-YSU program or equivalent qualifications with consent of instructor and department chair is required for MATH 580H. 580H is required for 581H, and 581H is required for 681H.

585H, 586H, 687H. Calculus 1, 2, 3 Honors. A sequence of honors courses in analytical geometry and calculus which will cover essentially the same material as MATH 571, 572, 673, and 674, in three quarters instead of four. A detailed study of limits, derivatives, and integrals of functions of one and several variables and their applications. Prereq.: Four high school units of mathematics (including trigonometry) with and 'A' or a high 'B' average and a high score on the ACT or CEEB examination are required for MATH 585H. 585H is required for 586H and 586H is required for 687H. This sequence will be offered at most once during each academic year.

617. Algebra for Elementary Teachers. Basic ideas and structure of algebra including various strategies of problem solving. Prereq.: MATH 537 or permission of instructor. 5 q.h.

618. Geometry for Elementary Teachers. A study of space, plane, and line as sets of points, considering separation properties and simple closed curves; the triangle, rectangle, circle, sphere, and other figures considered as sets of points with their properties developed intuitively; concept of measurement. Prereq.: MATH 617 or permission of instructor.

4 q.h.

- 642. Applied Finite Mathematics. Designed for business majors but open to others. Topics include matrix algebra, an introduction to linear programming, probability, and mathematics of finance. Prereq.: MATH 504 and 511 or equivalent. 5 q.h.
- 645. Mathematics for Operations Research. Matrices and linear systems; linear programming, simplex method; other optimization models, comparison with calculus, introduction to probability and probabilistic models. Credit for 645 will not be given to students with 642 or 725. Prereq.: MATH 550, 570, or 571.
- 683. Transition to Advanced Mathematics. A course to prepare mathematics majors for their later theoretical courses. Topics will include logic, sets, and methods of proof including mathematical induction. Recommended to be taken concurrently with MATH 673. Prereq.: MATH 572. 2 q.h.

Upper-Division Courses

- 705, 706. Differential Equations 1, 2. Introduction to theory and solution of ordinary differential equations with applications; partial differential equations; Fourier series; boundary value problems; Laplace transform; vector analysis. Prereq.: MATH 673 for 705, MATH 674 and 705 for 706. 4+4 q.h.
- 721, 722. Abstract Algebra 1, 2. Algebra of sets, relations and functions; elementary group theory; rings, domains; and supportive material from number theory. Prereq.: MATH 683 and 725 for 721, MATH 721 for 722. 3+3 q.h.
- *725. Matrix Theory and Linear Algebra. Matrices; matrix operations; linear transformations; applications. Prereq.: MATH 673. 4 q.h.
- 730. Foundations of Geometry. The development of Euclidean and Non-Euclidean geometries from postulate systems. Prereq.: MATH 673. 4 q.h.
- *743, 841. Mathematical Statistics 1, 2. An introduction to the theory of probability and statistics using the concept and methods of calculus. Topics include discrete and continuous probability models, random variables and their distributions, estimations, tests of hypotheses and regression. Prereq.: MATH 673 is required for 743 and MATH 674 and 743 are required for 841.
- 750. *History of Mathematics*. A survey of the historical development of mathematics. Prereq.: MATH 673.
- 751, 752. Intermediate Real Analysis 1, 2. Elementary logic, properties of the real number system, critical analysis of limits and continuity, fundamental concepts underlying the calculus. Prereq.: MATH 673 and 683 for 751, MATH 751 for 752. 3+3 q.h.

- 755. Ordinary Differential Equations 1. A first course in differential equations with emphasis on the mathematical structure of the subject. Substantial use of the concepts and techniques of linear algebra will be made. Topics include: first order nonlinear equations with discussion of fundamental existence theorems, higher order linear equations, linear systems, and additional topics selected by the instructor. Prereq.: MATH 674 and 725. 4 q.h.
- *760. Numerical Analysis 1. The theory and techniques of numerical computation. The solution of a single equation, interpolation methods, numerical differentiation and integration, direct methods for solving linear systems. Prereq.: MATH 725 and CSCI 610 or permission of instructor. 4 q.h.
- *781H. Biostatistics. A course in statistics with applications relating to biological sciences. Specific topics include: descriptive statistics, testing hypotheses, analysis of count data, correlation, regression, non-parametric statistics and analysis of variance. Prereq.: MATH 681H or permission of instructor.

- *785. Matrix Algebra and Numerical Methods. Matrices, matrix operations, and the application of numerical methods. This course is not applicable toward the Mathematics major. Prereq.: MATH 770 and ENTEC 505, or equivalent.
- 795. Topics in Mathematics. The study of a mathematical topic or the development of a special area of mathematics. May be repeated. Prereq.: Permission of instructor and department chair. 2-5 q.h.
- 820. Modern Decision Making. The mathematics and statistics of decision theory with applications to contemporary problems. Topics include decision trees, influence diagrams, the analytic hierarchy process, risk analysis, and applications. Prereq.: STAT 717 or equivalent.
- *825. Advanced Linear Algebra. A study of abstract vector spaces, linear transformations, duality, canonical forms, the spectral theorem, and inner product spaces. Prereq.: MATH 722, or permission of instructor.

 4 q.h.
- 827. Abstract Algebra 3. A continuation of MATH 722 with special emphasis on fields. Additional topics in pure or applied algebra. Prereq.: MATH 722.

 4 q.h.
- 828. Number Theory. A study of congruences, Diophantine equations, quadratic residues, special number theory functions, and selected applications. Prereq.: MATH 722 and 725. 4 q.h.
- 830. Projective Geometry. A study of projective planes using both synthetic and analytical methods; axiomatic foundations; connection to Euclidean geometry. Prereq.: MATH 725 and 721. 4 q.h.
- 835. Introduction to Combinatories and Graph theory. The pigeonhole principle; permutations, combinations, the binomial theorem; the inclusion-exclusion principle; recurrence relations; graphs and

digraphs, paths and cycles, trees, bipartite graphs and matchings. Credit will not be given to students who have completed MATH 838. Prereq.: MATH 725. 4 q.h.

- 843. Theory of Probability. An introduction to the mathematical foundation of probability theory including the study of discrete and continuous distributions. Other topics selected from limit theorems, generating functions, stochastic processes, applications. Prereq.: MATH 743 or permission of instructor. 4 q.h.
- *845. Operations Research 1. An introduction to operations research with emphasis on mathematical methods. Topics may include: linear programming, sensitivity analysis, duality theory, transportation problems, assignment problems, transshipment problems, and network problems. Prereq.: MATH 725 or permission of instructor.
- 846. Operations Research 2. A continuation of MATH 845. Topics may include integer programming, advanced linear programming, nonlinear programming, dynamic programming, queuing theory, Markov analysis, game theory, and forecasting models. Prereq.: MATH 743 and 845 or permission of instructor.
- *848. Regression Analysis. Introduction to the theory and applications of regression analysis. Topics include simple linear regression, multiple regression, polynomial regression, correlation analysis and logistic regression. Prereq.: MATH 725 and 841.
- 855. Ordinary Differential Equations 2. A second course in differential equations with emphasis on nonlinear problems and qualitative methods or on boundary value problems. Topics will be chosen from: proofs of fundamental theorems, phase plane analysis, limit cycles and the Poincare-Bendixon theorem, biological models, stability via linearization, stability via Liapunov functions, asymptotic methods, and boundary value problems. Prereq.: MATH 752 and 755.
- 860. Mathematical Logic. An introduction to the study of theories in formalized languages and to the theory of models. Prereq.: PHIL 619 or MATH 721 or permission of instructor.
- *861. Numerical Analysis 2. Numerical methods of initial-value problems, eigenvalue problems, iterative methods for linear and nonlinear systems of equations, and methods involving least squares, orthogonal polynomials, and fast Fourier transforms. Prereq.: MATH 674 and 760 or permission of instructor. 4 q.h.
- 872. Multivariable Analysis. Uniform convergence of sequences of functions and some consequences; functions on n-space: derivatives in vector spaces, mean value theorem, Taylor's formula, inverse mapping theorem, implicit mapping theorem. Prereq.: MATH 674, 725, 752.

- 875. Introduction to Complex Variables. Complex numbers and their geometrical representation, analytic functions of a complex variable, contour integration, Taylor and Laurent series, residues and poles, conformal mapping. Prereq.: MATH 674 and 752, or consent of instructor. 4 q.h.
- 880. Introduction to Topology. An introduction to the basic concepts of general topology: compactness, connectedness, and continuity in topological spaces. Prereq.: MATH 722 and 752.
- 890. Mathematics Seminar. Report and discussion of each student's in-depth study on a specific topic. Prereq.: Permission of instructor.
- 893. Mathematics Internship . A program of work and study in the public or private sector centered upon the development of a significant mathematics project, under the direction of University faculty member(s) and designated member(s) of the participating agency. This course can be substituted for MATH 896 to fulfill the major requirements with approval from the department chairperson. See department for more details. Prereq .: 36 q.h. of mathematics applicable to the mathematics major including either MATH 722 or 752 or permission of department chairperson and academic advisor. May be repeated.
- 895. Selected Topics in Mathematics. The study of a standard mathematical topic in depth or the development of a special area of mathematics. May be repeated. Prereq.: Permission of instructor and department chair. 2-5 q.h.
- 896. Senior Undergraduate Research Project. Individualized study of a topic in mathematics culminating in a written report and an oral presentation at a national or regional meeting or at a local seminar. Prereq.: 36 q.h. of mathematics applicable to the mathematics major including either MATH 722 or MATH 752 and permission of the instructor.

MECH—MECHANICAL ENGINEERING

500. Drawing Fundamentals. Introduction to visualizing objects for engineering communication. Topics include freehand sketching, three dimensional representations, orthographic projection, auxiliary views, sectional views, and dimensioning. Intended for students who have not had the equivalent of one year of high school drawing or those students wishing to enhance their visualizing and sketching abilities. Not available for credit toward the Bachelor of Engineering degree. Six hours combined lecture and laboratory each week. Prereq.: High school geometry or equivalent.

*501. Engineering Communication with CAD. Introduction to computer aided drawing (CAD) for engineering communications using commercially available software and state-of-the-art computers and output devices. Topics include review of sketch-

ing, Boolean operations for 2-D and 3-D solid modeling, computer-generated views and drawings and presentation of professional reports using computer tools. Final design project using these tools is required. Two hours lecture and three hours laboratory per week. Prereq.: MECH 500 or equivalent.

3 q.h

603. Thermodynamics 1. Thermodynamic properties of gases and vapors and their relationships in energy transformations. The first law; equations of state; compression and expansion processes; entropy, the second law. Introduction to thermodynamic cycles and efficiencies of power plants and other devices. Prereq. or concurrent: MATH 673.

4 q.h.

- 604. Thermodynamics 2. Availability and irreversibility in thermodynamic processes and cycles; relations among thermodynamic properties. Mixtures and solutions; psychometry. Introduction to phase and chemical equilibrium. Prereq.: MECH 603. Prereq. or concurrent: CHEM 516.
- 641. Dynamics. Basic relationships of the kinematics of particles and rigid bodies. Kinematics of particles, groups of particles, and rigid bodies, using Newton's laws of motion, work-energy and impulse-momentum techniques. Vector notation used where applicable. Prereq.: CEEGR 601. 4 q.h.
- *680. Mechanical Engineering Computations. Applications of computer tools to solve problems in Mechanical Engineering. Topics include development of geometries to model mechanical systems using advanced computer tools; graphical solutions using structured programming languages; spreadsheets and symbolic solvers; and advanced methods of result presentation with an emphasis on display techniques. Two hours lecture and three hours laboratory per week. Prereq.: ENGR 560 and ENGR 570.
- *704L. Applied Thermodynamics Laboratory: Experiences involving basic measurement techniques, power and refrigeration cycles, and fossil fuels. Three hours of laboratory a week. Prereq.: MECH 604.
- *725. Heat Transfer 1. The fundamentals of heat transfer by conduction, convection, and radiation; investigations of combinations of these modes of heat transfer. Prereq.: MATH 705; Prereq. or concurrent: MECH 604.
- *726. Thermal Fluid Applications. Application of the principles of thermodynamics, fluid mechanics and heat transfer to design and evaluation of selection criteria of thermal fluid components. Components include those found in HVAC, pneumatic and hydraulic systems. Prereq. or concurrent: MECH 725.
- *742. Kinematics of Machines. Graphical, analytical and computer position, velocity and acceleration analysis of mechanisms. Design of link and cam mechanisms to perform specific machine functions. Prereq.: MECH 641, MECH 680. 4 q.h.

*751. Stress and Strain Analysis 1. Analysis (including Mohr Circle Representation) of two- and three-dimensional stresses and strains at a point. Application of theory to techniques of experimental stress analysis. Stress concentration factors. Energy methods; Castigliano's Theorem. Dynamic loading. Introduction to theories of failure. Prereq.: MATH 673, CEEGR 602; and CEEGR 603 or MTEGR 741.

4 q.h

- *762. Design of Machine Elements. Parameters and design criteria of various elements found in machines. Elements considered include shafts, springs, curved beams and thickwalled cylinders, flywheels, belts and chains, clutches and brakes, bearings, lubrication and gears. Must be taken concurrently with MECH 762L. Prereq.: MECH 641 and MECH 751.
- *762L. Design of Machine Elements Laboratory.
 Practical design problems incorporating force analysis, material selection and sizing of machine elements. Three hours laboratory per week. Must be taken concurrently with MECH 762. 1 q.h.
- *781. Dynamic Systems Analysis. Theoretical study of the dynamics of linear lumped parameter models of mechanical, electrical, fluid, thermal, and mixed systems. Laplace transforms and input response concepts. Prereq.: MECH 641; MATH 705; ELEGR 714; ENGR 570.
- 799. Internship in Mechanical Engineering I. This course provides students with summer internship experience in mechanical engineering. It is the first of two summer internship courses. The student who wishes to enroll in this course must refer to the Rules and Regulations of Cooperative Education of the Mechanical Engineering Department. Prereq.: Junior standing and approval of department professional practice committee.
- *800. Special Topics. Special topics and new developments in mechanical engineering. Subject matter, credit hours, and special prerequisites are announced in advance of each offering. May be repeated to a maximum of eight credit hours with different content. Prereq.: Junior standing in Mechanical Engineering, or consent of instructor.

1-4 q.h.

801, 802, 803. Mechanical Systems Design 1, 2, 3. Detailed design of a mechanical engineering system utilizing expertise expected of a new graduate in an industry setting. Case studies, computer software applications, experimental verification, oral presentations, and written reports prepare the student to function as part of a design team on a capstone project. The capstone project is the key to the success of this design experience. Two hours lecture and three hours laboratory per week for MECH 801. Three hours lecture per week for MECH 802 and MECH 803. Prereq. for MECH 801: MECH 726, MECH 742, MECH 762, MECH 781, ISEGR724, or consent of instructor. Prereq. for MECH 802. MECH 801. Prereq. for MECH 803.

3+3+3 q.h.

*808, *809. Mechanical Systems Design I, II. Design of an engineering system utilizing expertise normally expected of new mechanical engineering graduates in an industry setting. Alternate designs are explored in the light of design methodology factors such as feasibility, reliability, liability, safety, cost, etc. Prereq. for MECH 808: MECH 725, MECH 742, MECH 751, MECH 781, ISEGR 724, or consent of instructor. Prereq. for MECH 809: MECH 808; Prereq. or concurrent MECH 726, MECH 762. MECH 808 must be taken concurrently with MECH 808L.

*808L. Mechanical System Design Laboratory. Supplemental activities related to MECH 808, such as discussions and seminars on industry practices and standards, computer software applications, experimental verification, etc. Three hours laboratory per week. Must be taken concurrently with MECH 808.

811. Solar Engineering. Radiational characteristics of solar energy, glass materials and selective coatings. Analysis of flat plate collectors, concentrators and thermal storage. System simulation and economic analysis for optimization of basic solar systems. Prereq.: PHYS 610, MECH 725, ISEGR 724.

4 q.h

811L. Solar Engineering Laboratory. Experiments involving thermal radiation, radiation properties of materials, solar energy collectors, energy storage, and the system performance. Three hours of laboratory per week. Prereq. or concurrent: MECH 811.

1 q.h

815. Energy Conversion Systems. Conventional and nonconventional systems that convert primary forms of energy into mechanical and/or electrical energy. Analysis and design of equipment used in conventional systems with emphasis on reciprocating and rotating machinery. Prereq.: MECH 604, MECH 725, Prereq. or concurrent MECH 830.

4 q.h.

*823. Refrigeration and Air Conditioning. The application of thermodynamic, fluid flow, and heat transfer principles to the design of domestic and industrial systems for material processes and human comfort. Design of equipment to meet required heating and cooling loads. Prereq.; CEEGR 716 and MECH 725.

823L. Refrigeration and Air Conditioning Laboratory. Experiments on psychometric measurements of air properties such as relative humidity, humidity ratio, and wet and dry bulb temperatures. Coefficient of Performance determination of domestic refrigeration and air conditioning equipment. Air conditioning and heating process analysis using on psychometric chart. Field visits to commercial air conditioning facilities, on-site data collection and performance assessment for heating and cooling load calculations. Prereq. or concurrent: MECH 823.

*825. Heat Transfer 2. A continuation of Heat Transfer 1 involving more advanced topics in conduction, convection, and radiation. Design problems solved analytically, numerically, and by computer methods. Prereq.: MATH 706, MECH 680, and MECH 725. 4 q.h.

*825L. Heat Transfer 2 Laboratory. Experiments involving conduction, convection, and radiation modes of heat transfer. Heat exchangers. Three hours of laboratory a week. Prereq.: MECH 725.

1 q.h.

830. Fluid Mechanics. The theory of one-dimensional compressible flow. The control volume approach to the conservation of mass, energy, and momentum integral equations. Differential analysis and nonviscous flow theory. Prereq.: CEEGR 716 and MATH 706.

*830L. Fluid Mechanics Laboratory. Experiments on compressible fluid flow in the subsonic and supersonic regions. Three hours of laboratory a week. Prereq.: MECH 830 & CEEGR 716L. 1 q.h.

*843. Kinetics of Machinery. Three dimensional kinematics and dynamics of machinery. Dynamic analysis and design, and balancing of link and cam mechanical systems. Prereq.: MECH 742. 4 q.h.

*850L. Stress and Strain Analysis Laboratory. Transmission and reflection photoelasticity. Static and dynamic strain gage applications including computer aided data acquisition. Three hours laboratory per week. Prereq.: MECH 751. 1 q.h.

852. Stress and Strain Analysis 2. Continuation of ME 751. Introduction to classical elasticity, inelastic behavior and high temperature creep. Emphasis is on design applications. Prereq.: MECH 751 and MATH 706.

862. Human Factors in Mechanical Design. A mechanical design course emphasizing aesthetics, safety, and the comfort of the human body as criteria, and human sensory processes as design factors; topics such as vehicular safety devices, prosthetic devices, and household appliances are discussed. Prereq.: MECH 751.

863. Advanced Machine Design. The design and use of complex or unusual elements. Topics include keys and couplings, screws, welded connections, riveted and bolted joints, selection of electric motors, crankshafts, multiple diameter shaft deflections, nonlinear springs, special types of clutches and brakes, roller bearings, planetary gear trains, gaskets and seals, and wire rope. Prereq.: MECH 762 and MECH 762L.

*863L. Advanced Machine Design Laboratory. Practical design problems which incorporate the design of several machine elements. Three hours laboratory per week. Must be taken concurrently with MECH 863.

*870. Mechanical Vibrations. The behavior of the lumped system with one and two degrees of freedom including applications (such as: vibration isolation, Seismic instruments, etc.). Methods of analyzing lumped systems with many degrees of freedom. Prereq.: CEEGR 603, MECH 781, or consent of instructor.

- *870L. Mechanical Vibrations Laboratory. Experiments involving mechanical systems and some electrical analogies. Analog computer simulation of vibration systems. Taken concurrently with MECH 870. Three hours of laboratory a week. 1 q.h.
- 872. Engineering Acoustics. The nature of sound and its propagation; analysis and control of sound and noise production in mechanical equipment; transmission and absorption of sound in engineering materials, ultrasonics, structural acoustics, basic measurements, and equipment. Prereq.: MECH 781.
- *872L. Engineering Acoustics Laboratory. Applications of acoustics instrumentations to problems involving room acoustics, sounds in pipes, noise barriers, and machinery noise. Taken concurrently with MECH 872. Three hours of laboratory a week.

 1 q.h.
- 883. Mechanical Engineering Measurements. Fundamentals of measuring phenomena such as temperature, pressure, displacement, etc., including principles of operation and performance characteristics of instrumentation commonly used in mechanical engineering. Emphasis on generation, conditioning, and recording of time-varying signals. Prereq.: MECH 641, CEEGR 602, ELEGR 714.

4 a.h.

- *884. Finite Element Analysis Applied to Design. Fundamental principles of finite element analysis with emphasis on applications to design in areas pertinent to mechanical engineering, including elasticity, vibrations, fluid mechanics and heat transfer. Use of interactive computer software. Prereq.: MECH 725, 751, 781.
- 884L. Finite Element Analysis Applied to Design Laboratory. Practical analysis and design problems solved using commercial finite element analysis software. Comparison of experimental, theoretical, and finite element analysis solutions. Prereq. or concurrent: MECH 884.
- *892. Control Theory. Introduction to the principles of automatic control of electro-mechanical and hydraulic systems using Laplace transform methods. Discussion of system stability. Prereq.: MATH 706, MECH 781.
- 899. Internship in Mechanical Engineering II. This course provides students with summer internship experience in mechanical engineering. It is the second of the two summer internship courses. Prereq.: Senior standing and approval of department Professional Practice Committee.

MERCHANDISING: FASHION & INTERIORS

*506. Clothing and Image Development. Purpose and meaning of dress and adornment as a means of communication and social identity.

3 q.h.

- *508. Clothing Construction. Use of commercial patterns, basic alterations, fundamental techniques, and skills required for proficiency in construction of simple garments. Two hour lecture and four hours laboratory per week.
- *510. Apparel Evaluation. Analysis and evaluation of aspects of garment construction and styling relating to making merchandising decisions.4 q.h.
- 525. *The Fashion Industry*. An introduction to the various interrelated levels of the fashion industry; an examination of how the industry and fashion cycles operate. Field trips are included. 3 q.h.
- 595. Fashion Tour. On-site study of the fashion industry. Pre-tour orientation and written report required. May be repeated once. 1-2 q.h.
- 608. Fashion Trends Forecasting. Analysis of trends, including business, social environments, fashion and marketing, to identify growth patterns and to avoid losses in the fashion industry. Prereq.: MKTG 625, MGT 604; and HMEC 550. 4 q.h.
- 635. Survey of Fashion Designers. International designers and schools of thought in fashion are studied including contributions of trend setters. Current trade publications are utilized and field trips are taken. Prereq.: MERCH 525, 608, HMEC 550.

- *642. Applied Fabric Design. The use of dyes and needlework in clothing and home furnishings. One hour lecture and four hours laboratory. 3 q.h.
- *660. Visual Merchandising. Creating visual displays used to sell fashion, furnishings, and other merchandise; includes field trips. Two hours lecture, two hours laboratory. Prereq.: MERCH 608, 635; HMEC 771; MGT 604.
- *705. Fashion Textiles. Study of textiles including their characteristics, functions, purposes, and care. Fibers, yarns, construction methods, finishes, and textile legislation are covered. Prereq.: CHEM 501 or high school equivalent.
- 713. Fashion Show Production. Study of components and production of fashion shows. One hour lecture, three hours laboratory. Prereq.: MERCH 525, 608, 635, 660.
- 730. Social and Psychological Aspects of Clothing. Interdisciplinary study of clothing within the comprehensive context of its cultural, social, psychological, physical, economic and aesthetic relationships. Prereq.: SOCIO 500, PSYCH 560. 4 q.h.
- 764. Family Housing and Equipment. Planning the home environment to meet family needs and resources; consumer decisions in selection of residences, floor plans, color schemes, and furnishings. Prereq.: PSYCH 560 and SOCIO 500. 4 q.h.
- 775. Fashion Apparel Markets. Analysis and research into the specific apparel markets. Student projects and field trips included. Two hours lecture, three hours lab. Prereq.: MERCH 525, 608, 635; MGT 604.

795. Fashion Industry Tour. Concentrated on-site study of the fashion industry including tours of laboratories, designer workrooms, showrooms, buying offices and related organizations. Pre-tour orientations and written report of experiences required. Prereq.: MERCH 525, 608, 635, 660, 713, and 775. May be repeated once.

805. International Apparel Retailing. Identification of the differentiation in the global marketplace and reasons for disparities across international borders. Analysis of globalization trends and comparative retail practices. Prereq.: MERCH 510, 608, 705; MKTG 703, 709; MGT 725.

877. Survey of Fashion History. The chronological study of costumes, silhouettes, accessories, and fabrics from ancient to modern times and their influences on current fashion with consideration of cultural forces affecting development. Prereq.: MERCH 730, 8 q.h. of humanities plus 8 q.h. of social studies, and junior standing.

879. History of Interiors & Furnishings. Study of furniture, interiors and decorative arts and designs from ancient times through the 20th century with emphasis on social/cultural factors that affected their development. Prereq.: 8 hours of humanities plus 8 hours of social studies, and junior standing.

4 q.h.

MET—MECHANICAL ENGINEERING TECHNOLOGY

515. Mechanics 1. Study of forces as vector quantities; resultant of force systems; principles of mechanical equilibrium; application of basic principles to problems involving trusses, frames, machine elements; friction, and internal forces. Prereq.: STECH 505, concurrent: MATH 520.

516. Mechanics 2. Continuation of MET 515 with applications of basic principles of statics, introduction to dynamics of solids, study of various types of motion, Newton's second law, concept of work and energy, impulse, and momentum. Prereq.: MET 515.

605. Thermodynamics. Fundamental concepts and definitions, first law of thermodynamics, physical properties, ideal and real gases, second law of thermodynamics, application to thermodynamic cycles involving power plants and cyclic machinery. Three hours of lecture and three hours of laboratory per week. Prereq.: MATH 570, MET 516.

4 a.h

606. Machine Design 1. Fundamental principles of stresses and deflections, combined stresses, fatigue and theories of failure. Application of these principles to design of machine components. Three hours of lecture and three hours of laboratory per week. Prereq.: MECH 501 or equivalent. Concurrent: CET 607.

*607. Machine Design 2. Continuation of 606, applying fundamental principles to the design of machine elements such as gears, belts, clutches, chains, bearings, welded and bolted joints. Three hours lecture and three hours laboratory per week. Prereq.: MET 606.

*610. Heat and Power Cycles. A continuation of Thermodynamics, including the study of heat transfer, the Rankine cycle, the Otto cycle, the Diesel cycle, and the performance of pumps and heat exchangers. Three hours lecture and three hours laboratory per week. Prereq.: MET 605, MET 615.

4 q.h.

615. Fluid Mechanics. Fundamental concepts: fluid statics; the basic laws of fluid mechanics and their application to incompressible flow in pipes and channels; dimensional analysis, fluid measurements. Prereq.: MET 516.

*615L. Fluid Mechanics Laboratory. Tests and applications of concepts covered in MET 615. Three hours laboratory per week. Concurrent with MET 615.

630. Manufacturing Techniques. The study of manufacturing methods, tooling, equipment and processes, including casting, heat treatment, welding, hot and cold working.

3 q.h.

*630L. Manufacturing Techniques Laboratory. Practice and procedures of machine tool operation including lathes, drill presses, shapers, and milling machines. Three hours laboratory per week. Concurrent with MET 630.

*700. Physical Measurements. Practice in the use and selection of instruments measuring pressure, temperature, strain, force and flow rate including the interpretation of data and the fundamentals of Statistical Quality Control. Three hours lecture and three hours laboratory per week. Prereq.: EET 625 and ECON 624 or MATH 714.

710. *Tool Design*. Design and selection of cutting tools, jigs, fixtures, bending and forming dies, inspection and gauging instruments, and material feed mechanisms. Three hours lecture, three hours laboratory per week. Prereq.: MET 630. 4 q.h.

*715. Fluid Power Systems. Principles of fluid power systems, including the practices of device selection and application. Typical industrial systems are constructed and tested. Three hours of lecture and three hours laboratory per week. Prereq.: MET 615.

720. Mechanisms. Graphical and analytical solution of problems involving displacement, velocity, and acceleration in machine mechanisms. Design of linkages to provide required motions of machine members. Three hours of lecture and three hours laboratory per week. Prereq.: MET 607, MATH 570.

- *810. Manufacturing Systems Analysis. Study of manufacturing systems including process, design value analysis, manufacturing process analysis, selection, and sequencing; machine tool cost and functions, manufacturing economics, system characteristics, and post production analysis. Prereq.: MET 700.
- *812. Numerical Control. A study of the programming of numerically-controlled machine tools. Students prepare and verify programs for controlling NC machines using manual and computer assisted techniques. Three hours of lecture and three hours of laboratory per week. Prereq.: DDT 605, MET 630 or consent of instructor.
- 820. Machine Systems. Analysis and design of complex machine systems incorporating electrical, pneumatic, hydraulic sub-systems. Students work on comprehensive projects. Three hours of lecture and three hours of laboratory per week. Prereq.: MET 715, MET 720, EET 725. 4 q.h.
- *850. Air-Conditioning Principles and Practices. The practical techniques used in the design of heating, ventilating, and air-conditioning systems, including load calculations, unit selection, and duct system layout. The laboratory work includes the use of design charts and manufacturer's catalogs in a project. Three hours of lecture and three hours of laboratory per week. Prereq.: MET 610. 4 q.h.
- 860. Robotics Technology. An application oriented course on the technology and use of industrial robots, including classification, tooling, sensors, workcell design, safety, and programming. Prereq.: MET 820. Concurrent with MET 860L.

3 q.h.

*860L. Robotics Technology Laboratory. Practice in the programming and application of industrial robots and associated equipment. Construction of simulated robotic workcells using actual industrial robots, programmable controllers, sensors and grippers. Three hours laboratory per week. Concurrent with MET 860.

*870. Applied Finite Element Method. Basic concepts of the finite element method and their application to the analysis of plane structures and two-dimensional continuum problems in heat transfer, fluid flow, and elasticity. Computer-aided techniques of analyzing the problems in heat transfer, structural analysis, and mechanical design. Three hours lecture and three hours laboratory per week. Prereq.: MATH 785, DDT 605, and MET 607 or CET 610, or permission of instructor.

MGT—MANAGEMENT

Introductory Courses

511. Introduction to Business. An overview of the broad concept of business to provide a foundation for understanding the interrelationship of the various functions of business in order to determine areas of interest and aptitude.

3 q.h.

- *601. Microcomputer Applications in Business. The study and use of selected microcomputer applications in business. Topics will include spreadsheets, database, and word processing. Prereq.: Sophomore standing. 4 q.h.
- 604. Legal Environment of Business 1. Various Sources of laws, basic legal reasoning and application. Emphasis to be placed upon basic legal concepts of contracts, labor, tax, antitrust and business organizations, and their relationship to business and society.

 4 q.h.

Business Core

725. Fundamentals of Management. This course emphasizes the basic principles of management rather than those involved in business organization. It studies the nature of managerial action within an organization, formal and informal structure, process of making decisions, and interrelated activities in management. Prereq.: Junior standing and declared major.

4 q.h.

*850. Strategic Management and Leadership. Analysis of problems and issues faced by organizations operating in today's dynamic environment interspersed with multiple stakeholders. Students integrate concepts and techniques learned from a range of disciplines and apply them to all levels of firms functioning in a wide variety of industries. Prereq.: MGT 725, MKTG 703, FIN 720. 4 q.h.

Management Core

*750. Human Behavior in Organization . A study of human factors in the administration function. Emphasis is placed on the contributions of the behavioral sciences to the student of business. Among the topics covered are history of human relations, leadership and its development, labor-management relations, group dynamics, and communication and group processes. Prereq.: Junior standing. 4 q.h.

*750H. Honors Human Behavior in Organization. An honors course emphasizing wide reading and independent research, which studies human factors in administration. Emphasis is based on the contributions of the behavioral sciences to the student of business. Among the topics covered are history of human relations, leadership and its development, labor-management relations, motivation group dynamics, and communication and group processes. Prereq.: Junior standing, completion of an introductory statistics course, MGT 725, a cumulative grade point average of 3.00 or higher.

4 q.h.

*789. Operations Management 1. A study of current operations management theories and practices with emphasis on direction, planning, and control of production systems. Includes detailed analysis in such areas as materials management, work measurement, quality control, scheduling, maintenance, and forecasting. Prereq.: MGT 725 and ECON 624.

- 860. Comparative Management. Comparative study of organization, managerial styles, and leadership in foreign countries based on historical and environmental factors. Analyzing the reasons why managerial activity and the effectiveness of management vary among different business systems. Prereq.: MGT 725 and 750.
- 890. International Business. Management problems of firms engaged in international business, including the strategy of foreign involvement and control of foreign activities. Emphasis on management issues unique to firms in international operations. Prereq.: MGT 725 and 750. 4 q.h.

Human Resource Management

- 755. Managing Diversity. Current topics in diversity: national and international demographics of the changing face of the work force; processes that create diversity including the organization of work; managing differences in work settings; management responses to diversity; and connections to larger institutional dynamics. Prereq.: Junior standing in a declared major.

 4 q.h.
- 804. Human Resource Management 1. Management and the human resource field; organization and jobs; employment and development of people. A review of applications of job design and analysis, human resource planning, recruitment and selection, equal employment opportunity legislation, training and development, career management. Human resource management theories and concepts are integrated into experiential exercises which simulate practical applications. Prereq.: MGT 725 and 750.
- 805. Human Resource Management 2. Industrial relations; understanding and managing people; financial compensation; health and safety; the future of human resource management. A review of applications of the collective bargaining environment and process; motivation, participation, effective leadership, and quality of work life; developing and administering basic wage structure, incentive systems, and benefits programs; occupational safety and health, and compliance with related legislation. Case work and simulations. Prereq.: MGT 804.

4 q.h.

- 810. Compensation Management. Design and administration of compensation systems. Topics include pay equity, job evaluation, wage and salary structure, merit and incentive programs, benefits packages and compensation legislation. Prereq.: MGT 804.
- 819. Personnel Selection and Performance Evaluation. This course involves a detailed examination of the selection process and its importance to the management of an organization's human resources. Special emphasis is given to the role of performance evaluation in this process. Students will gain familiarity with specific selection techniques and acquire basic skills required for their implementation. Prereq.: MGT 804.

Management Information Systems

- *761. Information Systems for Management. A study of information systems and their interaction with individuals and organizations, providing a basic understanding of the hardware, software, and communication technology used in information systems. Prereq.: Junior standing. 4 q.h.
- *765. Structured Programming. Structured programming and design techniques are applied to business problems using systems analysis tools such as a data flow diagram, data dictionary, and structured chart. Topics include techniques for data editing, validity checking, control totals, and table-handling. Prereq.: CSIS 514.
- *795. Modeling Operations Management Systems. The application of programming techniques to production problems. Emphasis is on the development of complete decision support systems useful in the production environment. Prereq.: MGT 789. 4 q.h.
- *825. Advanced Microcomputer Applications in Business. An in-depth study of business microcomputer applications with emphasis on the development of personal decision support systems using database and spreadsheet software packages. Prereq.: CSIS 514 and MGT 725. 4 q.h.
- *835. Systems Analysis and Design 1. Information systems and systems development life cycle (SDLC) emphasizing tools and techniques used to document an information system. Prereq.: CSIS 514 and MGT 761.
- *865. Database Management Systems. Design and management of organizational data resources. Database issues studied include design, definition, creation, documentation update, maintenance, revision, selection, acquisition, and use. The implementations of the hierarchical, network, and relational models will be discussed with emphasis on business applications. Prereq.: MGT 765. 4 q.h.
- *875. Decision Support/Expert Systems. Fundamental techniques, construction, and use of decision support systems, expert systems, and management support systems are introduced. Prereq.: CSIS 514 and junior standing. 4 q.h.

Operations Management, Management Science

- *728. Simulation Techniques in Business. Introduces the students to the use of simulation techniques and their application in business. Several simple models representing situations in business and other areas which contain elements of risk or uncertainty will be adapted for computer simulations and the resulting outputs will be used for class discussion and evaluation. Prereq.: CSIS 514.3 q.h.
- *737. Management Science. An understanding of methods of management science from an executive or managerial viewpoint, emphasizing formulation of business problems in quantitative terms. Topics such as linear programming, dynamic programming, game theory, Monte Carlo method, probabil-

ity theory, queueing theory, inventory theory, transportation method, and simulation will be discussed and evaluated. Prereq.: MATH 642, CSIS 514 and ECON 624. 4 q.h.

815. Total Quality Management. The study of the influence of quality on all phases of business operations from strategic planning to process control, quality measurement to systems and process design. Statistical process control is covered in detail but all aspects of quality management are reviewed. Prereq.: MGT 789.

820. Operations Management 2. Study of areas pertaining to the production control function such as inventory control, forecasting, aggregate planning, and scheduling. Prereq.: MGT 789. 4 q.h.

*830. Management Science 2. The use of management science techniques to solve complex business problems. Emphasis is placed on modeling and implementation of decision support systems and in particular the design of computer interfaces. Prereq.: MGT 737 and MGT 825. 4 q.h.

*851. Problems in Industrial Management. A series of case problems are presented, analyzed and interpreted covering areas in industrial management. In addition, each student is required to do original research in the field by collecting and analyzing data pertaining to specific problems either at the production or at the administration level or an industrial enterprise. Prereq.: MGT 789. 3 q.h.

LSTEC—Labor Studies Technology

501. Introduction to Organized Labor. An overview of the labor studies program designed to introduce the student to the many facets of the labor movement.

510. Union Leadership Skills. An introduction to basic leadership skills with emphasis on human relations, motivation, communication skills, decision-making, problem-solving, parliamentary procedure.

4 q.h.

705. Fundamentals of Occupational Safety. An overview of the broad concepts of occupational safety and health that provide a proper foundation for understanding the basic principles of workplace safety and health programs. Analysis of the regulatory environment including OSHA and Workers' Compensation; the development of safety management programs; the evaluation of workplace hazards; and discussion of the economic, political and societal implications involving occupational safety and health. Prereq.: ENST 601, or CRJUS 500, or MGT 725, or permission of instructor.

710. Negotiations. Review of the background of collective bargaining, bargaining goals (union and management); legal basis; study of traditional and mutual gain negotiations theories; wages—prices—profits—productivity; preparation of collective bargaining proposals, responsibilities of the parties in the bargaining process; strike procedures in bargaining. Prereq.: LSTEC 501, relevant field experience, or permission of instructor.

715. Labor Law. The purpose of this course is to provide an introduction to the Labor-Management Relations Act. It is designed to provide a basic understanding of the general legal principles as applied to employee organizing, employer and union unfair labor practices, duty to bargain, and rules of governing strikes and picketing. Prereq.: MGT 725 or permission of instructor.

720. Contract Administration. Study of contract content: fringe-benefit and non-fringe areas; working conditions; preparing local union representatives to administer the contract; human relations at the workplace; fair representation; the grievance procedure and its function. Prereq.: LSTEC 715 or MGT 725.

730. Grievance Procedure. The grievance procedure as a part of collective bargaining; fair representation; skills required in grievance handling; practice in grievance-writing; arguing the case at lower, intermediate, and arbitration levels. Prereq.: LSTEC 715 or MGT 725.

740. Labor Studies Seminar. Study of selected issues and problems on the basis of interest and need. May be repeated for a maximum of 12 q.h. Prereq.: LSTEC 501 or permission of instructor; or MGT 725 4 q.h.

Other Management Courses

699. Industry Studies Seminar. Specialized course for students from a specific industry involving selected issues and problems on basis of interests and needs. Prereq.: Permission of instructor.

1-4 q.h.

714. Legal Environment of Business 2. An in depth analysis of commercial law areas covered on the C.P.A. exam, with emphasis on sales, secured transactions, real and personal property, insurance, bankruptcy, and commercial paper. Prereq.: MGT 604 and Junior standing.

*726. Planning and Controlling. An in-depth analysis of the relationship between planning and controlling as components of the managing process. Prereq.: MGT 725. 4 q.h.

*735. Communication for Management and Business. The course analyzes communication and information processes as means for coordinating and controlling organizational activities. Analytical writing activities are required including a long, formal report. Prereq.: ENGL 551 and MGT 725 or consent of instructor.

770. Small Business Management. The problems of small business relative to personnel, control, finance, marketing, management, and administration in manufacturing, distributive, and service firms. Prereq.: Junior standing.

840. Managing Organizational Environments. Dynamics of structure, design, strategy and culture in the context of an organization's relationships to external environments; included are institutional forces, the global environment, and the new tech-

nological environment. Organizational ethics are presented as cultural components that define appropriate ways for stakeholders to deal with one another and with the organization's environments. Prereq.: MGT 725 or consent of instructor. 4 q.h.

855. Business Ethics. Analysis of ethical considerations involved in the management of a business in relation to society, stockholders, customers, employees, competitors, and government. Prereq.: MGT 725 and 750.

*870. Small Business Entrepreneurship. A study of the small business environment and the problems in starting a business. Students study how small businesses apply the managerial functions in using their resources. Prereq.: Senior standing or consent of the instructor. Crosslisted with FIN 870 and MKTG 870.

*871. Small Business Enterprise. Students work with actual problems faced by small businesses under faculty supervision. Problems are defined, analyzed and researched. Recommendations are developed and presented to clients for evaluation. Prereq.: MGT 870 or permission of the instructor. Crosslisted with FIN 871 and MKTG 871.

880. Special Topics in Management. Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing in Management or consent of instructor. May be repeated to a maximum of 8 q.h.

1-4 q.h.

895. Management Internship. This course offers the student the opportunity to relate management theory to practice through on-the-job work experience with participating organization. Mandatory biweekly meetings with his/her faculty advisor will insure maximum learning from the experience. This program will be offered all four quarters of each academic year based on the availability of internships. A written evaluation of the job experience is required of the student. Prereq.: A total of 20 hours of Management courses including 725 & 750 and departmental screenings and approvals.

899. Independent Study. The development of a special topic of interest to the student under the direct supervision of a management faculty member. Credit hours vary according to the nature of the project. Prereq.: Management Core and permission of department chair.

1-4 q.h.

MILSC—MILITARY SCIENCE

501. Introduction to Army ROTC. An overview of Army ROTC. Explores options and training available to the student as well as career opportunities as an Army officer. Organization, branches, and role of the Army, Army Reserve, and National Guard are also addressed. One hour of lecture/discussion per week and a weekly Leadership Laboratory.

502. Basic Leadership and Management. A study of leadership fundamentals, to include the dimensions, traits, and principles of leadership, professionalism, ethics, and counseling techniques. Situational studies and role playing are included. One hour of lecture/discussion per week and a weekly Leadership Laboratory.

504. Basic Military Skills. An introduction to basic military tasks and skills. Practical instruction in military radio communications, land navigation and individual tactics. One hour of lecture and one and a half hours of laboratory a week.

1 q.h.

600L. Leadership Lab. Practical exercise periods that allow development and application of military skills and essential leadership characteristics. One hour laboratory per week. Must be taken concurrently with MILSC 602, 603.

601. American Military History. A survey of American military history from the origin of the United States Army to the present, with emphasis on how military policies and strategies have been influenced by the domestic and foreign affairs of the United States. Listed also as HIST 601. 4 q.h.

602. Individual Military Skills. An overview of individual skills common to all branches of the Army and needed by all officers, including physical readiness; marksmanship; wear, cleaning, and care of uniforms and equipment; drill and ceremonies; and use of map and compass. Two hours of lecture/discussion and a one day (weekend) training exercise. Must be taken concurrently with MILSC 600L. 2 q.h.

603. Comparative Analysis of U.S. and other Land Forces. A selective examination of small unit training, tactics, weapons, and organization of the U.S. Army and other Land Forces. Two hours lecture/discussion and a one day (weekend) training exercise required. Must be taken concurrently with MILSC 600L.

604. Basic ROTC Summer Camp. Six weeks' training at U.S. Army installation during the summer before the student's junior year. Concentrated instruction in the principles of leadership; map and aerial photograph analysis; military customs, courtesies, and traditions; organization of the U.S. Army communications; combat intelligence; and physical fitness training. This course is equivalent to the oncampus basic course. Prereq.: Two years of collegelevel work.

606. Advanced Individual Military Skills. An overview of tactical skills common to small unit leaders of all branches of the US Army, with emphasis on tactical communications procedures and equipment, preparation of tactical reports, map reading, small unit tactical orders, troop leading procedures, and an understanding of the Law of Land Warfare. Two hours of lecture/discussion per week. Must be taken concurrently with MILSC 600L.

2 q.h. Upper-Division Courses

*701. Organizational Leadership. The relationship of individual differences to the leadership process; group dynamics, organizational constraints on the leadership process, and the impact of leader behavior on the leadership process. Two hours of lecture and one hour of leadership laboratory a week, and field training exercises. Prereq.: Permission of department chair.

*702, *703. Advanced Leadership and Management 1, 2. Case studies in leadership and management. Delegation of authority and responsibility, span of control, planning, coordinating, and decision-making. Development of the student's ability to express himself or herself clearly and accurately, evaluate situations, and prepare and deliver logical solutions. Analysis of the leader's role in directing and coordinating the efforts of individuals and small units in the execution of various types of tactical missions. Discussion of the military environment in garrison and in the field. Two hours of lecture, one hour of leadership laboratory, three hours of physical readiness training each week, and two weekend field training exercises. The prerequisite for MILSC 702 is permission of department chair; the prerequisite for MILSC 703 is MILSC 702 and permission of department chair. 3+3 q.h.

704. Advanced ROTC Summer Camp. Six weeks of field training, normally between junior and senior years, conducted at an Army installation. This concentrated practical training provides an opportunity to evaluate the student's application of academic knowledge to daily leadership situations. Prereq.: Permission of department chair.

6 q.h.

705. Airborne Operations. Three weeks of intensive field training, normally between the junior and senior years, conducted at an Army installation. Combines the study of airborne military operations, strenuous physical conditioning, and the use of military parachute techniques, and culminates with five parachute jumps from military aircraft and the award of the army parachute qualification badge. Prereq.: Successful completion of airborne physical fitness test, medical examination, and selection by department chair.

706. Airmobile Operations. Two weeks of intensive field training, normally between the junior and senior years, conducted at an Army installation. Study of Heliborne Military Operations, strenuous physical conditioning, and employment of military helicopters in small unit tactics. Prereq.: Successful completion of physical fitness test, medical examination, and selection by the department chair.

1 q.h

707. Winter Warfare Operations. Three weeks of intensive field training, normally between the junior and senior years, conducted at an Army installation in Alaska. Study of military operations under winter conditions, strenuous physical conditioning, and small-unit leadership in a hostile environment. Prereq.: Selection by department chair.

725. Individual Study. The individual study of specific problem or review of the literature relating to a specific military problem. May be repeated with a different problem for a maximum of 4 hours. Prereq.: 6 hours of Military Science and consent of the instructor.

*801. The Military Team. A study of command and staff evaluation, organization, and functions; processes for arriving at sound and timely decisions and translating decisions into plans and combat orders. Duties and responsibilities of company and intelligence; its value, and methods of producing it. Two hours of lecture, one hour of laboratory a week and field training exercises. Prereq.: MILSC 703 and permission of department chair. 3 q.h.

*802, *803. Seminar in Leadership and Management 1, 2. Case studies in leadership and management. Delegation of authority and responsibility, span of control, planning, coordinating, and decision-making. Development of the student's ability to express himself or herself clearly and accurately, evaluate situations, and prepare and deliver logical solutions. Analysis of the leader's role in directing and coordinating the efforts of individuals and small units in the execution of various types of tactical missions. Discussion of the military environment in garrison and in the field. Two hours of lecture, one hour of leadership laboratory, three hours of physical readiness training each week, and two weekend field training exercises. Prerequisite for MILSC 802 is MILSC 703 and permission of department chair; the prerequisite for MILSC 803 is MILSC 802 and permission of department chair. 3+3 q.h.

MKTG—MARKETING

Lower-Division Courses

*520. Selected Business Topics. Topics will vary from quarter to quarter. Subject matter and number of credit hours will be announced in advance of each offering. Course may be taken twice with change of fopic.

1-4 q.h.

*601. Microcomputer Applications. The study and use of selected microcomputer applications in business. Topics will include spreadsheets, database, and word processing. Prereq.: Sophomore standing.

4 q.h.

625. Personal Selling. Study of the selling process, focusing on the importance of the selling function to an organization, prospecting and planning for the sale, determining customers' needs and buying motives, sales presentations, handling objections, closing and following up on the sale. 4 q.h.

Upper-Division Courses

703. Marketing Concepts and Practice. The activities involved in marketing products, services, and ideas are examined within a framework of customer management. Topics examined include global marketing environment, market analysis and segmen-

tation, consumer behavior, product development and management, pricing, promotion, and distribution. Marketing is examined from its role as a central function of business and non-profit organizations, and from its dominant role in a market economy. Prereq.: Junior standing and declared

709. Retail Marketing. Retailing is the largest industry and the dominant employer in the U.S. economy. The industry is explored, with particular attention given to understanding the activities of retailers, both large and small. Topics examined include shopper behavior, store location, store layout, product presentation, and customer service. The criteria for success in retailing, the impact of technology on retailing, and the retail process are all examined within the larger domain of marketing. This course is beneficial to all marketing and business majors, as well as other individuals engaged in shopping activities. Prereq.: MKTG 703. 4 q.h.

713. Retail Merchandise Buying. The product dimension of retailing is explored. The strategies and philosophies that determine excellence in merchandise selection are presented. Topics examined include the organization of the buying function, determining what to buy based on customer needs, visiting the market, vendor analysis and selection, Quick Response (QR) and Efficient Consumer Response (ECR), and the retail buyer's responsibilities in other areas of the retail firm. Extensive attention is given to global sourcing. Prereq.: MKTG

*715. Sales Force Management. Cases, problems, simulations, and lectures are used to sharpen knowledge and analytical skills relevant to salesforce management activities at all levels. Particular emphasis is placed on market opportunity analysis and sales force performance evaluation. Prereq.: MKTG 625 and 703 or consent of instructor. 4 q.h.

720. Industrial Marketing. Characteristics of manufacturers' goods, channels of distribution, functions of intermediates, distribution costs, marketing research, government control, and legal limitations. Product policies, service policies, packaging policies, price policies. Industrial advertising organization, planning and budgeting, use of advertising agencies and national advertising media, sales manuals, dealer helps. Prereq.: MKTG 703.

726. Consumer Behavior. Acquaints students with individual and group behavior as it relates to marketing consumer behavior, considered both from the standpoint of the marketing manager and from that of the individual as a consumer. The behavioral sciences serve as a background to provide standards for the social and human evaluation of current marketing activities. Topics covered include: the buyer as a problem solver; buying decision processes and models; measurement of promotional effectiveness and life-style analysis. Prereq.: MKTG 703. 4 q.h.

731. Non-Textiles. Designed to meet the needs of buyers, copywriters, training departments, comparison shoppers, and instructors in consumer and distributive education fields. The principle of planning, selecting, and preparing merchandise for promotion through display. The sources of raw materials, manufacturing processes, care, use, and selling points of the following types of merchandise are studied: paper products, leather products, furs, jewelry, metals, stones, and cosmetics.

733. Furnishings. The study of principles and functions which encompass furnishings for the home and industry. Stress on the primary functions of buying and selling with emphasis on forecasting, planning, selecting, negotiating, pricing and recording of merchandise. Consideration is given to the entire furnishing's activity including raw materials, the finished product, quality, selling points, and government rulings. Prereq.: MKTG 703.

755. Fundamentals of Shopping Centers. A general survey of the elements in the development of planned shopping centers. The history and social significance of planned shopping centers are considered, along with their present position and future directions. Prereq .: MKTG 703. 4 q.h.

757. Shopping Center Development. An examination of shopping centers from a marketing and development standpoint. Topics covered will include marketing strategies, site selection, promotions, tenant mix, and public relations. Prereq.: MKTG 703.

809. Techniques of Retail Merchandising. Emphasis on merchandise planning, forecasting, sales, planning markdowns, planning stocks, calculating reorder quantities, planning and controlling expenses, and setting up goal figures as a guide to operations. A collection of up-to-date mathematical problems and cases faced by the retailer in making managerial decisions are analyzed. Prereq.: MKTG 709.

*815. Marketing Research. Introduction to the major areas of research marketing. Attention is given to problem definition, research design, gathering information and analysis to assist marketing management with the decision making process. Both empirical and theoretical concepts are explored. Review of research problems, approaches and trends in industrial retailing, wholesaling, trade association, advertising, publishing and consulting firms. Prereq.: MKTG 703 and ECON 624. 4 q.h.

*818. Marketing Channels. Behavioral and functional relationships with and between channel members are investigated. Coverage includes wholesaling, franchise systems, distribution policies, communications, power conflicts, pricing and legal constraints. Prereq.: MKTG 703.

*820. Promotion Strategy. A critical analysis of the range and activities of sales promotion; determining what and where to promote; selecting merchandise for promotion, budgeting, planning, and executing promotional activities; external and internal methods of promotion; and coordination of all sales promotion activities. Prereq.: MKTG 703.

3 q.h.

- 825. Marketing Management. A comprehensive study of the management functions in marketing including organization, planning, research, merchandising, sales, advertising and promotion, marketing channels, and control related to corporate policies and objectives. Management practices covering recruiting, selecting, training, equipping, compensating, and supervising are investigated. Prereq.: MKTG 709 or 720. 4 q.h.
- 842. Special Topics in Marketing. Topics will vary from quarter to quarter. Subject matter, number of credit hours, and prerequisites will be announced in advance of each topic. Not more than one Special Topic per quarter is permitted. Course may be taken twice with change of topic.

 1-6 q.h.
- 843. Industrial Buying. A consideration of industrial buying from a purchasing management point of view. Problem areas of bids, control of quality, inventory control, maintaining sources, order points, and integration of the materials management functions with other activities of the firm, are examined. Purchasing, management developments in budgeting, capital equipment determinations, contract cancellations, ethics, make-or-buy decisions, legal aspects, negotiations, and performance evaluation are discussed. Prereq.: MKTG 720. 4 q.h.
- 845. International Marketing. Development of United States trade, foreign trade promotion, organization, export and import procedures and practices. Taught from the viewpoint of the international marketing manager who must recognize differences between markets in various countries as influenced by their particular cultural and economic environment. Prereq.: MKTG 703.
- 847. Physical Distribution. A consideration of the problems likely to arise in the planning for and movement of goods through channels of distribution from producer to end user. Elements of the logistical system, including transportation modes, plant and warehouse location, and inventory size determinations, are introduced and discussed. Cases and problems are used to sharpen analytical techniques. Final attention turns to the total cost approach of physical distribution analysis and decision making. Prereq.: ECON 624. 4 q.h.
- 848. Marketing and Social Responsibility. Present marketing practices and their impact on the values of society and the impact of social and ethical trends upon marketing. Search for the consumers' interest, the social audits, marketing responsibilities, product safety, ecological considerations, legal restraints and pricing and sales practices. Prereq.: MKTG 703.
- 850. Marketing Internship. Through employment with participating business organizations the stu-

dent will receive professional marketing experience. Candidates will work for the entire quarter at a local business organization under the direct guidance of a faculty advisor. A student receives 4 quarter hours of credit for the internship. A paper will be due at the end of the course on the relationship of marketing theory and practices.

4 q.h.

851. Services Marketing. Cross-functional approach to the marketing of customer services in profit and not-for-profit organizations, including domestic and international opportunity analysis, customer analysis, financial analysis, strategy formulation, process and systems management, and quality improvement. Prereq.: MKTG 703.

4 q.h.

- 865. Shopping Center Operations. A comprehensive review of the practices and procedures involved in the operation of shopping mall properties, including merchandising, maintenance, security, mall-tenant relations, and community relations. Prereq.: MKTG 708. 4 q.h.
- *870. Small Business Entrepreneurship. A study of the small business environment and the problems in starting a business. Students study how small businesses apply the managerial functions in using their resources. Prereq.: Senior standing or consent of the instructor. Crosslisted with FIN 870 and MGT 870.
- *871. Small Business Enterprise. Students work with actual problems faced by small businesses under faculty supervision. Problems are defined, analyzed and researched. Recommendations are developed and presented to clients for evaluation. Prereq.: MGT 870 or permission of the instructor. Crosslisted with FIN 871 and MGT 871.
- 875. Problems in Shopping Center Administration. Current problems in shopping mall administration. Each student will be responsible for producing a project that includes problem definition, exploratory research, solution proposal, and presentation to a panel. Prereq.: MKTG 755, or 757, or 865.

MLTEC—MEDICAL LABORATORY TECHNOLOGY

500. Phlebotomy I. Principles and practice of blood collection by venipuncture and capillary puncture techniques, proper collection and preservation of laboratory specimens, and infection control and safety measures. Three hours of lecture and three hours of laboratory per week. Must be taken concurrently with MLTEC 610. 4 q.h.

*501. Introduction to Medical Technology. Overview of the clinical laboratory profession, ethics, responsibilities and clinical relevance of laboratory procedures. Prereq.: High school chemistry, Algebra I, Algebra II or Geometry. Taken concurrently with MLTEC 501L.

- *501L. Introduction to Medical Technology Lab. Phlebotomy, specimen collection and processing; basic clinical laboratory exercises. Three hours of laboratory per week. Taken concurrently with MLTEC 501.
- 502. *Methodology 1*. Theory and techniques in the analysis of urine and body fluids. Taken concurrently with MLTEC 502L. Prereq.: BIOL 509 and MLTEC 501. 3 q.h.
- *502L. Methodology 1 Laboratory. Chemical and microscopic analysis of urine. Three hours of laboratory per week. Taken concurrently with MLTEC 502. 1 q.h.
- 503. Methodology 2. Fundamental theories and techniques of immunohematology and blood banking. Taken concurrently with MLTEC 503L. Prereq.: BIOL 509 and MLTEC 501. 3 q.h.
- *503L. Methodology 2 Laboratory. ABO and RH typing, direct and indirect antiglobulin testing, compatibility testing. Three hours of laboratory per week. Taken concurrently with MLTEC 503. 1 q.h.
- 601. Methodology 3. Medical laboratory applications of clinical chemistry. Taken concurrently with MLTEC 601L. Prereq.: CHEM 506, MLTEC 502 and 503.
- *601L. Methodology 3 Laboratory. Spectrophotometric, semi-automated, and automated analysis of glucose, electrolytes, enzymes, and other chemical constituents of serum. Three hours of laboratory per week. Taken concurrently with MLTEC 601.
- 602. Clinical Laboratory Techniques. Special techniques in microbiology and infectious diseases. Prereq.: CHEM 515 and BIOL 510. 2 q.h.
- *604. Methodology 4. Laboratory instrumentation, quality control, quality assurance, instrument maintenance and troubleshooting; performance verification, proficiency surveys, choice and implementation of new instruments. Two hours lecture and four hours laboratory per week. Prereq.: MLTEC 501 and 501L. 3 q.h.
- 607. Phlebotomy II, Clinical Practicum. Clinical phlebotomy training for students in health professions who intend to become certified professional phlebotomists. Students will be required to complete 16 hours of clinical experience in a laboratory. Successful completion of the practicum qualifies students to take the certification exam. Prereq.: Health care provider status or permission of the instructor.
- *609. Topics in Histotechnology. Instrumentation, processing, fixation, microtomy, staining, and special staining as relative to the histotechnician. Prereq.: MLTEC 501/501L with a grade of "C" or better.
- 610. Histotechnician Practicum 1. Assignment to a clinical affiliate. Histologic procedures of instrumentation, cell structure, fixatives, processing and

- sectioning of tissues. Forty hours of clinical experience per week. Prereq.: Completion of first four quarters of Histotechnology curriculum, with a minimum GPA of 2.5.
- 620. Histotechnician Practicum 2. Assignment to clinical affiliate. Histologic procedures of general staining methods and nuclear, cytoplasmic, nervous tissue, connective tissue and muscle fiber stains. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 610 with a grade of "C" or better.
- 630. Histotechnician Practicum 3. Assignment to a clinical affiliate. Histologic procedures involving microorganisms, immunochemistry, DNA/RNA probes, electron microscopy, flow cytometry, and special techniques. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 620 with a minimum grade of C. 12 q.h.
- 700. Diagnostic Labeled Immunoassays. Immunomicroscopic, receptor binding, and enzyme linked techniques as applicable to detection of antigen, antibody, drug and other chemical analytes. Must be taken concurrently with MLTEC 700L. Prereq.: CHEM 516 and MLTEC 601 and 601L for MLTEC students. CHEM 517 for MT students.

3 q.h.

- *700L. Diagnostic Labeled Immunoassays Laboratory. Thyroid, digoxin, B 12, folic acid, antinuclear antibodies and T & B cell receptor procedures utilized in the clinical laboratory. Three hours of laboratory a week. Must be taken concurrently with MLTEC 700.
- 703. Clinical Immunology. Fundamentals of antigen-antibody reactions applied to serological procedures performed in the clinical laboratory. Two hours of lecture a week. Must be taken concurrently with MLTEC 703L. Identical with BIOL 703. Prereq.: MLTEC 702. 2 q.h.
- *703L. Clinical Immunology Laboratory. Identical with Biol. 703L. VDRL, ASO, febrile, latex, pregnancy, and viral tests; also includes flocculation, precipitation, complement fixation, and titration procedures for various diseases. Three hours of laboratory a week. Must be taken concurrently with MLTEC 703.
- 704L. Clinical Internship 1. Eighteen hours per week of practical application of skills in affiliate hospitals and private laboratories. Prereq.: Completion of previous five quarters of MLTEC curriculum with a grade of "C" or better and a minimum 2.5 GPA.

3 q.h.

705L. Clinical Internship 2. Thirty-six hours per week of practical application of skills in affiliate hospitals and private laboratories. Prereq.: Completion of the previous six quarters of the MLTEC curriculum with a grade of "C" or better and a minimum 2.5 GPA.

*706. Medical Laboratory Seminar. Internship preparation, special topics in the clinical laboratory. To be taken concurrently with MLTEC 705L.

2 q.h.

*707. Special Topics in Medical Laboratory Technology. Specialized lectures and demonstrations as related to clinical topics which are necessary for entry-level skills. Prereq.: Completion of first six quarters of MLTEC curriculum with a minimum 2.5 GPA.

710. Interpretation of Clinical Laboratory Results. The significance of laboratory results and how they relate to gender and age. Prereq.: MLTEC 601/601L or permission of the instructor.

729. Clinical Hematology. Origin and formation of blood cells; hematologic disorders and the coagulation system. Taken concurrently with MLTEC 503L. Prereq.: BIOL 509, 510, and 552. 3 q.h.

*729L. Clinical Hematology Laboratory: Automated and manual erythrocyte, leukocyte and platelet counts; hemoglobins and hematocrits; staining techniques, differential morphology, coagulation procedures. Students are required to perform 80 differential counts. Six hours of laboratory per week concurrent with MLTEC 729.

*787. Diagnostic Microbiology. A clinical approach to the study of human pathogenic microorganisms, including types of infections, frequency, isolation, identification, and treatment. Two hours lecture and six hours laboratory per week. Prereq.: BIOL 702. Cross listed with BIOL 787. 4 q.h.

*787L. Diagnostic Microbiology Laboratory. A clinical approach to the study of bacteria, fungi, and other microorganisms in the clinical laboratory. Must be taken concurrently with MLTEC 787. Six (6) hours of laboratory per week. Cross-listed with BIOL 787L. Prereq.: BIOL 702. 0 q.h.

790. Essentials of Cytotechnology. Basics in cytotechnology, including professional aspects, cytologic specimen collection and processing, staining, and mounting. Three hours lecture and three hours laboratory per week. Prereq.: BIOL 713. 4 q.h.

850. Cytotechnology Internship 1. Staining, mounting, quality control, and safety in the cytotechnology laboratory; specimen collection, processing, and microscopy. Forty hours of clinical experience per week. Prereq.: Acceptance into clinical internship.

860. Cytotechnology Internship 2. Cytopathology and laboratory study of the reproductive and urogenital systems. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 850 with a minimum grade of C. 12 q.h.

870. Cytotechnology Internship 3. Cytopathology and laboratory study of respiratory and gastrointestinal systems; cytopathology of body fluids. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 860 with minimum grade of C. 12 q.h.

880. Cytotechnology Internship 4. Cytopathology and laboratory study of the breast, theory and procedures in cytogenetics, fine needle aspiration, prescreening and screening of specimens; special topics and individual research in cytotechnology. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 870 with a minimum grade of C. 12 q.h.

MTEGR—MATERIALS ENGINEERING

601. Introduction to Materials Science 1. Discussions of the basic electronic structure and properties of materials, theory of binding in solids metals, alloys, semiconductors, ceramics, and plastic materials; electrical and magnetic properties of materials. Electron emission; electronic specific heat. Prereq.: CHEM 515 or consent of instructor. 4 q.h.

602. Introduction to Materials Science 2. Discussion of crystallography, the elastic and plastic properties of materials, ductile and brittle behavior of metals, plastic deformation, imperfections in crystals, elementary ideas of point defects, dislocations and their basic crystallization, and grain growth. Prereq.: MTEGR 601 or consent of instructor.4 q.h.

603. Introduction to Materials Science 3. Discussion of phase equilibria and phase diagrams. Kinetics of phase changes, diffusionless and diffusion-controlled phase transformation. Industrial metallurgy. Principles of heat treatment. Structural materials. Prereq.: MTEGR 602 or consent of instructor.

*606. Engineering Materials. Manufacturing processes, properties and uses of engineering materials such as ferrous and non-ferrous alloys, ceramics, concrete, polymers, and composites. Manufacturing processes to be covered are refining processes, heat treatments, and forming operations. Properties to be discussed are strength and strength-related properties such as hardness, ductility, creep, fatigue; corrosion resistance; and electrical properties. These properties will be related to the engineering applications and uses of various materials. An introduction to testing methods used to measure various properties of materials. Prereq.: For engineering students whose major is other than Materials Engineer-4 q.h. ing.

*630, *631. Materials Engineering Laboratory 1, 2. Preparation, examination, and analysis of metallographic samples. Experiments on heat treatments of ferrous and non-ferrous alloys; thermal treatments of ceramic materials. Written and oral reports required. Two hours lecture and six hours laboratory. Prereq.: MTEGR 601. 4 + 4 q.h.

*742. Mechanical Behavior of Materials. Discussion of elastic and plastic behaviors of materials including effects of temperature, strain rate, and state of stress. Evaluation of mechanical properties by tension, torsion, impact, and hardness tests. Yielding

theories and use of Mohr's Circle applied to common deformation processes such as forging, rolling, extrusion and wire drawing. Written and oral reports required. Three hours lecture and three hours laboratory. Prereq.: MTEGR 603. 4 q.h.

- 751. Polymer Materials. Manufacture, structure, and properties of polymers. Emphasis on quantitative treatment of mechanical properties of polymers. Forming and shaping techniques included. Prereq.: MTEGR 603. 4 q.h.
- 752. Ceramic Materials. Atomic and crystalline structures, microstructures, and properties of ceramics and glasses. Emphasis on mechanical and physical properties including electric and magnetic characteristics. Prereq.: MTEGR 603. 4 q.h.
- 753. Electronic Properties of Materials. Theoretical aspects of solid state electronic, magnetic, and photonic materials. Processing and applications of solid state devices included. Prereq.: MTEGR 603.

4 q.h.

- 763. Thermodynamics of Materials 1. Principles of thermodynamics and their applications to materials, metallurgical systems, processes and alloys. Prereq.: MATH 674 and CHEGR 681. 4 q.h.
- 779. Casting, Welding and Solidification. General discussion of the engineering aspects of welding and solidification of ferrous and non-ferrous alloys. Prereq.: MTEGR 603. 4 q.h.
- 780. Materials Processing. Stoichiometric and thermodynamic principles applied to processing of materials. Production of steels, non-ferrous alloys, and ceramic materials included. Prereq.: CHEGR 681.
- 781. Powder Metallurgy. Scope of powder metallurgy, production of powders, sintering powders, diffusion bonding, basic theories, application. Prereq.: MTEGR 603. 4 q.h.
- 782. Phase Diagrams. Discussion and interpretation of phase diagrams of multi-component systems. Prereq.: MTEGR 603. 4 q.h.
- 783. Ferrous and Non-ferrous Alloys. Basic scientific principles and theories applied to the design and heat treatment of alloys. Constitution, microstructure, heat treatment, phase distribution, and properties of ferrous and non-ferrous alloys. Prereq.: MTEGR 603. 4 q.h.
- 784. Crystallography. Study of the relationships between the external macroscopic symmetry and the internal atomic symmetry of crystalline materials. Application of stereographic projection techniques to the study of symmetry. Prereq.: MTEGR 603.

4 q.h.

820, 821. Principles of Extractive Metallurgy 1, 2. Unit operations approach to pyrometallurgical, hydrometallurgical, and electrometallurgical processes used to produce ferrous and non-ferrous metallic materials. Mass and thermal balances are used to analyze the various stages of the above processes. Included in these analyses will be primary and secondary treatments of ores, primary reduction methods, and refining techniques. Computer methods are used in the analyses. Prereq.: CHEGR 681; ISEGR 642 and MTEGR 780. 4+4 q.h.

- 855. Composite Materials. Structure and engineering properties of composite materials. Emphasis on numerical treatment of mechanical behavior. Case studies on design and manufacture of composite materials included. Prereq.: MTEGR 753. 4 q.h.
- *861. X-ray Diffraction and Electron Microscopy. Theories, principles, and application of x-ray diffraction and electron microscopy techniques for examining and analyzing engineering materials. Written and oral reports required. Three hours lecture and three hours laboratory. Prereq.: MTEGR 753.

4 a.h.

- *862. Applied X-rays 2. Application of X-rays in physical metallurgy to determine solubility, lattice structure, atom location, grain size, preferred orientation, phase diagrams. Two hrs. lecture + 3 hrs. laboratory. Prereq.: MTEGR 861. 3 q.h.
- 864. *Thermodynamics of Materials 2.* Applications of thermodynamics principles to materials systems theory of alloys. Prereq.: MTEGR 780.

- 865. Advanced Science of Materials. Structure and properties of materials; theories of binding in solid-free electron theory, based theory, and zone theories, density of states; electrical and magnetic behaviors, theory of alloys phases; structure by alloys. Prereq.: MTEGR 753.
- 866. Special Topics. Special topics in materials engineering which are of current research interest. Course may be repeated once with a different topic. Prereq.: Junior standing in engineering or consent of instructor.

 4 q.h.
- *867. Fractography and Failure Analysis. Most common modes of failure of engineering materials including overloading, impact loading, fatigue, wear, and corrosion. The causes of failure are diagnosed from the study of the macroscopic and microscopic features on the fracture surfaces. Analysis using the stereomicroscope, scanning electron microscope, and stereo-imaging will be covered in the laboratory section. Four hours lecture and three hours laboratory. Prereq.: Junior standing in engineering and MTEGR 606.
- *868. Scanning Electron Microscopy of Engineering Materials. Theory and operation of the scanning electron microscope (SEM) and the energy dispersive x-ray analyzer. Individual term projects involve sample preparation, taking photomicrographs, and performing energy dispersive x-ray analysis. Three hours lecture and three hours laboratory per week. Prereq.: Junior standing in engineering and MTEGR 603 or MTEGR 606.

871. Physical Metallurgy 4. Discussion on theories of corrosion, age-hardening; gases in metals. Prereq.: MTEGR 753. 4 q.h.

872. Refractory Metals and Alloys. Production and processing of refractory metals; physical and mechanical properties of the metals and their alloys; design of refractory alloys. Prereq.: MTEGR 753.

4 q.h

887. Metallurgical Design. Application of design principles including the analysis of material property requirements for new or improved products. Selection techniques to find optimum cost effective materials and processes for various applications. Other topics included are manufacturing quality control procedures, product liability considerations and professional ethics. Prereq.: MTEGR 753.

4 a.h

891, 892, 893. Thesis 1, 2, 3. The student carries out an investigation on an approved project under the major advisor. The project must be formally approved by the department head. Prereq.: Senior standing or 150 q.h.

2-4 q.h. each

MUSAC—MUSIC, APPLIED CLASSES

A series of instrumental and vocal classes at the beginning level to explore technics and approaches appropriate to school music instruction. Music education majors select varying numbers of these courses in addition to pedagogy as described in the curriculum outline section. A minimum level of performance is required. Each class meets two hours a week.

*555. Guitar Class.

1 q.h.

556. Singer's Diction: English/Italian.

557. Singer's Diction: German.

558. Singer's Diction: French.

Application of the principles of Lyric diction; utilization of the International Phonetic Alphabet in developing and reading phonetic transcriptions of English, Italian, German, and French song texts.

1 q.h. each.

658. Snare Drum Class. The study of the snare drum, with emphasis on its various teaching approaches. Includes learning the Twenty Six Drum Rudiments and applying them to different styles of drumming. Continued development of writing and scoring for marching percussion. Designed to prepare students to teach this instrument in public or private school situations.

659. Voice Class.

1 q.h.

732. Brass Methods. A study of the brass instruments (trumpet, French horn, trombone, euphonium, tuba), with emphasis on various teaching approaches for each instrument. Basic tone production as well as common features and differences will be stressed. Brass study materials will be introduced and analyzed. Teaching demonstrations will be included. Meets four days a week for 50 minutes. Prereq.: MUSED 511. 2 q.h.

733. Woodwind Methods. Designed to prepare students for instrumental music teaching relative to woodwind instruments (flute, clarinet, oboe, bassoon, saxophone). The components will include concepts of tone production, embouchure, articulations, and technique. Study material will stress common features as well as differences. Meets four days a week for 50 minutes. Prereq.: MUSED 511.

2 q.h.

734. String Methods. Designed to prepare students for instrumental music teaching relative to string instruments (violin, viola, cello, string bass). The components will include concepts of tone production, bowing, fingering as well as appropriate evaluation of pedagogy. Study material will stress common features as well as differences. Meets four hours a week. Prereq.: MUSED 511. 2 q.h.

763. Mallet/Timpani and Accessories Class. The study of the keyboard mallet, drum set, Latin percussion, timpani and percussion accessories, with emphasis on various teaching approaches to these instruments. Practical application will be included on each section. Designed to prepare students to teach these instruments in public or private school situations.

Keyboard Musicianship Classes

PIANO-Piano

Major/Performance

501, 502, 503. Development of hand position and finger-stroke, with emphasis on finger independence. All major and minor scales and tonic, dominant-seventh, and leading-tone seventh arpeggios, hands together, four-octave compass. Repertoire of the variety and difficulty of the following: Bach, Sinfonias; Beethoven, Sonata, Op. 49, no. 1; Bartok, Three Ron dos. Prereq.: entrance audition.

2+2+2 q.h.

607, 608, 609. Continuation of previous technical study; emphasis on development of hand-stroke. Scales in octaves, thirds, sixths, and tenths; arpeggios as above, faster tempo. (609 Technical Examination) Repertoire of the variety and difficulty of the following: Bach, English Suites; Scarlatti, Sonatas; Beethoven, Sonata, Op. 26; Chopin, less difficult Etudes and Polonaises; Debussy, Preludes; Hindemith, Sonata II. Prereq.: PIANO 506.

4+4+4 q.h.

707, 708, *709. Technical studies to develop forearm-stroke and refine handstroke. Scales in doublethirds and double-octaves. Repertoire of the variety and difficulty of the following: Bach, Well-Tempered Clavier; Beethoven, Sonata, Op. 28; Chopin, Scherzos; Ravel, Valses Nobles et Sentimentales; Prokofiev, Visions Fugitives; Mozart, Haydn, or early Beethoven concertos. Junior recital. Prereq.: PIANO 609. 4+4+4 q.h.

807, 808, *809. Continuation of technical studies as needed. Repertoire of the variety and difficulty of the following: Bach, *Toccatas*; Beethoven, *Sonata*, Op. 31, No. 3; Chopin, *Ballades*; Copland, *Piano Variations*; Concertos by Mendelssohn, Chopin, Schumann. Senior recital. Prereq.: PIANO 709.

4+4+4 q.h.

HARPS—Harpsichord

Major/Performance

*501, *502, *503. Instruction in basic technique, with discussion of construction and maintenance. Survey of literature, ornamentation, and performance practices. Repertoire of the variety and difficulty of the following: Purcell, Suites; Bach, Inventions; Daquin, Pieces de Clavecin. Prereq.: entrance audition. 2+2+2 q.h.

607, 608, 609. Continuation of technical studies emphasizing fingering and ornamentation. Introduction to improvisation and accompaniment from figured bass. Repertoire of the variety and difficulty of the following: Byrd, Sellinger's Round; Frescobaldi, Partite Sopra L'Aria Di Follia; Bach, French Suites and Sinfonias; Scarlatti, less difficult sonatas. Prereq.: HARPS 506. 4+4+4 q.h.

707, 708, *709. Technical studies as needed. Continuation of improvisation and figured-bass studies. Repertoire of the variety and difficulty of the following: Gibbons, Pavan and Galliard Lord of Salisbury; Couperin, Les Folies Francaises; Bach, Well-Tempered Clavier, English Suites, and concertos; Scarlatti, Sonatas; Pinkham, Partita. Junior recital. Prereq.: HARPS 609.

807, 808, *809. Figured-bass accompaniment of works such as Handel, Violin Sonatas. Repertoire of the variety and difficulty of the following: Bull, Walsingham; D'Anglebert, Variations Sur Les Folies D'Espagne; Rameau, Les Niais De Sologne; Bach, Toccatas; Soler, Sonatas; Rochberg, Nach Bach; Poulenc, Concert Champetre. Senior recital. Prereq.: HARPS 709.

ORGAN-Organ

Major/Performance

*501, *502, *503. Manual exercises; pedal exercises; easy trios. Repertoire of the variety and difficulty of the following: Pachelbel, Fugues on the Magnificat; Bach, Prelude and Fugue in E Minor (S. 533). Es Ist Das Heil (S. 638); Schumann, Canon in B Major, Op. 56, No. 6; Walcha, Herzliebster Jesu. Prereq.: entrance audition. 2+2+2 q.h.

607, 608, 609. Pedal exercises, pedal scales. Repertoire of the variety and difficulty of the following: Couperin, Messe a L'Usage Ordinaire Des

Paroisses; Bach, Sonata in E-Flat Major (S. 525). In Dir Ist Freude (S. 615); Brahms, Mein Jesu Der Du Mich; Hindemith, Sonata II. Prereq.: ORGAN 506. 4+4+4 q.h.

707, 708, *709. Pedal scales and arpeggios; advanced studies. Repertoire of the variety and difficulty of the following: Buxtehude, *Prelude, Fugue*, and *Chaconne*; Bach, *Prelude and Fugue in B Minor* (S. 544), *Schmucke Dich, O Liebe Seele* (S. 654); Mendelssohn, *Sonata* No. 6; Alain, *Litanies*; Handel, concertos. Junior recital. Prereq.: ORGAN 609.

4+4+4 q.h.

807, 808, *809. Technical studies as needed. Repertoire of the variety and difficulty of the following: Bach, Fantasy and Fugue in G Minor (S. 542). Christ, Unser Herr (S. 684); Mozart, Fantasy (K. 594); Franck, Chorale in A Minor; Messiaen, Transports De Joie, Poulenc, Concerto. Senior recital. Prereq.: ORGAN 709.

VOICE—Voice

Major/Performance

501, 502, 503. Concentration on the development of basic technique for the singer: breath control, freedom and relaxation of the vocal mechanism, maximum resonance, and accurate articulation. At the teacher's discretion, the student applies the technique acquired in selected works of the vocal repertoire. Foreign-language songs may be introduced. Amount of repertoire decided is on an individual basis. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Primary emphasis continues to be placed upon the development of the voice and the mastery of technique. The student is expected by the end of this year to be able to sing properly a number of songs in English and in foreign languages and one or two arias from opera and oratorio. Minimum requirements are established by the voice faculty; requirements beyond these are established by the teacher on an individual basis. Prereq.: VOICE 506.

707, 708, *709. Technical study continued to maintain steady growth in technical mastery. Repertoire enlarged to include a wide range of styles and periods. Songs appropriate to the individual voice are chosen in English, French, Italian, and German. Operatic arias required. Junior recital. Prereq.: VOICE 609.

807, 808, *809. Advanced literature and technique. Additional songs of the standard repertoire by French, German, Italian, Russian, English, and American composers. The student will demonstrate ability to sing in three foreign languages, and will have a repertoire of operatic and oratorio arias, classic and modern songs for immediate use, and a knowledge of the general song literature. Senior recital. Prereq.: VOICE 709. 4+4+4 q.h.

String Instruments

VIOLN-Violin

Major/Performance

501, 502, 503. Kreutzer, Studies to No. 32. Concertos by Vivaldi, Nardini, Rode, deBeriot. Sonatas by Correlli, Veracini, Leclair. Technical material including Sevcik, Op. 8 and 9, Flesch Scale System. No fewer than six short compositions suitable for recital repertoire. Major and minor scales and arpeggios within one position, two octaves using a low position (I, II), a middle position (III, IV) and a high position (VI, VII). Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Kreutzer concluded; Fiorillo, Rovelli. Concertos by Bach, Viotti, Kreutzer, deBeriot. Sonatas by Tartini, Mozart, Handel. No fewer than six compositions added to repertoire. Scales and arpeggios in three octaves continued with secondary strokes. Technical materials of 504, 505, 506 continued. Prereq.: VIOLN 506. 4+4+4 q.h.

707, 708, *709. Rode, Studies. Concertos by Mozart, Bruch, Vieuxtemps. Sonatas by Beethoven, Bach. No fewer than six compositions added to repertoire. Scales on one string, 1 octave, 2 octaves; arpeggios on one string, 1 octave, 2 octaves. Scales in sixths, octaves, thirds, and tenths. Junior recital. Prereq. VIOLN 609.

807, 808, *809. Advanced studies from Wieniawski; Dont, Op. 35; Gavinies and Paganini concertos. Wieniawski, Saint-Saens, Mendelssohn, Beethoven, etc. Senior recital. Prereq.: VIOLN 709.

4+4+4 q.h.

VIOLA—Viola

Major/Performance

501, 502, 503. Studies by Mazas, Kreutzer, Sitt, Schradick Technic. Sonatas by Handel; repertoire material: No fewer than six pieces. Scales and arpeggios in three octaves. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Studies by Kreutzer and Fiorillo. Sonatas by Vivaldi and Marcello. Scales and arpeggios continued. Six recital pieces. Prereq.: VIOLA 506.

707, 708, *709. Studies by Rode, Campagnoli, and Bruni. Concertos by Stamitz and Mozart. Scales in double stops. Six recital pieces. Junior recital. Prereq.: VIOLA 609. 4+4+4 q.h.

807, 808, *809. Studies by Gavinies and Dolesji; Sonatas by Bowen, Bach, and others. Scales and arpeggios continued. Senior recital. Prereq.: VIOLA 709. 4+4+4 q.h.

CELLO—Cello

Major/Performance

501, 502, 503. Scales and arpeggios in three octaves. Studies from Dotzaur, Op. 35, Duport, Popper. Repertoire to include Bach, *Suite No. 1*, Sonatas by Bach, Beethoven, Sammartini, Concerto by Goltermann (No. 4) and Vivaldi (D). Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Scales and arpeggios in four octaves. Studies from Popper, Franchomme. Repertoire to include Bach *Suite No. 2 or No. 3*; Sonatas by Beethoven, Mendelssohn; Concerti by Saint-Saens, Haydn (C). Prereq.: CELLO 506. 4+4+4 q.h.

707, 708, *709. Scales in octaves, thirds, sixths. Studies from Popper, Piatti. Repertoire to include Sonatas by Breval (G), Boccherini, Brahms, Schumann. Concerti by Boccherini, Haydn (D), Lalo. Junior recital. Prereq.: CELLO 609.4+4+4 q.h.

807, 808, *809. Scales in octaves, thirds, sixths. Studies from Popper, Piatti, Servais. Repertoire to include Bach Suites No. 4, 5, 6, Reger Solo Suite No. 2, Sonatas by Brahms, Prokofiev, Schubert, Shostakovich, Hindemith, Kodaly, Valentini, Concerti by Dvorak, Haydn (D), Prokofiev, Schumann, Shostakovich, Tschaikovsky. Senior recital. Prereq.: Cello 709.

SBASS—String Bass

Major/Performance

501, 502, 503. Studies to include Simandl, *Book I*, Simandl, *30 Etudes*, Bille, *Method*, Books 1 and 3. Major and minor scales and arpeggios. Solos such as the Marcello and Vivaldi sonatas, Beethoven, Sonatina, Russell Chaconne. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Studies to include Simandl, Book II, Bille, Method, Books 3 and 4, Hrabe. Scales and arpeggios in two octaves. Solos such as Capuzzi, Concerto; Eccles, Sonata; Corelli, Sonata in D minor, Rachmaninoff, Vocalise. Prereq.: SBASS 503.

4+4+4 q.h.

707, 708, *709. Studies to include continuation of Simandl, Book II; Bille, Method, Book 4 and 5. Scales and arpeggios in three octaves. Solos to include Bottesini, Reverie, Koussevitsky, Chanson Triste, Lars-Erik Larsson, Concertino; Faure, Apres Un Reve. Junior recital. Prereq.: SBASS 609.

4+4+4 q.h.

807, 808, *809. Kreutzer, Studies. Zimmermann, Orchestral Books. Solos such as Concertos by Koussevitsky, Dragonetti, Dittersdorf, Bottesini, Vanhal; Hindemith, Sonata; Bottesini, Elegy; Koussevitsky, Valse Miniature. Senior recital. Prereq.: SBASS 709. 4+4+4 q.h.

GUITR-Guitar

Major/Performance

501, 502, 503. Scale patterns through all strings up to and including the ninth position. One study from numbers 1-5 by Segovia; 20 Studies (1-10) for the guitar by F. Sor; a similar study by Giuliani, Carelli, or Carcassi. Preludes 1, 3, and 4, H. Villa-Lobos; Etudes by Carcassi and Giuliani; music from twelve compositions, F. Tarrega; studies by Aquado, Villa-Lobos, Coste, Sor, and Almeida; simple ensembles from the works of Handel, Corelli, Scarlatti, and others of the same period. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Bach, *Preludes*; F. Sor, *Studies* 11-15; Music of English composers such as Dowland; *Prelude Number 5*, H. Villa-Lobos; solo works by Granados *(Spanish Dances)*; chamber music of Paganini, Boccherini, and Giuliani. Prereq.: GUITR 506.

707, 708, *709. Lute Suites, J.S. Bach; solo works of Ponce, Scarlatti, Granados, Albeniz, B. Henze, Sor, 'Tarrega, Ravel; Sor, Studies 16-20; Concerto in AMajor, M. Giuliani; Grosse Sonata and other works by Paganini; ensembles from the works of Paganini; L. DeCall, Matiegka, and J. Kreutzer. Junior recital. Prereq.: GUITR 609. 4+4+4 q.h.

807, 808, *809. J.S. Bach, Suites and Fugues for Lute; Castelnuovo Tedesco Concerto; solo works by B. Britten, deFalla, L. Almeida, Albeniz; Prelude Number 2 and Etudes by Villa-Lobos; Ensembles from the works of Ibert, Paganini, Boccherini, Haydn, and Schubert. Senior recital. Prereq.: GUITR 709.

Woodwind Instruments

FLUTE—Flute

Major/Performance

501, 502, 503. Studies compatible with the student's training and the development of technic, articulation, phrasing, and tone quality. Repertoire to include all Handel Sonatas, at least 6 additional sonatas from the Baroque, and the 24 Andersen *Studies*, Op. 33. Prereq.: Entrance audition.

2+2+2 q.h.

607, 608, 609. Continued development of technique, articulation, phrasing, and tone quality. Repertoire to include Bach, Sonatas in E Minor, and B Minor, Mozart, Concerto in G Major; Louis Ganne, Andante and Scherzo; Faure, Fantasy; and Telemann, Suite in A Minor; also the 24 Andersen Etudes, Op. 15. Prereq.: FLUTE 506. 4+4+4 q.h.

707, 708, *709. The study of solo works such as Bach, Suite in B Minor; Schubert, Variations, Op. 160; and Sonatas by Poulenc and Piston. Also at least 12 studies from Andersen, Op. 63, and 12 additional studies of comparable difficulty. Orchestral excerpts and classical concertos. Junior recital. Prereq.: FLUTE 609.

807, 808, *809. Survey of etudes from the teaching standpoint, including Hugues, Opp. 101, 32, and 75; 3 Caprices by Karg-Elart; Etudes by Boehm, Casterede, Briccialdi, Soussmann, Furstenau, and others. Solo repertoire to include the Prokofieff, Sonata, Op. 94, and the Dutilleux Sonatine. Orchestral excerpts and 20th Century concertos. Prereq.: FLUTE 709. 4+4+4 q.h.

CLAR-Clarinet

Major/Performance

501, 502, 503. Studies compatible with student's training and the development of technic, articulation, phrasing and tone quality. Repertoire to include Jeanjean, *Arabesque*; Mozart, *Concerto* (2nd Movement); Weber, *Concertino*; Stocks, a Wessex Pastoral; Guilhaud, First Concertino; Pierne, Canzonetta. Prereq.: entrance audition.

2+2+2 q.h.

607, 608, 609. Continued development of technic, articulation, phrasing, and tone quality. Repertoire expanded to include Hindemith, Sonata; Von Weber, Variations and Concerto No 1; Cavallini, Adagio and Tarantella; Marty, First Fantasy; Messager, Solo de Concours; Rabaud, Solo de Concert. Prereq.: CLAR 506.

707, 708, *709. Emphasis on the instrument in a chamber role, and the study of solo works such as Brahms, *Sonatas*, Op. 120, Nos. 1 and 2; Bernstein, *Sonata*; Debussy, *Premier Rhapsody*; Weber, *Concerto No. 2*; Mozart, *Concerto*; Lefebre, *Fantasy Caprice*. Junior recital. Prereg.: CLAR 609.

4+4+4 q.h.

807, 808, *809. Emphasis on the instrument in an orchestral role. Additional solo works to include Stravinsky, *Three Pieces*; Osborne, *Rhapsody*; Hindemith, *Concerto*; Widor, *Introduction and Allegro*; Jeanjean, *Scherzo Brillante*; Martinu, *Sonatina*; Nielsen, *Concerto*. Senior recital. Prereq.: CLAR 709. 4+4+4 q.h.

OBOE-Oboe

Major/Performance

501, 502, 503. Studies compatible with the student's training and the development of technique, articulation, phrasing, tone quality and reedmaking. Repertoire to include Boni, *Sonata in G*; Cimarosa, *Concerto in C*; Nielsen, *Fantasiestucke*; Grovelez, *Sarabande and Allegro*. Prereq.: Entrance audition.

607, 608, 609. Continued development of technique, articulation, phrasing, tone quality and reedmaking. Repertoire to include Baroque sonatas and concerti; Haydn, *Concerto*; Headington, *Sonatina*; Hindemith, *Sonata*; Poulenc, *Sonata*. Prereq.: OBOE 506.

707, 708, *709. Work on technical studies by Ferling, Brod and others. Concentrated study on reedmaking. Repertoire to include lbert, "Tunis"

from *Escales*; Reizenstein, *Three Concert Pieces*; Schumann, *Three Romances*; and chamber music such as Boccherini, *Quintets*; Mozart, *Oboe Quartet*; and Beethoven, *Variations*. Junior recital. Prereq.: OBOE 609.

807, 808, *809. Emphasis on orchestral excerpts and more advanced works from the solo repertoire. Students will be expected to use their own shaper tip and make their own reeds. Students will learn to gouge cane and adjust the gouging machine. Solo works to include Foss, Concerto; Kibbe, Serpent Music; Saint-Saens, Sonate; Britten, Metamorphoses. Senior recital. Prereq.: OBOE 709. 4+4+4 q.h.

BASSN-Bassoon

Major/Performance

501, 502, 503. Studies compatible with the student's training and the development of technic, articulation, phrasing, and tone quality. Repertoire to include representative selections such as Hindemith, Sonata; Bordeau, Premiere Solo; David, Concertino; Galliard, Six Sonatas. Prereq.: Entrance audition.

607, 608, 609. Continued development of technic, articulation, phrasing, and tone quality. Repertoire expanded to include Mozart, *Concerto K*. 191; Bach, *Concerto in E-Flat*; Cascarino, *Sonata*; Graun, *Concerto in G-Flat*; selected Vivaldi concerti. Prereq.: BASSN 506.

707, 708, *709. Emphasis on the instrument in a chamber role. Mozart, *Divermenti*; Beethoven *Duos*; Villa-Lobos, *Duo*; Piston, *Trio*; standard quintet literature. Junior recital. Prereq.: BASSN 609.

4+4+4 q.h.

807, 808, *809. Emphasis on the instrument in an orchestral role. Memorization of major orchestral passages. Additional solo literature to include Etler, Sonata; Jacob, Concerto; Saint-Saens, Sonata; Bozza, Concertino. Senior recital. Prereq.: BASSN 709.

4+4+4 q.h.

SAX—Saxophone

Major/Performance

501, 502, 503. Basics of embouchure, articulation, phrasing, technique, and tone reviewed with Londeix, Les Gammes; Viola, The Technique of the Saxophone; and literature which includes Telemann/Londeix, Sonate; Glazounov, Concerto; Creston, Sonata; and Bonneau, Suite. Prereq.: Entrance audition.

607, 608, 609. Refinement of technique, interpretation, and tone quality. Studies include Koechlin, 15 Etudes; Vol. I of Mule, 54 Etudes; and literature and performance of Hartley, Duo; Bozza, Piece Breve; Noda, Improvisation I; Heiden, Sonata; and chamber works. Prereq.: SAX 506. 4+4+4 q.h.

707, 708, *709. Emphasis on literature and performance, including Absil, Sonata; Bozza, Improvisation et Caprice; Villa-Lobos, Fantasia; Milhaud, Scaramouche; Maurice, Tableaux de Provence; Noda, Mai; and literature from the 804, -5, -6 levels. Junior Recital. Prereq.: SAX 609. 4+4+4 q.h.

807, 808, *809. Emphasis on literature and performance, to include Ibert, Concertino Da Camera; Husa, Elegie et Rondeau; Persichetti, Parable; Berio, Sequenza IXb; and Bassett, Music for Saxophone and Piano. Senior Recital. Prereq.: SAX 709. 4+4+4 q.h.

Brass Instruments

TRUMP—Trumpet

Major/Performance

501, 502, 503. Development of basic fundamentals of breath and tonal control, and of full physical potential. Sight-reading. Introduction to transposition techniques. Study material: H. Clarke, *Technical Studies*; W. Smith, *Lip Flexibilities*; Arban, *Complete Method*; Hering, *Etudes*. Solo literature: Balay, *Prelude and Ballade*; Handel-Fitzgerald, *Aria Con Variazione*; Barat, *Fantasy in E-Flat*; Andante and Scherzo. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Continued study of fundamentals and literature from the previous levels. Orchestral excerpts and chamber literature. Extensive work on transposition and sight-reading. Introduction of the C trumpet. Study materials: Schlossberg, Technical Studies; Clarke, Characteristic Studies; Pietsch, Virtuosity Studies; W. Smith, Top Tones for the Trumpet, Charlier, 36 Etudes. Solo literature such as: Hummel, Concerto in E-Flat; Kennan, Sonata; Bohrnsdedt, Concerto; J. Stanley, Trumpet Tune; Flor Peeters, Sonata. Prereq.: TRUMP 506. 4+4+4 q.h.

707, 708, *709. Continued refinement of the technical and tonal aspects of trumpet playing. Improvement of trapsposition ability. Introduction of the D trumpet. Continued experience on the C trumpet; further study of orchestral excerpts. Study materials such as: Nelson, *Top Tone Duets*; Petit, *Petite Studies, Broiles, Technical Studies, Vol. 1*; Toldman, *Triple and Double Tonguing*; Tomasi, *Etudes*. Solo literature to include: Vidal, *Sonata*; Hindemith, *Sonata*; Gianinni, *Concerto*; Artumiam, *Concerto*; Stevens, *Sonata*. Junior Recital. Prereq.: TRUMP 609.

807, 808, *809. Continued refinement and study of materials from previous courses. Extensive work on orchestral excerpt collections of Bartholody and Voisin. Preparation of senior recital. Solo literature such as: Jolivet, *Sonatina*; Tomasi, *Concerto*; D. White, *Sonata*; Telemann, *Concerto in D Major*; Haydn, *Concerto in E-Flat*. Senior Recital. Prereq.: TRUMP 709.

FHORN-French Horn

Major/Performance

501, 502, 503. Establishment of a practice routine to promote fundamental skills; tone production, air control, embouchure, flexibility, legato/staccato articulation. Transposition, sight-reading. Orchestral excerpts taken from music of Brahms, Tschaikovsky, Beethoven, Mendelssohn, A. Thomas. Study materials such as Kopprasch, 6 Selected Studies, Book I; Maxime-Alphonse, 70 Etudes, Book I; Pottag and Andraud, 335 Studies, Book I; Pares, Daily Exercises and Scales. Solo literature to include Mozart, Concerto No.1; Adler, Sonata; Baroff, Sonata; Jones, Solos for the Horn Player. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Continued emphasis on fundamentals. Transposition, sight-reading. Orchestral excerpts: continuation of literature listed for 504, 505, 506, plus Rossini, Wagner, Dvorak, Franck, Weber. Study materials such as Kopprasch, 60 Selected Studies, Books I and II; Maxime-Alphonse, 40 Etudes, Book II; Pottag and Andraud, 335 Studies, Book I; Bach-Hoss, Suites for Cello. Solo literature to include Op. 17; Chabrier, Larghetto; Rosetti, Concerto in E-Flat; Saint-Saens, Concert Piece, Op. 44; Mozart, Concerto No. 3. Prereq.: FHORN 506.

4+4+4 q.h.

707, 708, *709. Further study of technical problems. Transposition, sight-reading. Orchestral excerpts: continuation of repertoire listed for previous courses, plus music of Bizet, Massenet, Borodin, Rimsky-Korsakov, Strauss, Stravinsky. Study materials such as Kopprasch, 6 Selected Studies, Book II; Maxime-Alphonse, 40 Etudes, Book III; Gallay, Studies and Preludes; Bach-Hoss, Suites for Cello; Kling, 40 Characteristic Studies. Solo literature to include Haydn, Concerto No. 1; Mozart, Concerto No. 2; R. Strauss, Concerto No. 1; Dukas, Villanelle; Wilder, Sonata No. 3; Beethoven, Sonata, Op. 17. Junior Recital. Prereq.: FHORN 609. 4+4+4 q.h.

807, 808, *809. Continuing emphasis on fundamental technical problems. Transposition, sight-reading. Orchestral excerpts: continuation of literatures listed for previous courses, plus Bach, Mozart, Haydn, Mahler, Schoenberg, and other 20th century composers. Study materials such as Pottag and Andraud, Selected Studies 305, Book II; Bach-Hoss, Suites for Cello; Gallay, Etudes and Preludes; Maxime-Alphonse, 20 Etudes, Book IV; Mueller, 22 Etudes. Solo literature to include Haydn, Concerto No. 2; Hindemith, Concerto; Mozart, Concerto No. 4; Tomasi, Concerto; Donato, Concerto; Hindemith, Sonata. Senior Recital. Prereq.: FHORN 709.

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4+4+4 q.h.

TROMB—Trombone

Major/Performance

501, 502, 503. Emphasis on all playing fundamentals. Establishment of a warm-up procedure. Establishment of good practice habits. Introduction to the F attachment. Introduction to tenor clef. Study materials such as: tenor trombone Bordogni-Rochut, Melodious Etudes. Book I; Fink, Introduction to Tenor Clef; Blume-Fink, 36 Studies for Trombone with F Attachment. Bass trombone - Ostrander, Method for Bass Trombone; Ostrander, Melodious Etudes for Bass Trombone; Fink, Introduction to Tenor Clef. Solo materials to include: Tenor Trombone - Marcello, Sonatas #1, #4, #6; Jacob, Concerto (1st Movement); Barat, Andante et Allegro. Bass trombone - McCarty, Sonata; Mozart-Sansone, Concert Rondo; Galliard, Sonata No. 5. Prereq .: Entrance audition. 2+2+2 q.h.

607, 608, 609. Continued emphasis on all playing fundamentals, warm-up and practice habits, and sight-reading. Concentration on developing range, endurance, and dynamics. Continued work in tenor clef. Introduction of alto clef. Continued work with F attachment. Study materials such as: Tenor Trombone — Bordogni-Rochut, Melodious Etudes, Books I and II; Fink, Introduction to Alto Clef; Kopprasch, 60 Studies, Book II. Bass Trombone — Bordogni-Rochut, Melodious Etudes; Tyrrell, 40 Progressive Etudes for Tuba; Menken, Orchestral Excerpts, Books 1 and 2. Solo materials to include: Tenor Trombone — David, Concertino; Grafe, Grand Concerto; White, Sonata. Prereq.: TROMB 506.

4+4+4 q.h.

707, 708, *709. Continued emphasis on all playing fundamentals, warm-up and practice habits, and sight-reading. Continued study of orchestral excerpts. Study on baritone horn is recommended. Emphasis on ensemble playing and playing "lead." Study materials such as: Tenor Trombone -Blazevich, Clef Studies; Bordogni-Rochut, Melodious Etudes, Book II; Pederson, Intermediate Etudes for Tenor Trombone. Bass Trombone - Bordogni-Rochut, Melodious Etudes; Blazevich, Advanced Studies, Book I (for Tuba); Weissenborn, Studies, Book II for Bass Trombone. Solo materials to include: Tenor Trombone - Hindemith, Sonata; Bozza, Homage a Bach; Casterede, Sonatine. Bass trombone - Ross, Prelude, Fugue and Big Apple; Stevens, Sonatina. Junior Recital. Prereq.: TROMB 4+4+4 q.h.

807, 808, *809. Culmination of all playing fundamentals in a solo recital. Introduction of study on the alto trombone. Perfection of orchestral audition repertoire. Study materials such as: Tenor Trombone — Bordogni-Rochut, *Melodious Etudes Book II*; Pederson, *Advanced Etudes for Tenor Trombone*; Mazted, 20 Advanced Studies. Bass trombone — White, *Tetra Ergon*; Persichetti, *Serenade for Unaccompanied Tuba*; Beversdorf, *Sonata for Tuba*. Senior Recital. Prereq.: TROMB 709. 4+4+4 q.h.

BHORN-Baritone Horn/Euphonium

Major/Performance

501, 502, 503. Study of fundamentals. Development of daily practice and warm-up routines. Knowledge of bass and treble clefs. Introduction to tenor clef. Study materials such as Arban, Complete Method; Bordogni-Rochut, Melodious Etudes, Vol. 1; Kopprasch, 6 Etudes, Vol. 1; Blume, 26 Etudes. Solo literature to include Galliard, Sonata in G; Barat, Introduction and Dance; Telemann, Sonata in F; Morel, Piece in F; Marcello, 6 Sonatas. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Continued emphasis on fundamentals. Introduction of alto clef. Orchestral and band parts. Emphasis on sight-reading. Study materials such as Arban, Complete Method; Bordogni-Rochut, Melodious Etudes, Vols. I and II; Voxman, Selected Etudes; Bitsch, 20 Etudes. Solo literature to include Hindemith, Bassoon Sonata; Bach, Cello Suites; David, Concertino; Mozart, Bassoon Concerto; Whear, Sonata; Pryor, Blue Bells of Scotland. Prereq.: BHORN 506.

707, 708, *709. Continued study of orchestral and band parts. Study of trombone recommended. Study materials such as Smith, *Top Tones for Trumpet*; Bordogni-Rochut, *Melodious Etudes*, Vol. II; Bitsch, *20 Etudes*. Solo literature to include Ross, *Partita*; Stevens, *Sonatina*; Cords, *Concert Fantasie*; Hindemith, *Bassoon Sonata*; Ross, *Capriccio Furioso*; Bach, *Sonata in G*; White, *Lyric Suite*. Junior Recital. Prereq.: BHORN 609.

807, 808, *809. Continued study of orchestra and band parts. Study materials such as Bozza, 13 Etudes Caprices; Bordogni-Rochut, Melodious Etudes, Vol. III; Rieunier, 22 Dechiffranges Rythmiques. Solo literature to include Jacob, Fantasia; Horovit, Concerto; Boda, Sonatina; Curnow, Symphonic Varients; Hartley, Sonata Euphonica; Bach, Sonata in D. Senior Recital. Prereq.: BHORN 709.

TUBA—Tuba

Major/Performance

501, 502, 503. Study of fundamentals. Development of daily practice and warm-up routine. Playing of study and solo literature one octave lower. Study materials such as Blazhevich, 70 Studies, Vol. 1; Arban, Complete Method; Kopprasch, 60 Etudes, Vol. 1; Bordogni-Rochut, Melodious Etudes, Vol. 1. Solo literature to include David, Concertino; Telemann, Sonata in F; Lebejew, Konzert; Marcello, 6 Sonatas; Barat, Introduction and Dance.

2+2+2 q.h.

607, 608, 609. Introduction to tenor clef. Orchestra parts; chamber literature. Study materials such as Blazhevich, 70 Studies, Vol. II; Kopprasch, 60 Studies, Vol. II; Barbatou; Melodious Etudes, Vols. I and II. Solo literature to include Hindemith, So-

nata; Mozart, Concerto No. 3; Blavet, Sonata in G; Vinci, Sonata in D; Wilder, Sonata. Prereq.: TUBA 506. 4+4+4 q.h.

707,708,*709. Continued study of orchestral parts and chamber literature. Study materials such as Bordogni-Rochut, *Melodious Etudes*, Vols. I and II; Bitsch, 20 Studies; Gregson, Concerto; Heiden, Concerto; Pisciotta, Sonata. Solo literature to include Schumann, Adagio and Allegro; Stevens, Sonatina; Bach, Sonata in G; Mozart, Concerto No. 2; Strauss, Concerto No. 1. Junior Recital. Prereq.: TUBA 609. 4+4+4 q.h.

807, 808,*809. Introduction to F Tuba (if not already used). Continued study of orchestra parts and chamber music. Study materials such as Bordogni-Rochut, Melodious Etudes, Vol. III; Reynolds, 48 Etudes; Sauter, Eight Random Thoughts; Kraft, Encounters II; Beversdorf, Concerto; Jacob, Tuba Suite; Largent, Four Shorts; Vadvnan Williams, Concerto. Solo literature to include Takacs, Sonata Capricciosa; Penn, Three Essays; Reynolds, Sonata; Woolf, Per Tuba Ad Astram. Senior Recital. Prereq.: TUBA 709. 4+4+4 q.h.

PERC—Percussion

Major/Performance

501, 502, 503. Keyboard Percussion, Snare Drum and Timpani. Concentration on the development of basic techniques and daily practice studies. Sight reading, sticking, phrasing, and tempo flexibility will be emphasized. Various solos for appropriate level of study will be stressed on each instrument. An original multi percussion composition to be written. All major and minor scales, and arpeggios in all keys to be memorized. Prereq.: Entrance audition. 2+2+2 q.h.

607, 608, 609. Continued development on the above instruments. Emphasis on marching percussion and writing percussion scores. Projecting good rhythm and learning independent coordination on drum set. Development of four mallets on marimba. Various solos for appropriate level of study on each instrument. Expanding octaves and speed on all major and minor scales, and arpeggios in all keys. Prereq.: PERC 506.

707, 708, *709. Continued development of technique, articulation, sticking and sight reading in bass clef. Emphasis on percussion accessories and applying them to orchestral excerpts. Latin percussion studies include, timbales, bongos, conga drums and Latin percussion accessories. Various solos for appropriate level of study will be stressed on each instrument. Expanding octaves and speed on all major and minor scales, and arpeggios in all keys. Junior recital. Prereq.: PERC 609. 4+4+4 q.h.

807, 808, *809. Continued development with emphasis on literature and performance. Writing an original percussion ensemble piece. Continuation

of orchestral excerpts and learning orchestral audition repertoire. Senior recital. Prereq.: PERC 709.

4+4+4 q.h.

Keyboard Musicianship Classes

580, 581, 582. Keyboard Musicianship 1. Elements of keyboard techniques, with emphasis on sight-reading, interpretation of simple music, transposition, and analysis. All major and minor scales and related chords, hands together. Required of all non-keyboard majors. Must be taken in sequence. Prereq.: MUSTC 520 with a grade of B or better, a minimum score of 50% on the theory placement test, or permission of the instructor. 1+1+1 q.h.

680, 681, 682. Keyboard Musicianship 2. A continuation and intensification of studies begun in Music 580, 581, 582, with emphasis on accompanying, modulation, repertoire, and stylistic analysis. Must be taken in sequence. Prereq.: 582 or equivalent.

690, 691, 692. Accompanying 1. A study of techniques useful in playing the piano for vocalists, with supervised studio and recital experience. May be repeated for credit. 1+1+1 q.h.

693, 694, 695. Accompanying 2. A study of techniques useful in playing the piano for instrumentalists, with supervised studio and recital experience. May be repeated for credit. 1+1+1 q.h.

887, 888, 889. Piano Duet and Duo Playing. Investigation and performance of works for four hands at one or two pianos, such as Mozart, Sonata, K. 44B; Schubert, Fantasy, Op. 103; Debussy, En Blanc Et Noir; and Stravinsky, Sonata.

1+1+1 q.h.

890, 891, 892. Chamber Music With Piano. Preparation of trios, quartets, and quintets including string and wind instruments. Analysis of problems in ensemble performance. May be repeated for credit. Prereq. MUSAC 695. 1+1+1 q.h.

Accompanying

601A, 602A, 603A. Accompanying 1. Private instruction in solo vocal accompanying and coaching, with emphasis on piano technique, balance, style, and ensemble. Literature to include art songs, operatic excerpts, continuo playing. Concurrent with Accompanying 690, 691, 692. 2+2+2 q.h.

693A, 694A, 695A. Accompanying 2. A study of technics useful in playing the piano for instrumentalists, with supervised studio and recital experience. For accompanying majors only. 2+2+2 q.h.

701A, 702A, 703A. Accompanying 2. Private instruction in solo instrumental accompanying and coaching, with emphasis on piano technique, balance, style, and ensemble. Literature to include solo sonatas, continuo playing, orchestral reductions for piano of representative concertos. Concurrent with Accompanying 693, 694, 695. 2+2+2 q.h.

801A. Accompanying 3. Continuation of studies begun in 601A through 703A, with private instruction in preparation of one half-hour senior recital in vocal accompanying. Prereq.: PIANO 703A.

2 q.h.

802A. Accompanying 3. Continuation of studies begun in 601A through 703A, with private instruction in preparation of one half-hour senior recital in instrumental accompanying. Prereq.: MUSAC 801A.

Jazz

525. Jazz Fundamentals. A study of harmony and ear training in the jazz idiom: intervals, chord construction, terminology and symbols, modal scales, pentatonic and blues scales, symmetrically altered scales, thirteenth chords and harmonic substitutions and functions, and ear training and dictation. Meets two hours a week. Prereq.: Materials of Music with a grade of "B" or better or placement in MUSIC 530.

616. Survey of Jazz. A historical survey of the origins, influences, and stylistic features of jazz from its beginnings to the present, with emphasis on performers, compositions, and innovations. 4 q.h.

666, 667, 668. Jazz Improvisation. Jazz techniques with emphasis on analysis of harmonic progression, form, style, and performance requirements of the jazz idiom. Prereq.: Jazz Fundamentals 525 or a grade of B or better on the Jazz Placement test. Classes must be taken in sequence. 3+3+3 q.h.

712, 713, 714. Jazz Arranging 1, 2, 3. Scoring the jazz idiom with emphasis on harmonic concepts, voicing procedures, forms, and stylistic trends developed by major jazz composer-arrangers. Detailed study of instrumental techniques with projects scored for various-sized ensembles. Student arrangements are performed in reading sessions and concerts. Prereq.: MUSTC 532 and Jazz Improvisation 668 or permission of instructor. Classes must be taken in sequence. 3+3+3 q.h.

780, 781, 782. *Jazz Keyboard 1, 2, 3*. (For non-keyboard and keyboard majors): Class instruction and keyboard experience in jazz chordal voicing techniques and jazz accompanying techniques. Prereq.: Jazz Fundamentals 525, a grade of "B" or better on the Jazz Placement Exam, or permission of the instructor. Classes must be taken in sequence. 1+1+1 q.h.

866, 867, 868. Advanced Jazz Improvisation. Advanced jazz techniques, with emphasis on analysis of harmonic progressions, form, style, and performance requirements of the jazz idiom. Prereq.: MUSAC 668. 3+3+3 q.h.

MUSCO— MUSIC—CONDUCTING

716. Instrumental Conducting. Designed to prepare music students for a variety of instrumental leadership roles. Students will develop skills of conducting, score analysis and preparation, rehearsal techniques, and error detection with peer-lab ensemble. Practicum approaches will stress pedagogical and artistic issues relevant to school and community instrumental ensembles. Meets three hours a week. Prereq.: MUSTC 632. 2 q.h.

717. Choral Conducting. Designed to prepare music students for a variety of choral leadership roles. Students will develop skills of conducting, score analysis and preparation, rehearsal techniques, and error detection with peer lab-ensemble. Practicum approaches will stress pedagogical and artistic issues relevant to school, church and community choral ensembles. Meets three hours a week. Prereq.: MUSTC 632.

MUSED—MUSIC EDUCATION

511. Introduction to Music Education. Through classroom observations and seminars the student studies music curriculums and the function of the music teacher at all levels of instruction. One hour seminar and two hours observation per week. Prereq.: EDUC 501.

*611. Computer Applications in Music Education. An overview of basic computer music applications as they relate to the music educator, including principles of the Musical Instrument Digital Interface (MIDI), and emphasizing music software packages for computer based notation, automatic accompaniment and composition (sequencing). Additional discussions and projects will be aimed at applying the above in a classroom style experience, using computer-based hardware and software in a real time situation. Prereq.: MUSED 511 or approval of the professor.

621. Music Literature and Appreciation. The development of listening techniques applicable to Western and non-Western music through the comparison and contrast of the music of significant historical periods. For non-music majors. Satisfies the University's area requirement in the humanities.

4 q.h.

721. Music Education for Elementary Teachers. The development of an understanding of the theoretical aspects of music through discussion and demonstration of repertoire and techniques for teaching music in the elementary school. Prereq.: Upper-division status in the College of Education. For non-music majors.

722. Music in Early Childhood. Fundamental skills, repertoire, materials, and techniques for teach-

ing music to pre-school and kindergarten children. Prereq.: HMEC 532. For non-music majors. 4 q.h.

812. Show Choir Techniques. This course explores the historical development of the small, chamber vocal ensemble in the public schools, examines the pedagogical methods for movement and voice instruction, and provides a lab setting for peer instruction and review. In addition, students explore repertoire and guidelines for effective programming of the show choir ensemble in the secondary schools. Prereq.: MUSED 511 and 30 hours in music major; or permission of instructor. 2 q.h.

813. Choral Literature for the Music Educator. Designed to develop vocal music education students' knowledge of choral music appropriate for effective music learning in the schools. Students will research, analyze, rehearse and discuss choral literature representative of numerous historical periods and from various styles and cultures. This study of choral literature will stress pedagogical issues relative to changing and developing adolescent voices. Prereq.: MUSED 511 and 30 hours in music major; or permission of instructor. 2 q.h.

814. Selected Topics in Music Education. Course title will be listed each quarter in the Schedule of Classes. May be repeated for credit as long as topic is different. Prereq.: MUSED 815. 2 q.h.

Topics may include:

Vocal Ensembles in the High School. A study of methods and materials for small vocal groups at the high school level including madrigals, swing choirs, and other small chamber ensembles. 2 q.h.

Orff and Kodaly for the Classroom. A study of the philosophies, materials, and methods of Carl Orff and Zoltan Kodaly with applications to the elementary school classroom.

Music and the Related Arts. Techniques and materials for teaching humanities or related-arts classes at the elementary or secondary level. Relationships among music, art, architecture, literature, drama, and films.

2 q.h.

Marching Band Arranging. A study of instrumentation, suitable instrumental ranges, and scoring procedures for attaining the sound-power for outdoor performance. 2 q.h.

Instrument Repair. Practical experience in the basic skills needed by the prospective instrumental teacher in repairing string, brass, woodwind, and percussion instruments.

Jazz Ensemble in the Secondary School. Organizing, scheduling, and rehearsing the jazz ensemble, and a study of suitable jazz materials for the secondary school with emphasis on interpretation, style characteristics, and improvisation procedures.

2 q.h

815. Vocal and Instrumental Music Education. Methods of organizing, administering, and conducting music in the high schools. Study includes: in-

structional methods, library organization, scheduling, curriculums, philosophy, technology, classroom management, festivals and competitive events. Includes two hours of field experience per week. Prereq.: MUSCO 717 and admission to the College of Education.

*816. Marching Band Techniques. Designed to prepare music students for a marching band leadership role. Students will develop skills of administering and coordinating computer-assisted drill charting, arranging and rearranging musical and percussional charts, facilitating the auxiliary groups (flag corps., dance line, rifles and majorettes), and rehearsal techniques for the contemporary school marching band. Lecture/Discussion and Laboratory approaches will stress all pedagogical issues related to directing a marching band. Prereq.: MUSED 511 and 30 hours in music major; or permission of instructor.

817. Instrumental Literature. The research of materials, methods, and literature (band and orchestra) for use in the elementary, middle-level, and secondary instrumental music programs. Emphasis will be on curriculum design based on historical development of musical styles, pedagogy, and learning theories. Prereq.: MUSED 511 and 30 hours in music major.

823. Music Teaching in Early Childhood. A study of the role of music in the life of the child. An examination of principles, repertoire, and techniques of teaching music to children (ages pre-k through third grade). Prereq.: admission to the College of Education and MUSTC 750.

824. Music Teaching in the Middle School. Music materials and methods of instruction in middle schools with emphasis on understanding the physiological and psychological development of early adolescents in the context of the general music class. Course content includes: managing the learning environment, motivating students, developing music curricula, planning musical experiences and assessing musical behaviors. Prereq.: Admission to the College of Education and MUSTC 750. 3 q.h.

828. Music Technology 1. An exploration of the use of computers and technology in music. Applications related to composition, performance, analysis, teaching, and research. Prereq.: MUSTC 632 with grade of C or better, or permission of instructor.

3 q.h.

829. Music Technology II. Hands-on laboratory projects. Continuation of Music 828. Prereq.: MUSTC 828. 2 q.h.

*841. Music Workshop. For students and teachers in service; topics may vary from year to year. Specific topics are announced each time the workshop is offered. May be repeated with different topic.

1-4 q.h.

*851. Woodwind Pedagogy. Various teaching approaches to each of the woodwind instruments with

special emphasis on doubling problems. Basic concepts of tone production, embouchure and study materials using extensive demonstration by students and faculty. Prereq.: WWIND 506 or 509.

2 q.h.

858, 859. Piano Pedagogy. Methods and materials involved in teaching of piano in private and classroom settings. Fundamentals of technique as well as repertoire. Supervised practice teaching. Prereq.: MUSAC 592 or 682. 2+2 q.h.

880. Vocal Pedagogy. A comparative study of physiological and psychological approaches to voice instruction and their application to private and class instruction. Prereq.: VOICE 603, 606, or 609.2 q.h.

*882. String Pedagogy. An examination of the problems of string teaching. Survey of grades and levels of instruction, string literature, psychological aspects of individual proficiency, and teaching devices. Demonstration with students in a teaching situation. Prereq.: Applied Class 503.

*885. Brass Pedagogy. Designed for the brass major to study the various teaching approaches to each of the brass instruments. Basic concepts of tone production will be emphasized on each brass instrument, stressing common features as well as differences. Brass study materials will be introduced and analyzed. Teaching demonstrations by faculty members and students. Prereq.: Applied Class 503.

2 q.h.

MUSHL—HISTORY AND LITERATURE OF MUSIC

512. A Survey of Musical Theatre. Identical to THTR 512. Satisfies the University's area requirement in the humanities. May not replace a music history requirement for the music major. 4 q.h.

518, 519. Survey of Music Literature. An introduction to the elements of musical style with emphasis on the acquisition and development of perceptive listening skills. Study of representative literature from all historical periods. Comprehensive listening assignments are an integral part of the course. 518 is prerequisite to 519. 3+3 q.h.

616. Survey of Jazz. A historical survey of the origins, influences, and stylistic features of jazz from its beginnings to the present, with emphasis on performers, compositions, and innovations. 4 q.h.

617. Film Music. An historical survey of the use of music in the motion picture. Examination of different styles in works by major composers. 4 q.h.

618.† Rock 'n Roll to Rock. An historical survey of the evolution of rock 'n roll into rock with emphasis on the interrelationships of the music and social and political influence and the interaction of rock with other music styles.

- 619. Music of Non-Western Societies . A historical survey of music as it relates to the different cultures, with emphasis on the development of instruments, vocal practices and performance media within specific cultures.
- 622. Popular Music in America. The changing styles in American popular music from its origins to the present day studied through an examination of representative compositions and performers. Satisfies the University's area requirement in the humanities.
- 709, 710, 711. History and Appreciation of Art and Music: General. Identical with ART 709, 710, 711. Satisfies the University's area requirement in the humanities. 4+4+4 q.h.
- 770, 771, 772. Music History and Literature. A study of music from earliest times to the present with special reference to the relation of the history of music to that of other arts and to the political and religious history of the corresponding periods. The orientation of musical literature to the periods in which it was written and the styles of individual composers are also stressed. Prereq.: MUSTC 531 (or 621 for the non-music major).
- 852. Woodwind Literature. An historical survey of solo and ensemble literature of the woodwind family with emphasis on the evolution of the woodwind instruments and the development of their literature. Prereq.: MUSHL 772. 3 q.h.
- 860. Piano Literature. A chronological investigation of solo piano works by major composers from Bach to Cage. Prereq. or Concurrent: MUSHL 770, 771, 772.
- 869. Organ Literature. A study of the organ and its literature from earliest times to the present day. Prereq.: MUSTC 632 and MUSHL 772.
- 871. Baroque Music. The evolution of musical styles during the period 1600-1750. A historical survey of documents and music literature of the time: opera from Monteverdi to Handel; keyboard and instrumental works; significant choral works, etc. Prereq.: MUSTC 632 and MUSHL 772.
- 872. Eighteenth Century and the Viennese Classical School. Musical developments from the decline of the baroque to the turn of the century; historical and stylistic elements contributing to the rise of classicism and culminating in the works of Mozart, Haydn, Beethoven. Prereq.: MUSTC 632 and MUSHL 772.
- 873. Opera History. An historical survey of opera: its development as an art form from its beginnings to the present. Prereq.: MUSTC 632 and MUSHL 772. 3 q.h.
- 874. Nineteenth Century: The Romantic Period. Musical developments from Beethoven through Wagner; aesthetic, formal, technical and historical trends with special emphasis on nationalism and the music drama. Prereq.: MUSTC 632 and MUSHL

- 878. Selected Topics in Music History. A study of a specific topic to be announced each time the course is offered. May be repeated once with different topic. Prereq.: MUSTC 632 and MUSHL 772.
- 879. Vocal Literature. A study of vocal literature from all periods. Special emphasis on English language repertoire and on material especially suitable for high school students. Songs are prepared for performance in class. Prereq.: MUSTC 632 and MUSHL 3 q.h.
- 884. History and Literature of Brass Instruments. The history and literature of brass instruments with emphasis on the evolution of brass in the orchestra, solo literature, chamber music literature, and bibliography. Prereq.: MUSTC 632 and MUSHL 772.

3 q.h.

"MUSHL 512, 616, 617, 618, 619, 622, 709/710/711 may not replace a music history requirement for the music major.

MUSTC—MUSIC THEORY AND COMPOSITION

501. Applied Theory. Applications of theory of diatonic harmony; development of independent study and research projects in such areas as analysis, aural perception, scoring, and arranging. May be repeated once. Prereq.: Permission of instructor.

2 q.h.

- *520. Materials of Music. Musical styles, listening concepts, and harmonic technics as they relate to the literature of music. For students who do not qualify for MUSTC 532. Satisfies the University's area requirement in the humanities.
- *530, *531,*532. Theory 1. A study of the harmonic, melodic, rhythmic and contrapuntal materials in diatonic tonal music. Instruction entails harmonic progression and voice leading, harmonic and formal analysis; laboratory practice in ear training, keyboard harmony and sight singing, and computer assisted instruction. Meets five hours a week. Prereq.: 520 with a grade of 'B' or better or a minimum score of 50% on the theory placement test.

3+3+3 q.h.

601. Applied Theory. Applied instruction in music theory of chromatic harmony which develops independent study and research projects in such areas as analysis, aural perception, scoring, and arranging. May be repeated once. Prereq.: Permission of instructor.

501, 502, 503. Composition

601, 602, 603. Composition

Composition for composition majors. Creative use of the materials of music; beginning study of instrumentation; composition of short works for solo and chamber media. Analysis of representative compositions in various styles. Prereq.: Grade of B or better in lower-division theory courses, or concurrent with MUSTC 530, 531, 532. 2 q.h. each

704, 705, 706. Composition

804, 805, 806. Composition

Composition for composition majors. Private instruction employing contemporary techniques; compositions for solo instruments, vocal and instrumental chamber groups, and large ensembles. Editing and proofreading of scores (and parts) to prepare compositions for performance or publication. A recital of at least one hour duration will be presented of selected works of the student as a requirement for graduation. Prereq.: COMP 603 or 706 as appropriate.

3 q.h. each

630, 631, 632. Theory 2. A study of which includes the chromatic materials used in tonal music. The instruction entails harmonization; harmonic and formal analysis; reading choral scores, chamber music and orchestral excerpts; laboratory practice in ear training, keyboard harmony and sight singing. Meets five days a week. Prereq.: MUSTC 532 with grade of C or better. 3+3+3 q.h.

701. Applied Theory. Applied instruction in music theory of modal and/or non-tonal music which will develop independent study and research projects in such areas as analysis, aural perception, scoring and arranging. May be repeated once. Prereq.: Permission of instructor.

750. Analytical Techniques. Analysis of representative repertoire from the renaissance, baroque, classical, romantic, and contemporary periods. Prereq.: MUSTC 632 with a grade of C or better. 4 q.h.

820, 821, 822. Composition. Composition in twoand three-part forms, and other compositions of small scope, such as variation and sonatina. Works are composed both for piano alone, and in combination with other instruments or voice. May be repeated by composition majors to meet requirements for composition A and composition B. Prereq.: MUSTC 632 with a grade of C or better, or by permission of the instructor for composition majors.

2+2+2 q.h.

830. Materials of 20th Century Music. A study of the various elements of 20th century compositions, including melody, harmony, rhythm, texture, and form. Prereq.: MUSTC 632 with a grade of C or better.

3 q.h.

831. Modal Counterpoint. Sixteenth-century contrapuntal style including introduction of species technique; analysis of liturgical and secular repertoire; writing of imitative counterpoint with stylistic rhythms and cadences. Prereq.: MUSTC 632 with a grade of C or better.

832. Tonal Counterpoint. Contrapuntal style of baroque music including analysis of examples in imitative and invertible counterpoint; writing of 2-and 3-part inventions and 3- and 4-part fugal expositions. Prereq.: MUSTC 632 with a grade of C or better.

833. Theory Seminar. Topics in music theory not covered in regular upper division offerings. May

be repeated once with different topic. Prereq.: MUSTC 632 with a grade of C or better. 3 q.h.

*834. Electronic Music 1. Techniques of analog and digital synthesis including tape composition, musique concrete; advanced MIDI applications such as sequencing and sampling; and digital audio/editing. Composition of short works. Prereq.: For composition majors, COMP 503 or equivalent; for non-composition majors, MUSTC 632 with a grade of "C" or better; for non-music majors, permission of instructor.

*835. Electronic Music 2. Composition in electronic and mixed media. May be repeated once. Prereq.: MUSTC 834. 2 q.h.

840. Instrumentation. Ranges, transposition, technical characteristics, and tonal features of the instruments. Scoring for large and small ensembles which are available as laboratory reading groups. Prereq.: MUSTC 632 with a grade of C or better.

4 q.h.

NURSG-NURSING

Lower-Division Courses

601. Family Concepts for Health and Human Service Providers. Interdisciplinary study of family theories, dynamics, roles, and cultural considerations across the life span related to issues of concern for providers of health and human services.

4 q.h.

640. Introduction to Nursing. An introduction to professional nursing and the health care delivery system from a historical perspective. The philosophy and conceptual framework of the program are also introduced. Open to non-nursing majors.

3 q.h.

641. Concepts and Theories of Self-Care 1. Concepts and theories related to Orem's conceptual framework are presented from a health focus of wellness. Open to non-nursing majors. 3 q.h.

642. Contemporary Nursing for Registered Nurses. Concepts and theories related to professional nursing from a historical perspective, program philosophy and organizational framework are presented. Prereq.: Must be a registered nurse.

4 q.h.

*643. Therapeutic Self-Care Requisites. The development of interpersonal communication and psychomotor skills necessary to comprehensively conduct an assessment of the self-care agency. To be taken concurrently with NURSG 643L. Prereq.: Admission to the BSN Program or permission of instructor.

*643L. Therapeutic Self-Care Requisites Laboratory. Practical application of interpersonal and psychomotor skills necessary to conduct a comprehensive assessment of the self-care agency. Seven hours of laboratory each week. To be taken concurrently with NURSG 643.

645. Nursing Systems 1. Fundamental nursing assistive actions and the system of nursing care are studied with adults in a partly compensatory and educative-supportive nursing situation. The health focus is wellness/disease prevention and recovery from illness. To be taken concurrently with 645L. Prereq.: NURSG 643, PSYCH 757. 4 q.h.

*645L. Nursing Systems 1 Laboratory. Selected clinical experiences are provided for the application of the system of nursing care with adults in a partly compensatory and educative-supportive nursing situation. The health focus is wellness/disease prevention and recovery from illness. Eleven hours of laboratory each week. To be taken concurrently with NURSG 645.

646. Health Deviation Self-Care Requisites. Knowledge from basic and clinical science is applied to the understanding of biological alterations which affect individuals' ability to perform self-care activities. Prereq.: BIOL 710, 792, 793, and either 702 or 787.

Upper-Division Courses

740. Concepts and Theories of Self-Care 2. Concepts and theories related to Orem's conceptual framework are presented from a health focus of recovery, illness of undetermined and determined origin, and active treatment. Prereq.: NURSG 640, NURSG 641, NURSG 645.

741. Nursing Systems 2. Fundamental nursing assistive actions and the system of nursing care are studied with adults and families in a partly compensatory and educative-supportive nursing situation. The health foci are recovery and illness of undetermined origin. To be taken concurrently with NURSG 741L. Prereq.: NURSG 645, NURSG 646, PSYCH 756 and PSYCH 757.

*741L. Nursing Systems 2 Laboratory. Selected clinical experiences are provided for the application of the system of nursing care with adults and families in a partly compensatory and educative-supportive nursing situation. The health focus is illness of undetermined origin and recovery. Twelve hours of laboratory each week. To be taken concurrently with NURSG 741.

742. Nursing Systems 3. Nursing assistive actions and the system of nursing care are studied as they apply to acutely ill adults. This course focuses upon health deviation requisites as well as other therapeutic self-care requisites within partly compensatory and educative-supportive situations. To be taken concurrently with NURSG 742L. Prereq.: NURSG 740, NURSG 741 and NURSG 750. 5 q.h.

*742L. Nursing Systems 3 Laboratory. Selected clinical experiences provide for the application of the system of nursing care in partly compensatory and educative-supportive nursing situations. The health focus is illness of determined origin, treatment, and recovery. Eight hours of laboratory each week. To be taken concurrently with NURSG 742.

743. *Leadership*. Leadership concepts, theories and roles are explored as they relate to the practice of professional nursing. Prereq.: COMM 550 and NURSG 741 or admission to RN track. 3 g.h.

744. Nursing Systems 4. Nursing assistive actions and the system of nursing are studied as they relate to adult clients experiencing chronic developmental and health-deviation self-care requisites. To be taken concurrently with NURSG 744L. Prereq.: NURSG 742, 743.

*744L. Nursing Systems 4 Laboratory. Selected clinical experiences are provided for the application of the system of nursing care to adult clients experiencing chronic developmental and health-deviation self-care requisites. Eight hours of laboratory each week. To be taken concurrently with NURSG 744.

*749. Nursing Research. Concepts, methods and techniques of research in the investigation of nursing problems. Prereq.: PSYCH 613 or equivalent and either OtS 613, CSIS 500; or consent of instructor.

4 a.h.

750. Nursing Process and Clinical Pharmacology. Nursing implications of drug therapy with emphasis on clinical decision making, client education, and self-care. Prereq.: NURSG 646, 645, BIOL 793.4 q.h.

830. Nursing Systems 5. Nursing assistive actions and the system of nursing care. The developmental and health-deviation self-care requisites in the antepartum, intrapartum, and post-partum phases are studied. To be taken concurrently with NURSG 830L. Prereq.: NURSG 742, PSYCH 755. Prereq. or concurrent: NURSG 744, NURSG 749, PHIL 825.

4 q.h.

*830L. Nursing Systems 5 Laboratory. Selected clinical experiences with clients experiencing developmental and health-deviation self-care requisites in the antepartal, intrapartal, and post-partal phases. Eight hours of laboratory each week. To be taken concurrently with NURSG 830.

831. Nursing Systems 6. Nursing assistive actions and the system of nursing care are studied as they relate to children experiencing developmental and health-deviation self-care requisites. To be taken concurrently with NURSG 831L. Prereq.: NURSG 742, PSYCH 755. Prereq. or concurrent: NURSG 744, NURSG 749, PHIL 825.

*831L. Nursing Systems 6 Laboratory. Selected clinical experiences provide for the application of the system of nursing care with children experiencing developmental and health-deviation self-care requisites. Eight hours of laboratory each week. To be taken concurrently with NURSG 831. 4 q.h.

832. Concepts, Theories, and Contemporary Issues for Registered Nurses. Concepts, theories, and contemporary issues related to the evolving roles of professional nursing are analyzed from a health focus of illness, treatment, and recovery. Prereq.: NURSG 642 and must be a registered nurse. 4 q.h.

- *833. Self-Care Requisites for RN's. Knowledge and applications necessary to conduct a comprehensive assessment of self-care agency adapted to meet the unique needs of registered nurses. Prereq.: Must be a registered nurse.

 4 q.h.
- 841. Nursing Systems 8. Nursing assistive actions and the system of nursing care are studied as they relate to acutely ill adults. This course focuses upon health deviation requisites as well as other therapeutic self-care requisites in wholly compensatory systems. To be taken concurrently with NURSG 841L. Prereq.: NURSG 742 and 744.
- *841L. Nursing Systems 8 Laboratory. Selected clinical experiences provide for the application of the system of nursing care in all three types of nursing situations. The health foci are recovery, illness of determined origin, and active treatment. Eight hours of laboratory each week. To be taken concurrently with NURSG 841.
- 842. Nursing Systems 7. Nursing assistive actions with the system of nursing care and the therapeutic self-care requisites related to intrapersonal, interpersonal, family and social deficits are studied. To be taken concurrently with NURSG 842L. Prereq.: NURSG 742 and 744.
- *842L. Nursing Systems 7 Laboratory. Selected clinical experiences with clients experiencing intrapersonal, interpersonal, family, and social deficits. Eight hours of laboratory each week. To be taken concurrently with NURSG 842.
- 844. Nursing Systems 9. Nursing assistive actions and the system of nursing care are studied as they apply to communities and clients experiencing therapeutic self-care requisites. To be taken concurrently with NURSG 844L. Prereq.: NURSG 742 and 744.
- *844L. Nursing Systems 9 Laboratory. Selected laboratory experiences are provided for the application of the system of nursing care to communities and individuals experiencing therapeutic self-care requisites. Eight hours of laboratory each week. To be taken concurrently with NURSG 844. 4 q.h.
- *845. Professional Issues. Contemporary issues related to the practice of professional nursing and the emerging roles of the nurse. Prereq.: NURSG 742 and NURSG 744 or consent of instructor. 2 q.h.
- 847. Nursing Systems Synthesis. Synthesis of the professional practice of nursing as it relates to clinical practice in a variety of nursing situations. To be taken concurrently with NURSG 847L. Prereq.: Completion of all clinical courses except concurrent clinical courses.
- 847L. Nursing Synthesis Laboratory. Selected clinical experiences provide for synthesis of the roles of the professional nurse in a variety of nursing situations. Nine hours of clinical laboratory experience each week. To be taken concurrently with NURSG 847.

Nursing Electives

- 746. Systems of Nursing Care for Elderly Clients. An in-depth view of the aging person with implications for determining systems of nursing care and for interpreting the impact of current theories of aging upon current nursing practices. Prereq.: NURSG 740.
- 747. Individual Studies. The study of special problems or a review of the literature relating to specific problems or issues. May be repeated for a maximum of six hours with different problems. Prereq.: Admission to Nursing Program and permission of the Chair.
- 851. System of Nursing Care for the Child. Current trends, issues and approaches in nursing practices with children are considered from a wellness perspective. Emphasis is on prevention of developmental self-care deficits. Nursing roles in child health specialties are explored. Prereq.: NURSG 831 or registered nurse.
- 860. Home Health Nursing. Current trends, issues, and approaches related to caring for clients in the home environment. Emphasis placed on the nurse's role in assisting the client and family when making the transition from the acute care setting to the home setting, meeting their self-care needs, and utilizing community resources. 4 hours lecture and 4 hours clinical laboratory. Prereq.: NURSG 741 or permission of instructor.
- 870. School Nurse Role Development. Contemporary topics related to the professional school nurse role, including standards of practice, certification, ethical, legal, and practice issues. Prereq.: NURSG 743 or Registered Nurse.
- 871. Assessment and Management of Health Problems of School Age Children. Concepts related to specialized skills for conducting comprehensive assessments of children in a school setting, with special attention to children with disabilities. School nurse responsibilities in management of common health problems. Prereq.: NURSG 831 or Registered Nurse.
- 872. School Nurse Practicum. Supervised clinical experience in school settings for Registered Nurse Students participating in the delivery of school health services. Includes one hour per week on campus. Field experience of 300 hours required for State of Ohio certification eligibility. 300 hours=12 credit hours. May be taken in segments of 4-12 hours/quarter. Prereq.: NURSG 870 and NURSG 871 and Registered Nurses only. 4 q.h.

OIS—OFFICE INFORMATION SYSTEMS

Lower-Division Courses

*520. Beginning Keyboarding. Beginning keyboarding for all students. Taught on microcomputers; some practice on electronic typewriters. Includes use of word processing procedures, report and business letter preparation. One hour of lecture and three hours lab per week. 2 q.h.

- *575. Word Processing and Document Preparation. Preparation of business documents such as reports, tables, letters, and manuscripts. Prereq.: OIS 520 or equivalent. 4 q.h.
- 600. Concepts of Office Information Systems. Analysis of office information systems, architecture, and trends. Study of training, job redesign, and change issues. Prereq.: CSIS 590 or equivalent.

4 q.h.

- *613. Microcomputer Applications. Micro-computer vocabulary, DOS commands, disk care, interpretation of language used in manuals, and hardware/software selection criteria. Coursework will include tutorials and microcomputer software products; e.g., word processing, database, spreadsheets, specialized computer applications, and/or integrated packages.
- 663. Office Management. Principles and practices of effective office systems. Office budgeting, information management through hardware and software selection and utilization, ergonomics, office design, proper procedures for conducting business meetings. Prereq.: CSIS 590 or equivalent. 4 q.h.
- *672. Desktop Publishing 1. Document creation using desktop publishing software on a microcomputer. Application must be mastered on a software package used by industry. Lab time required. Prereq.: CSIS 590.
- *673. Desktop Publishing 2. Specialized and advanced document creation using desktop publishing software used by industry. A second software package must be mastered. Lab time required. Prereq.: OIS 672.
- *675. Advanced Document Preparation . Preparation of documents using productivity tools such as tables, macros, graphics, and merging. Integration of documents with other software. Creating and maintaining hypertext documents. Prereq.: CSIS 500 or equivalent, and OIS 575.
- 698. Special Topics. An in-depth study of business information systems. Topics will vary each quarter. May be repeated for different topics. Prereq.: Sophomore standing. 1-4 q.h.
- 699. Internship. An opportunity to apply classroom theory to on-the-job professional experience
 related to the student's major area of specialization.
 Participants engage in three activities during the
 quarter: work at an approved site, complete a related project, and attend biweekly seminars. Prereq.:
 sophomore in good standing and permission of the
 internship coordinator. One hour of credit may be
 earned for approximately 6-7 hours of participation
 per week. Grading will be CR/NC. 1-4 q.h.

Upper-Division Courses

- 704. Business Communications. Communication theory and practice. Business letter writing; oral communication. Review of English usage. Prereq.: ENGL 550.
- *714. Advanced Spreadsheets. Includes macros, look-up tables, advanced problems, templates, and projects with emphasis on accounting and finance applications. Prereq.: CSIS 514 or 590. 4 q.h.
- *720. System Configuration and Maintenance. Theory and practice of installing and maintaining hardware and software for complex systems. Installation of applications software, with emphasis on Windows and Mac applications. Essential DOS utilities-formatting, data recovery, protecting data. Dealing with printing problems, Windows environment problems, and problems with booting the machine. Small laboratory management. Prereq.: CSIS 590 or equivalent.
- *750. Electronic Files Management. Concepts of records management and database models. Advanced database software, and integration with other software. Database implementation required. Prereq.: OIS 675 or OIS 714 and CSIS 590. 4 q.h.
- *775. *Multimedia Authoring*. A study of multimedia authoring tools. Design principles of integrating text, graphics, sound, animation, and video. Project required. Prereq.: OIS 675. 4 q.h.
- *780. Advanced Concepts in Information Systems Technology. Information systems policy and control. Platform comparison and introduction to hardware/software evaluation and control. Documentation and user support. Security, ethical, and privacy issues. Prereq.: OIS 675 or OIS 714, and CSIS 590.
- *790. Integrated Office Systems. Students organize and operate an information center utilizing decision-making skills, and information systems procedures and components. Lab time required. Prereq.: OIS 750. 4 q.h.
- *875. Advanced Multimedia Authoring . An advanced study of multimedia authoring tools. Analysis of commercial applications. Group project required. Prereq.: OIS 775. 4 q.h.
- *880. Office Information Systems Analysis and Design. Information systems integration and modeling. Analysis of dynamic information flow, functional requirements, and systems design in theory and practice. Prereq.: OIS 780.
- *887. Training and Employee Development. Theory and practice of designing training programs. Analyzing training needs, selecting instructional strategies, and implementing and evaluating training programs. Prereq.: junior standing, and OIS 790 or EDUC 800D. 4 q.h.

895. Special Topics. A study of special topics in office information systems. May be repeated up to 10 quarter hours. Subject matter, credit hours, and special prerequisites will be announced in advance. Prereq.: Permission of instructor. 2-5 q.h.

PHIL—PHILOSOPHY

Lower-Division Courses

530. Critical Thinking. An examination of the logical skills needed to evaluate arguments in real-life practical situations. Topics include the uses of language and the impact of the mass media on thinking; strategies and procedures for identifying arguments; evaluation of arguments with emphasis on informal fallacies; and strategies and guidelines for writing argumentative essays.

4 q.h.

600. Introduction to Philosophy. The nature of philosophy and its relation to science, religion, and art; study of the philosophical approach and attitude, the basic problem areas in philosophy, and some typical philosophical viewpoints.

4 q.h.

619. Introduction to Logic. Introduction to syllogistic or classical logic, symbolic, and inductive logic. Emphasis will be placed on the rules of the syllogism, immediate inference, propositional functions, classes, truth tables, Venn diagrams; the use of analogy, generalization, the verification of hypotheses and scientific method.

4 q.h.

625. Introduction to Professional Ethics. An examination of the ideals and virtues central to professionalism; study of selected codes of professional ethics and their roots in classical ethical traditions; and analysis of selected ethical issues and problems in a variety of professions.

Upper-Division Courses

700. History of Ancient Philosophy. The development of philosophical thought in Western civilization from the pre-Socratics through the cosmologies of Plato, Aristotle and the Atomists; its ethical expression by Epicurus and the Stoics; and its religious involvement in the systems of Philo, Plotinus and Augustine. Prereq.: PHIL 600 or junior or senior standing.

701. History of Medieval Philosophy. An examination of the medieval synthesis, with attention to its aims, methods, development and decline. Erigena, Roscellinus, Realism and Nominalism. Anselm and the Ontological Argument. Peter Abelard and Conceptualism. The Crusades and the new economics. The Grail legend and its influence on nationalism. Albertus Magnus, Thomas Aquinas and the return of Aristotle. Pantheism, mysticism and the rise of science. Duns Scotus and William of Ockham. Prereq.: PHIL 600 or junior or senior standing.

702. History of Modern Philosophy. Development of philosophic thought from the Renaissance

through the 19th century, with stress upon British empiricism, continental rationalism, and the critical philosophy of Kant and post-Kantian idealism. Prereq.: PHIL 600 or junior or senior standing.

4 q.h.

703. Symbolic Logic. The structure and properties of axiomatic systems; the theory of propositional and relational logic; the algebra of classes; related topics. Prereq.: PHIL 619.

704. Woman: A Philosophical Study. Examination of the writings of prominent women philosophers; inquiry into philosophical issues related to the concept of "woman," including concerns related to women's rights. Prereq.: PHIL 600, or junior or senior standing.

710. Aesthetics. Classical and modern philosophies of beauty, especially as they apply in criticism of the fine arts; the problem of the relative and the absolute in judgments of taste. Readings from representative writers in the field. Prereq.: PHIL 600 or junior or senior standing.

711. Ethical Theories. Examination and evaluation of the major ethical theories in classical, dialectic, pragmatic and naturalistic, analytic and positivist, and existentialist thought. Prereq.: PHIL 600 or junior or senior standing.

712. Philosophy of Religion. The philosophical investigation of religious questions such as existence and nature of the divine, the problem of evil, death and immortality, religion and science, and religious experience. Prereq.: 4 hours in philosophy or religious studies and Junior standing. 4 q.h.

714. Philosophy of Mind. Study of the traditional mind/body problem in philosophy: investigation of philosophical theories of intentionality, mental representation and causation, the contrast of minds and machines, and the relation of philosophy to psychology. Prereq.: PHIL 600 or junior standing.

4 q.h.

715. Philosophy of Science. A philosophical consideration of some of the fundamental concepts and assumptions of the sciences: the nature of scientific knowledge; the relation of scientific to other kinds of knowledge and experience. Prereq.: PHIL 600 or junior or senior standing.

730. Metaphysics. An examination of the major metaphysical issues in Western philosophy: problems of freedom and determinism, idealism versus materialism, personal identity, space-time problems, concepts of Being and Reality and other representative issues. Prereq.: PHIL 600 or junior standing.

4 q.h

740. Philosophy in Africa. Study of major African world views: An exploration of problems involved in establishing Afro-centric ethical and religious belief systems through writings of African philosophers. Prereq.: Any 600-level course in philosophy or religious studies or junior standing. 4 q.h.

- 760. Ethics of War and Peace. This course examines reasons for making war, for restraint on the conduct of war, and for rejecting war as understood within a variety of western moral traditions, both secular and religious. Prereq.: one course in philosophy or religious studies.
- 800. Theories of Knowledge. The epistemological problem; position of the skeptic, pragmatist, empiricist, idealist, moderate realist, existentialist, and phenomenologist. Prereq.: PHIL 600 or junior or senior standing.
- 807. Social Philosophy. Philosophical analysis of the social concepts of freedom, power, authority, conflict, equality, alienation, and others. Emphasis on the extra-political dimensions of these concepts. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.
- 808. *Political Philosophy.* Analysis of the philosophical presuppositions of selected political theories. Prereq.: four hours of philosophy or religious studies, or consent of instructor and junior standing.

 4 q.h.
- 810. Philosophical Classics. Reading and discussion of some of the great documents of philosophy: Plato's Republic, Aristotle's Nichomachean Ethics, Descartes' Meditations, Kant's Critique of Pure Reason, and James' Essays or alternative selections of comparable significance. Prereq.: PHIL 600 or junior or senior standing.
- 811. Philosophy in America. History of philosophic ideas in this country and introduction to its intellectual history; relations of American intellectual currents to their background in the history of philosophy. Prereq.: PHIL 600 or junior or senior standing.

 4 q.h.
- 812. 20th Century Philosophy. A survey of the philosophical scene in the early and mid-20th century: the pragmatism of Peirce, James, and Dewey; the analytic schools, from Moore and Russell to early Wittgenstein and the logical positivists; later conventionalism and ordinary language philosophy; and the various continental movements, including modern phenomenology and hermeneutics. Prereq.: PHIL 600 or junior standing.
- 813. Philosophy of Human Nature. The various conceptions of human nature that are relevant to the contemporary American scene: classical and scholastic thought, dialectic thought, naturalist and pragmatic thought, analytic and positivist thought, and existentialist and phenomenological thought. Prereq.: PHIL 600 or junior standing. 4 q.h.
- 814. Philosophy of Language. An introduction to modern philosophical investigation of such topics as semantics and language analysis, the functions of language, modes of meaning, and the relation of linguistic structures to metaphysics. Prereq.: PHIL 600 or junior standing.
- 815. Existentialism. A study of the background and teachings of existentialism; and an analysis of the methodological principles of existentialism as

seen in the writings of Kierkegaard, Husserl, Heidegger, Jaspers, Sartre, Marcel, and Merleau-Ponty. Prereq.: PHIL 600 or consent of instructor.

4 q.h.

- 820. Seminar: Contemporary Philosophical Problems. Various assigned topics to be discussed by students after adequate research in fields where philosophical problems arise, e.g., the biological, physical, and behavioral sciences, medicine; religion; art; education. Prereq.: PHIL 600 and eight quarter hours of upper division philosophy courses or approval of the department chair.
- 821. Seminar: Areas of Philosophy. The student will be allowed to consider in depth a particular philosophical interest. The subjects for the seminar may include ethics, logic, aesthetics, value theory, epistemology, metaphysics and language analysis. Prereq.: PHIL 600 and eight quarter hours of upper division philosophy courses or approval of the department chair.
- 822. Selected Topics in Philosophy. The study of a philosophical problem or philosopher in depth or the relationship of philosophy to problems in another discipline. May be repeated once for a different topic. Prereq.: PHIL 600 and eight quarter hours of upper division philosophy courses or approval of the department chair.
- 823. Philosophy of Justice. The major classical and contemporary philosophical theories regarding the types of justice and their interrelations, the concepts of legal and moral responsibility, the rationales of reward and punishment, with some attention to the concept of equality. Prereq.: PHIL 711 or 808 or senior standing in criminal justice.
- 825. Biomedical Ethics. An examination of ethical issues posed by the impact of biomedical research and technology on health care; selected issues in the philosophy of medicine; issues of patients' rights, including the right to health care; experiments on human subjects and problems of informed concent; genetic research and intervention; moral issues in death and dying, organ transplants and the allocation of scarce health resources. Prereq.: Four hours of philosophy or SOCIO 745 or SOCIO 703 or PSYCH 780 or admission to NEOUCOM-YSU program.
- 827. Environmental Ethics. Application of ethical theories in the evaluation of human interaction with the natural environment: selected cases addressing rights and duties in regard to other species and future generations, principles and ideals guiding industrial utilization of natural resources, responsibilities of environmental activism in prescribed social and political philosophy, and the relation of philosophy to ecology. Prereq.: Four hours of philosophy and junior standing or consent of instructor.
- 828. Engineering Ethics. An examination of ethical problems in the major fields of engineering and an explanation of the methodology needed to ad-

dress them; an analysis of the rights and duties of engineers in their relations to clients, employers, the public, and the engineering profession. Prereq.: PHIL 530, 600, 619 or 625 and junior standing or consent of instructor.

829. Ethical Issues in Business. A study of ethical dilemmas in the business world. Focus on rights and duties of business executives, stockholders and employees, as well as their relations with consumers, clients, consultants, government officials, and the public; emphasis on case studies. Prereq.: Four hours of philosophy and junior standing or consent of instructor.

835. Ethics and Scientific Research. An examination of the ethical problems surrounding scientific research. Topics include definition of scientific misconduct; issues related to fabrication, falsification, and plagiarism of scientific data; human subject research; including informed consent, double-blind studies, and access to research protocols. Prereq.: Junior standing or permission of instructor. 4 q.h.

860. Mathematical Logic. Identical with MATH 860. 4 q.h.

861. Senior Research Project. Research and writing of a paper on a philosophical topic, under the supervision of a full-time faculty member in consultation with a committee of at least two other members of the department. Students will demonstrate a grasp of an area of philosophy and the ability to write clearly and persuasively, to analyze views and arguments accurately and fairly, and to develop, formulate and defend a coherent personal stance. Prereq.: Restricted to majors in philosophy with senior standing who have completed 32 q.h. of philosophy.

870. An Internship to Integrate Ethical Theory and Practice. Students will work with professionals in a local organization, thereby gaining direct access to the ethical issues involved in such an environment. Students will be supervised by an appropriate working professional and either a faculty member of the Dr. James Dale Ethics Center or another faculty member in the Department selected for this purpose. The course grade shall be assigned by the YSU supervisor, based on a project journal, an evaluation of the student's on-site work by the participating professional and the YSU supervisor, and a final project paper. Registration by permit only. Prereq.: junior or senior standing and either 8 hours of coursework in philosophy or eight hours of course work in religious studies, or consent of the directorship of the Ethics Center.

2-4 q.h.; may be repeated up to a total of 4 q.h.

PHYS—PHYSICS

Lower-Division Courses

500. Physics and Man. A breadth-of-experience approach and largely non-mathematical presenta-

tion of selected theories and laws of classical and modern physics. These are presented in a historical context of some of the successes and failures of physicists in their efforts to describe our universe in terms of functional relationships. Not applicable to the major in Physics or to the combined major in Physics and Astronomy.

4 q.h.

*500L. Conceptual Physics Laboratory. Experimental work designed to supplement PHYS 500. Two hours per week. Prereq. or concurrent: PHYS 500.

501. Fundamentals of Physics 1. A study of the methods of analyzing motion of mechanical systems. The topics treated are kinematics, forces, energy and momentum, rotational kinematics, torque and angular momentum. Not recommended for Mathematics, Chemistry or Physics majors or Engineering students. Prereq.: MATH 505 and 520, or equivalent high school algebra and trigonometry.

4 q.h.

502. Fundamentals of Physics 2. A study of electricity and magnetism. The topics treated are electric charge, electric forces and fields, electric potential and potential energy, capacitance and resistance in direct current circuits, magnetic forces and fields, induced emf, inductance, alternating current circuits. Prereq.: PHYS 501 or equivalent. 3 q.h.

503. Fundamentals of Physics 3. A study of simple harmonic motion, wave motion, sound, light, and modern physics. This includes reflection, refraction, geometric optics as applied to lenses and mirrors, interference and diffraction. Modern physics is introduced through the study of the atom and the nucleus. Prereq.: PHYS 501 or equivalent. 3 q.h.

*501L, *502L, *503L. Fundamentals of Physics Laboratory 1, 2, 3. Experimental work designed to supplement the Fundamentals of Physics sequence. Two hours per week. Prereq. or concurrent: 501 for 501L; 502 for 502L; 503 for 503L. 1+1+1 q.h.

506. Physics for the Health Sciences. The basic laws of physics will be applied to various biological and physiological problems. Designed for majors in the allied health fields, e.g., Respiratory Care. Not applicable to the major in Physics or to the combined major in Physics & Astronomy.

4 q.h.

507. The Physics of Energy. A basic non-mathematical explanation of the origin, form, uses, and distribution of energy. Topics include electrical energy, mechanical energy, nuclear fission, nuclear fusion, solar energy. This course is designed for the non-science student who is not particularly interested in a broad survey of physics. Not applicable to the major in Physics or to the combined major in Physics and Astronomy.

510. General Physics 1. A course in mechanics; the kinematics and dynamics of masses in translation; Newton's Laws; the conservation laws of energy and momentum. Prereq.: High school physics or PHYS 501. Prereq. or concurrent: MATH 571.

4 q.h.

520H. Perspectives in Physics. An introduction to past and recent ideas in physics with specific emphasis on their impact on historical and contemporary thought. The treatment, largely non-mathematical, is enhanced by selected readings suitable for the beginning honors student of any field. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. Prereq.: Admission to the Honors Program or permission of instructor and Director of Honors.

601. General Physics for Applied Medical Studies 1. Kinematics and dynamics of translation and rotation; energy, momentum, equilibrium; elasticity and bulk properties of solids. This course is designed primarily for students enrolled in the NEOUCOM-YSU program, and for students enrolled in the pre-medical curricula. Prereq.: MATH 520, or equivalent high school trigonometry. Prereq. or concurrent: MATH 550 or 581H or 572. 4 q.h.

602. General Physics for Applied Medical Studies 2. Electricity and magnetism, fluids, heat and thermodynamics. This course is designed primarily for students enrolled in the NEOUCOM-YSU program, and for students enrolled in pre-medical curricula. Prereq.: PHYS 601.

603. General Physics for Applied Medical Studies 3. Waves, sound, optics, atomic physics, quantum mechanics, nuclear structure and radiation. This course is designed primarily for students enrolled in the NEOUCOM-YSU program, and for students enrolled in pre-medical curricula. Prereq.: PHYS 602.

608. Sound. The production of sound by means of vibrating strings, vibrating air columns, and vibrating membranes. Simple harmonic motion, and the representation of complex sound waves as a summation of pure sine waves. The principles of reflection, refraction, interference, and resonance applied to sound waves. Sound and hearing. Application of the principles of sound to musical instruments. The reproduction and recording of sound waves with a study of room acoustics. This course is designed for Music majors. Not applicable to the major in Physics or to the combined major in Physics and Astronomy.

610. General Physics 2. Kinematics and dynamics of masses in rotation; wave phenomena; transmission, reflection, refraction, diffraction, and interference of sound and light. Prereq.: PHYS 510. Prereq. or concurrent: MATH 572. 4 q.h.

611. General Physics 3. A study of static electric and magnetic fields; direct current circuits; induced currents and electromagnetic forces; inductance and capacitance and their transient effects on direct current circuits. Prereq.: PHYS 610. Prereq. or concurrent: MATH 673.

*510L, *610L, *611L. General Physics Laboratory 1, 2, 3. Experimental work designed to supplement the General Physics sequence. Three hours per week.

Prereq. or concurrent: 510 or 601 for 510L; 610 or 603 for 610L; 611 or 602 for 611L. 1+1+1 q.h.

Upper-Division Courses

NOTE: The minimum requirement for all upperdivision courses in physics and astronomy is either (A) satisfactory completion of PHYS 510, 610, 611 and MATH 674, or (B) consent of the department.

701, 702, 703. Intermediate Classical Mechanics 1, 2, 3. Statistics and dynamics of particles and rigid bodies. Gravitation and the properties of a gravitational field. Principle of virtual work. Motion in accelerated reference frames. Generalized coordinates; Lagrange's and Hamilton's equations of motion. Damped and forced harmonic oscillators. Matrix theory applied to rotary motion of a free body and top and to normal oscillations of a many-body system. Prereq.: PHYS 611 and MATH 705. Must be taken in sequence.

704, 705. Introduction to Modern Physics 1, 2. Special relativity; quantum effects related to electromagnetic radiation and material particles; selected topics in atomic, nuclear, and solid-state physics. Prereq.: PHYS 611 and MATH 674. Must be taken in sequence. 3+3 q.h.

*705L. Modern Physics Laboratory. Experimental work designed to supplement the Physics 704 and 705 lecture courses. Three hours per week. Prereq. or concurrent: PHYS 705. 1 q.h.

710. Thermodynamics. An elementary level course in the principles and theorems of thermodynamics which are derived from the observable macroscopic quantities of mass pressure, volume, and temperature. Prereq.: PHYS 611 and MATH 674.

3 q.h.

*710L. Thermodynamics Laboratory. Experimental work designed to supplement the corresponding lecture course. Three hours per week. Prereq. or concurrent: PHYS 710.

722. Physical Optics and Advanced Light. Interference, diffraction, dispersion, polarization, coherence, molecular scattering and absorption of radiation. Prereq.: PHYS 611 and MATH 674. 4 q.h.

*722L. Physical Optics Laboratory. Experimental work designed to supplement the corresponding lecture course. Three hours per week. Concurrent: PHYS 722.

730. Electronic Instrumentation. Theory of directand alternating-current circuits, solid state devices, electrical and electronic instrumentation. Prereq.: PHYS 611 and MATH 705. 3 q.h.

*730L. Electronic Instrumentation Laboratory. Laboratory work in alternating-current circuits, transistor and diode circuits, and electronic instrumentation. Six hours per week. Concurrent: PHYS 730.

741, 742, 743. Electromagnetic Field Theory 1, 2, 3. Electric field and potential, charge distribution, polarization of material media, magnetic field and the vector potential, magnetic moments and magnetic polarization of media, introduction to and application of Maxwell's equations. Prereq.: PHYS 611 and MATH 705. Must be taken in sequence.

3+3+3 q.h.

- 750. Mathematical Physics. The mathematical techniques required in the study of classical, statistical, and quantum mechanics, and field theory. Prereq.: PHYS 611 and MATH 705. 4 q.h.
- 805. Undergraduate Physics Research. Research conducted under the direction of a faculty member. May be repeated to a maximum of 6 q.h. Prereq.: PHYS 702, 705, and senior standing. 2 q.h.
- 810. Introduction to Quantum Mechanics. The postulates of wave mechanics, the Schroedinger Wave Equation, and solutions for elementary problems in quantum theory. Prereq.: PHYS 702 and 705; MATH 706.
- 815. Kinetic Theory and Statistical Mechanics. The principles and theorems of thermodynamics which are based upon the statistical treatment of non-observable microscopic quantities, atomic and subatomic particles. Prereq.: PHYS 710 and MATH 706.

 4 q.h.
- 820. Advanced Quantum and Quantum Statistical Mechanics. Quantum-mechanical scattering, angular-momentum coupling schemes, hydrogen molecular ion, Thomas-Fermi and Hartree-Fock models; quantum statistics and applications to the theory of metals, superfluidity and superconductivity. Prereq.: PHYS 810 and PHYS 815. 3 q.h.
- 823. Laser Physics and Photonics. Emission and absorption of radiation, including stimulated emission. Optical cavities and waveguides. Introduction to lasers. Modulation and detection of light. Applications of lasers to information processing and other technologies. Introduction to nonlinear optical and opto-electronic phenomena and nonlinear optical materials. Prereq.: PHYS 722.
- 826. Elements of Nuclear Physics. An introduction to the nucleus and subatomic particles, the deuteron, scattering and absorption, nuclear models, radioactivity, alpha, beta and gamma decay, accelerators, nuclear reactions, and elementary particles. Prereq.: PHYS 705, 705L and MATH 705. Offered every other year. 3 q.h.
- *826L. Nuclear Physics Laboratory. Experimental work designed to supplement the corresponding lecture course. Three hours per week. Prereq. or concurrent: PHYS 826. Offered every other year.

830. Elements of Solid State Physics . Selected topics in solid state physics: crystal structure, mechanical thermal, and magnetic properties of solids. Prereq.: Permission of instructor. Offered every other year.

- 835. Spectroscopy. Treatment of atomic and nuclear structure based on the analysis of atomic, molecular, X-ray, Gamma-ray, and other spectra. Prereq. or concurrent: PHYS 810, or permission of instructor. Offered every other year. 4 q.h.
- *835L. Spectroscopy Laboratory. Experimental work designed to supplement the corresponding lecture course. Three hours per week. Prereq. or concurrent: PHYS 835.
- 850. Special Topics in Physics. The study of a standard topic at greater depth, of the development of a correlated background for areas of physical knowledge, or the physical and educational experimentation necessary to develop new physics courses. Prereq.: consent of instructor and department chair. May be repeated.
- 890. Physics and Astronomy for Educators. Principles of Newtonian Physics, conservation of energy and momentum, electricity; introduction to astronomy, planets and satellites, stars and galaxies. Three hours lecture and two hours laboratory. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. Prereq.: Admission to upper division status in the School of Education or to the Graduate School. 4 q.h.

PHYTH—PHYSICAL THERAPY

- *700. Introduction to Physical Therapy. An overview of the physical therapy profession (history, current organizational structure, future direction); roles of physical therapy personnel, practice and legal issues, health professional and patient interaction, and introduction to ethics. Prereq.: Admission to Physical Therapy Program.
- *701. Physical Therapy Procedures 1. Principles of patient care and physical therapy procedures; emphasis on assessment and treatment techniques of superficial sensation, balance and coordination, vital signs, transfers, wheelchairs, posture, segmented length and girth measures, body mechanics, assistive devices. Positioning and draping and introduction to acute care environment and range of motion exercises. To be taken concurrently with PHYTH 701L. Prereq.: PHYTH 700. 3 q.h.
- *701L. Physical Therapy Procedures 1 Lab . Application of treatment techniques for superficial sensation, balance and coordination, vital signs, transfers, wheelchairs, posture, segmented and circumferential measures, body mechanics, assistive devices, gait, positioning and draping, and introduction to acute care environment and range of motion exercises. To be taken concurrently with PHYTH 701. Prereq.: PHYTH 700. 2 q.h.
- *702. Physical Therapy Procedures 2. Principles and techniques of patient assessment and treatment: history taking, observation, joint range of motion, manual muscle testing, muscle length testing, and

environmental assessment. To be taken concurrently with PHYTH 702L. Prereq.: PHYTH 701.

3 q.h.

*702L. Physical Therapy Procedures 2 Lab . Applied assessment and treatment techniques of history taking, observation, joint range of motion, manual muscle testing, muscle length testing, and environmental assessment. Four hours of laboratory a week. To be taken concurrently with PHYTH 702. Prereq.: PHYTH 701L. 2 q.h.

703. Pathology. Disease processes and trauma in humans at a structural and functional level; relationships between pathology and clinical signs and symptoms, etiology, differential diagnosis, prognosis and treatment. Prereq.: PHYTH 700.

3 q.h.

*704. The Musculoskeletal System. Pathophysiology of the musculoskeletal system, including disorders, conditions and medical, surgical and physical therapy intervention. Assessment and treatment principles using problem-solving/clinical decision making approaches. Prereq.: PHYTH 703. 3 q.h.

*710. Physical Agents 1. Theories and techniques for the use of light, water, sound, mechanical and thermal modalities used for the treatment of various disorders and dysfunctions. Emphasis on the pathological response of injury, perception of pain, process of healing, and wound care. To be taken with PHYTH710L. Prereq.: PHYTH701, and 701L. 3 q.h.

*710L. Physical Agents 1 Lab. Use and application of light, water, sound, mechanical, and thermal modalities used for the treatment of musculoskeletal, integumentary, and neuromuscular system disorders and dysfunctions. To be taken with PHYTH 710. Prereq.: PHYTH 701 and 701L. 1 q.h.

*711. Physical Agents 2. Theories and techniques of the use of electricity to treat various disorders or conditions; application of principles of physics, physiological effects, indications, and contraindications. To be taken concurrently with PHYTH 711L. Prereq.: PHYTH 710 and 710L.

3 q.h.

*711L. Physical Agents 2 Lab. Use and application of physical therapy electric stimulation equipment including EMG, biofeedback, NCV, low volt, high volt, MENS, TENS, and US/ES combined. Three hours of laboratory is to appear in the a week. Prereq.: PHYTH 710L. 1 q.h.

*719. Essentials of P.T. Documentation. Instruction and practice in documentation and utilization of computer information management systems. Emphasis on proper medical terminology and abbreviations used in the reporting of patient functional outcomes for legal and reimbursement issues. Prereq.: Admission to Physical Therapy Program.

2 q.h.

721. Clinical Education 1. Initial integrated clinical observation and application of appropriate physical therapy assessment and treatment skills and procedures under the supervision of a licensed physical therapist in an assigned acute-care setting or a large outpatient practice. Two hundred clinical hours. Prereq.: PHYTH 720, CPR certification, required inoculations, and physical exam and permission of Academic Coordinator of Clinical Education.

*780. Kinesiology for the Physical Therapist. Basic concepts of biomechanics and emphasis on analysis of structures, arthrolinemetrics, relating to functional movements. Prereq.: Admission into the Physical Therapy Program. 4 q.h.

*790. Practice Issues in Patient Interactions. Instruction and discussion related to the ethical and legal challenges effecting clinical practice in various settings. Emphasis placed on the patient-clinician relationship handling psycho-social concerns, primacy of respect, issues of death and dying in compliance with business, criminal and contract law. Prereq.: PHYTH 700.

*805. The Neuromuscular System. Theories of neuropathology and neurophysiology with emphases on disorders, conditions, movement dysfunctions, medical, surgical and physical therapy interventions. Assessment and treatment principles using problem-solving/clinical decision making approaches. Prereq.: PHYTH 704. 3 q.h.

*807. Cardiopulmonary P.T. and Wellness. Pathophysiology disorders and conditions of cardiopulmonary system with emphasis on physical therapy interventions. Assessment and treatment procedures using problem-solving and clinical decision-making approaches. Principles and concepts of wellness promotion based on fitness evaluation and related to exercise, nutrition, and prevention. Prereq.: PHYTH 703.

*808. Physical Therapy and Human Development. Principles of medical, surgical and physical therapy interventions. Emphasis on pediatric and geriatric armatomical, pathophysiological and biomechanical changes, and psychosocial functions and conditions. Prereq.: PHYTH 703. 4 q.h.

*812. Physical Therapy Research Methods. Concepts, methods, and techniques of research in the investigation of physical therapy problems. Prereq.: PHYTH 700. 4 q.h.

814. Physical Therapy Research Project. Individual study or research of a special problem or issue related to physical therapy culminating in a formal poster presentation that follows the American Physical Therapy Association format. Prereq.: PHYTH 812.

*822. Physical Therapy Profession and Society. Prepares the student to meet the needs of the health care consumer by specifically addressing the role of the health care educator's use of analysis, synthesis, and the application of the teaching - learning process. Prereq.: PHYTH 700 and 790. 3 q.h.

823. Clinical Education 2. Clinical application of appropriate physical therapy assessment, treatment skills and procedures under the supervision of a licensed physical therapist(s) in an assigned rehabilitation center or long-term care facility. Four hundred clinical hours. Prereq.: PHYTH 721 and permission of Academic Coordinator of Clinical Education.

824. Clinical Education 3. Terminal clinical application of appropriate physical therapy assessment, treatment skills, and procedures in an assigned clinical setting under the supervision of a licensed physical therapist(s). Primary placement to satisfy student's competencies; additional placement can occur in a non-traditional or specialty area. Four hundred clinical hours. Prereq.: PHYTH 823 and permission from Academic Coordinator of Clinical Education.

830. Applied Physical Therapy. Discussion and analysis of principles and techniques relating to physical therapy management of musculoskeletal diseases/disorders based on normal function; assessment and therapeutic interventions for treatment of movement dysfunctions and related pathophysiologies. To be taken concurrently with PHYTH 830L. Prereq.: PHYTH 703, and 702, and 702L.

*830L. Applied Physical Therapy 1 Lab. Application and discussion of techniques designed to rehabilitate or minimize the effects of disease, trauma or dysfunction of the musculoskeletal system; emphasis on postural correction, relaxation, joint mobilization, strengthening, endurance training, and functional activities. Four hours of laboratory a week. To be taken concurrently with PHYTH 830. Prereq.: PHYTH 702 and 702L, and 703. 2 q.h.

831. Applied Physical Therapy 2. Discussion and analysis of principles and techniques relating to the physical therapy management of neuromuscular disorders/dysfunctions; theories of motor control, normal and abnormal movement, client assessment and therapeutic interventions. To be taken concurrently with PHYTH 831L. Prereq.: PHYTH 830 and 830L.

3 q.h.

*831L. Applied Physical Therapy 2 Lab. Application and discussion of techniques designed to rehabilitate or minimize the effects of disease, developmental abnormalities, trauma or dysfunction of the neuromuscular system including traumatic brain injury, CVA and spinal cord injury. Four hours of laboratory a week. To be taken concurrently with PHYTH 831. Prereq.: PHYTH 830 and 830L.

2 q.h.

*833. Integrated Physical Therapy Special Topics. Students are facilitated through the group process by a team of instructors, to broaden their knowledge base in ar eas affecting the delivery of physical therapy. Specific areas of focus: physical therapy administration, clinical practice, research, and education. Prereq.: PHYTH 790.

*845. Physical Therapy Management. A discussion of management principles in physical therapy practice with emphasis on managerial skills, personnel, finance, reimbursement and documentation, planning, marketing, law and ethics, practice opportunities, and the health care delivery system. Prereq.: PHYTH 720 and 790. 4 q.h.

POLIT—POLITICAL SCIENCE

Lower-Division Courses

550. Elements of Politics. An analytic approach to the study of politics with illustrations drawn from a variety of political systems. 4 q.h.

604. American Government. Theories and processes of American Constitutional government with emphasis on the Constitution, civil rights, and governmental institutions. 4 q.h.

605. American Politics. American politics and policy making. Topics include federalism, elections, and political parties. 4 q.h.

640. Comparative Government. A detailed examination, using the case study approach, of institutional structure, political processes, and public policy in selected foreign political systems. Prereq.: POLIT 550 or 604 or 605.

660. International Relations. A detailed examination of theoretical and practical issues in contemporary international politics, law, organization and economic relations. Prereq.: POLIT 550 or 604 or 605. 4 q.h.

Upper-Division Courses

700. American Executive. An examination of the role of the chief executive officer within the governmental framework. The offices of mayor and governor are treated, but primary emphasis is on critical evaluation of the American Presidency. Prereq.: POLIT 604 or 605.

701. American Legislative Process. An examination of the lawmaking function. Attention is focused on the United States Congress, with limited consideration of state and local government legislative practices. Prereq.: POLIT 604 or 605. 4 q.h.

702. American Judicial Process. The American judicial system, its institutional development and its role in policy determination, as evidenced in leading Supreme Court decisions. Limited attention is given the state judicial systems. Prereq.: POLIT 604 or 605.

703. American Constitutional Law. An inquiry into constitutional interpretation by the Supreme Court based on examination of leading cases, with particular attention to questions of federalism, executive power, civil liberties, and economic regulation. Prereq.: POLIT 702. 4 q.h.

- 704. American Political Parties. A descriptive analysis of the role of political parties in a democratic society, with emphasis on development of a theory of party, an examination of the history and characteristics of the American party system, and a quantitatively structured description of the national electorate. Prereq.: POLIT 604 or 605.
- 706. Minority Group Politics. The politics of minority groups within American society in terms of organization, behavior, objectives, and relative influence and power. The politics of Black America are given particular attention. Prereq.: POLIT 604 or 605 or BLKST 600.
- 707. Interest Group Politics. The politics of special interests within American society in terms of organization, behavior, objectives, and relative influence and power. Interests concerned primarily with governmental economic policy are given special attention. Prereq.: POLIT 604 or 605. 3 q.h.
- *712. *Political Behavior.* An introduction to the main theories and concepts of the field, including the use of quantitative analysis to measure and describe the causes of political behavior. Prereq.: POLIT 550 or 604 or 605.
- *714. Public Opinion. A descriptive and quantitative analysis of public opinion in terms of its origin and location, content, interpretation and effects, within the American political system. Included is a practicum in opinion polling, requiring field collection of data, statistical analysis, and evaluative summary. Prereq.: POLIT 550 or 604 or 605. 4 q.h.
- 717. Health Care Policy. Seminar on the politics of health-policy formation and alternative proposals for the organization of health care delivery, manpower, and finance systems; interviews with administrative and planning personnel. Prereq.: POLIT 604 or 605, or admission to NEOUCOM-YSU, or junior standing in a health field.
- 718. American Public Policy and Policy Analysis. The formation, implementation and evaluation of contemporary American public policy. Prereq.: POLIT 604 or 605. 4 q.h.
- 720. Public Administration. A study of administrative organizations in American federal and state governments, with special attention to their role in the formulation and implementation of public policy as demonstrated in case studies. Prereq.: POLIT 604 or 605.
- 721. *Urban Government*. The structure and politics of urban government, with special attention to intergovernmental relationships. Prereq.: POLIT 604 or 605.
- 722. State and Local Government. The political processes and institutions of state and local governments, with special attention to Ohio government. Prereq.: POLIT 604 or 605.
- 740. Comparative Politics. The systematic study of the field of comparative politics, focusing on theo-

- ries of comparative politics applicable to all political systems. Prereq.: POLIT 640. 4 q.h.
- 741. Russian Politics. Study of politics in the Russian Federal Republic, emphasizing the crisis of Communist-era rule and the development of post-Communist reform politics. Prereq.: POLIT 640 or permission of instructor.
- 742. Politics and Economics of Developing Areas. A systematic study of political and economic development in the ""underdeveloped areas" of all the world. Prereq.: POLIT 640. 4 q.h.
- 744. European Government and Politics . A comparative study of governmental institutions and political behavior of selected Western European political systems. Prereq.: POLIT 640. 4 q.h.
- 745. Eastern European Government and Politics. A comparative examination of the political systems of Eastern Europe in the contemporary period. Emphasis on governmental institutions, the Communist Parky, and policy development. Prereq.: POLIT 640.
- 751. Latin American Governments and Politics. A comparative study of governmental institutions and political behavior of the Latin American Region including South America, Central America and the Caribbean Basin. Prereq.: POLIT 640. 4 q.h.
- 752. Government and Politics Asia. Prereq.: POLIT 640. 3 q.h.
- 760. International Politics. The principles underlying politics among nations and a study of their application to present international problems. Prereq.: POLIT 660. 4 q.h.
- 761. United States Foreign Policy. The formulation and execution of contemporary United States Foreign Policy, with attention to its basic principles in the 20th century. Prereq.: POLIT 660. 4 q.h.
- 762. Eastern European Foreign Affairs. Study of foreign policies of Russia and other Eastern European states, emphasizing issues of regional security and political economy. Prereq.: POLIT 660.
 - 4 q.h.
- 763. International Law. Principles of international law as they have developed through custom and usage, international agreement, and judicial decisions. Prereq.: POLIT 660. 4 q.h.
- 764. International Organization. A study of international organizations (including the United Nations) and regional organizations that foster political integration. Prereq.: POLIT 660, or junior standing and consent of instructor.
- 765. Comparative Foreign Policy. The factors that shape foreign policy, and a comparison of the foreign policies of selected nation states. Prereq.: POLIT 660. 4 q.h.
- 766. Latin-American Foreign Affairs. A systematic study of the inter-American system with special attention to the structure and function of the

Organization of American States, recent U.S. policy toward Latin America, and the foreign policies of major Latin-American countries. Prereq.: POLIT 751 or consent of instructor.

767. Asian Foreign Affairs. A study of the foreign policies of selected countries of Asia. Prereq.: POLIT 660, 752, or consent of instructor. 4 q.h.

768. International Conflict. An examination of the role of force in international politics. Special emphasis on theories of conflict, deterrence theory, technological developments in modern weaponry, and problems of arms control and disarmament. Prereq.: POLIT 660.

785. Political Thought 1. The development of western political thought from the time of classical Greece through Medieval Period. Among major figures treated: Plato, Aristotle, Cicero, Augustine, and Aquinas. Prereq.: 12 hours of political science or consent of instructor.

786. Political Thought 2. The development of western political thought from the Renaissance to the Modern Period. Among major figures treated: Machiavelli, Bodin, Hobbes, Locke, Rousseau, and Burke. Prereq.: 12 hours of political science or consent of instructor.

787. Political Thought 3. The development of western political thought of the nineteenth and twentieth centuries. Among major figures treated: Hegel, John Stuart Mill, Marx, and Lenin. Prereq.: 12 hours of political science or consent of instructor.

788. Political Thought 4. Western political thought of the contemporary period. Among major figures treated: Arendt, Kelsen, Maritain, Marcuse, Popper, Rawls and Strauss. Prereq.: 12 hours of political science or consent of instructor.

4 q.h.

800. Select Problems, American Government. This course may be repeated once. Prereq.: consent of instructor.

3-6 q.h.

820. Select Problems, Political Science Research Methodology. A study of the use of various research methodologies used in political science. A research paper applying one of the methodologies to various topics is required. This course may be repeated once. Prereq.: POLIT 712 or 714 or 718, or permission of instructor.

3-6 q.h.

840. Select Problems, Comparative Government. This course may be repeated once. Prereq.: Consent of instructor. 3-6 q.h.

860. Select Problems, International Relations. This course may be repeated once. Prereq.: Consent of instructor.

3-6 q.h.

880. Select Problems, Political Thought. This course may be repeated once. Prereq.: Consent of instructor.

3-6 q.h.

PREL—PUBLIC RELATIONS

710. Basic Public Relations. A study of the management function which investigates and evaluates public attitudes, policies, means, and techniques used in the field to earn public understanding and acceptance. Prereq.: ENGL 551 and junior standing.

4 a.h.

750. Public Relations Communication. The course examines the writing and production of news releases, brochures, annual reports, speeches, visuals, business publications, and letters from a public relations standpoint. Prereq.: PREL 710 and ENGL 622.

*835. Public Relations Campaigns. The application of fundamental theories and practices garnered in previous public relations courses to a specific public relations problem including the development of a complete public relations campaign. Prereq.: PREL 710 and 750.

850. Public Relations Internship. Practical business experience is available to students in advertising under the direction of University faculty members ,advertising department personnel in organizations, and public relations practitioners. The candidates will be employed a minimum of 20 hours per week during the quarter. Weekly campus conferences are required, and attendance at these conferences is mandatory. A written evaluation of the job experience is required by the student and the participating organization. Prereq.: PREL 710, 750 and 835. 2.75 Advertising and Public Relations average, 2.50 overall average, and approval of internship committee.

PSYCH—PSYCHOLOGY

Lower-Division Courses

502. Workshop in Applied Psychology . Study of selected contemporary psychology-related topics requiring no previous exposure to psychological theory. The Department announces the topic and determines the credit, based on frequency and duration of workshop meetings. May be repeated for a total of eight q.h. with change in topics. Not applicable for the Psychology major nor for the Social Studies area requirement.

505. Personal Adjustment. Based on a survey of psychological principles as they relate to the individual student, this course seeks to increase self-awareness, self-acceptance, and satisfying interpersonal relationships. Not applicable to the psychology major.

4 q.h.

560. General Psychology. An overview of psychology, its major sub-areas, and the activities of psychologists in each; basic principles governing the emergence, organization, and maintenance of behavior patterns. (Replaced PSYCH 501 and 601. Students who have credit for 501 or 601 may not take 560 for credit.)

- *613. Statistical Methods in Psychology 1. Basic methods of handling data, including frequency distributions, percentiles, and measures of central tendency and dispersion; an understanding of correlation and use of graphic methods. Prereq.: C or better in PSYCH 560.
- 614. Statistical Methods in Psychology 2. A review of the basic principles of descriptive statistics including measures of central tendency, variability, and correlation followed by an introduction to inferential statistics including z and t tests, Chi Square, and analysis of variance. Prereq.: C or better in PSYCH 613.
- *615. Introduction to Experimental Psychology. The application of scientific methodology to problems in psychology. An introduction to the apparati, methods, and techniques with selected experiments to acquaint the student with basic principles. Prereq.: C or better in PSYCH 614. 4 q.h.
- *616. Research Design and Statistical Analysis 1. An introduction to scientific methodology in psychology. Topics will include methods for obtaining data, understanding journal articles, and the basics of research design. Prereq.: C or better in PSYCH 560.
- *617. Research Design and Statistical Analysis 2. The foundations of statistical analysis. Topics will include statistical notation, probability, sampling distributions, correlations, and regression. Prereq.: C or better in PSYCH 616.
- *618. Research Design and Statistical Analysis 3. An extension of statistical analysis to multiple group designs and a continuation of the analysis of psychological research through readings, demonstrations, and experiments. A research project will be required. Prereq.: C or better in PSYCH 617. 4 q.h.
- 620. Woman: A Psychological Study. A systematic exploration of the psychology of woman including questions of her social and personality development in terms of institutional, interpersonal, and intrapersonal factors. Woman will be surveyed in her many roles such as mother, sexual object, consumer, worker, and creator. Prereq.: PSYCH 560.

4 a.h.

692. Human Sexuality. An interdisciplinary approach to the study of human sexuality. Holistic approach dealing with questions that concern the college student of today. Includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Factual information will be given in the areas of physiological reproduction, contraception, sexually transmitted disease, sexual dysfunctions, techniques, and response. Listed also as BIOL 692, HSC 692, and SOCIO 692. Prereq.: HPES 590. Does not count toward general university requirements. 4 q.h.

Upper-Division Courses

- 700. Social Psychology. A consideration of underlying psychological principles that give rise to the concept of self in society; includes such topics as interactions, social-cultural reality, group norms, the crowd, public opinion, and propaganda. Prereq.: PSYCH 560 or SOCIO 600.
- 701. Introduction to Learning. Concepts basic to learning; the role of reinforcement, and techniques, such as operant conditioning, that utilize it. Applicable to the psychology major only with permission of the chair. Prereq.: PSYCH 560. 3 q.h.
- 702. Abnormal Psychology. Patterns of deviant behavior, including current systems of classification; classic syndromes; the nature and trend of major maladjustments; possible causative factors; and methods of prevention and treatment. Prereq.: PSYCH 560.
- 704. Conflict Resolution. Social psychological research and theory concerned with the definition, escalation, maintenance, and deescalation of social conflict. Topics to be addressed include integrative bargaining, mediation, coalition formation, distributive and procedural justice, and conflict gaming literature. Prereq.: PSYCH 700 or consent of instructor.
- 707. Psychology of Marriage and Family Relations. Psychological factors contributing to marital success and family stability: an examination of courtship, marriage, child-and-family relations, sexual relations, and mental hygiene. Prereq.: PSYCH 560. 4 q.h.
- 709. Psychology of Education. Principles of psychology as applied to the educational process, including characteristics of the individual learner, the classroom, the instructor, methods and techniques, and other factors in the learning process. Prereq.: PSYCH 560. 4 q.h.
- 711. Applications of Psychology to the Work Setting. An introduction to applied psychology including topics in Industrial/Organizational psychology, engineering psychology, and consumer behavior. Not applicable to the major in Psychology. Prereq.: PSYCH 560. 4 q.h.
- 712. Survey of Industrial/Organizational Psychology: Principles of psychology applied to business and industry with emphasis upon both personnel and organizational behavior topics including job analysis, selection, performance appraisal, organizational development, job satisfaction, motivation, and leadership. Prereq.: PSYCH 613 or PSYCH 617 or equivalent.
- 720. Psychological Theory Workshop. Selected psychosocial problems and the application of psychological principles and theories to their solution. Topic and credit hours to be announced in Schedule of Classes when course is offered. May be repeated for a maximum of 12 q.h. with different

course content. Only four q.h. can be applied to the University Social Studies area requirement. Four q.h. can be applied to the Psychology major without permission of the department chair. Prereq.: PSYCH 560.

*724. Advanced Statistical Methods in Psychology: A continuation of inferential statistics: complex analysis of variance and non-parametric statistics; additional study of special correlational techniques and concepts of regression and prediction. Recommended for the student preparing to seek an advanced degree. Prereq.: C or better in PSYCH 614 or 618.

734. Applied Behavioral Analysis. Extension of the results of laboratory findings to human behavior: development, maintenance, and extinction of behaviors, in institutional, industrial, home, and educational settings. Prereq.: PSYCH 560 or permission of instructor.

735. Psychology and Group Dynamics. A historical survey and review of the group dynamics in psychology starting with the originator, Kurt Lewin, and including a discussion of the major theoretical works, research, and application to individual behavior. Prereq.: PSYCH 613 or 616, and 700. 4 q.h.

745. The Minority Individual. Psychological research on the intrapersonal, interpersonal, and intergroup dynamics of being labeled a minority individual as the result of one's race, ethnicity, religion, or gender. The behavioral effects of minority group membership and its impact on the relationship between the individual and the society. Prereq.: PSYCH 700, and 755 or 756 or 757.

748. Stress: Theoretical and Clinical Models . Stress theories, concepts and models including theoretical and empirical research on the role of stress in physical and mental illnesses. Prereq.: PSYCH 700 or 702, or permission of the instructor. 4 q.h.

755. Developmental Psychology 1 (Child). A study of human development from conception to puberty. Stresses the interaction between innate factors and experience in shaping behavior. Prereq.: PSYCH 560. 4 q.h.

755H. Developmental Psychology I (Child)-Honors. A rigorous study of human development from conception to puberty, requiring extensive library research and written reports. Stresses the influence of family dynamics on the development of personality and the impact of experience in shaping behavior, as well as discussing the influence of innate predisposition. Especially recommended for psychology majors and nontraditional students experienced with children. Prereq.: Sophomore standing, PSYCH 560, and eligibility for University honors program; or consent of the instructor. 4 q.h.

756. Developmental Psychology 2 (Adolescent).
A study of human development from puberty to adulthood. Prereq.: PSYCH 560. 4 q.h.

757. Developmental Psychology 3 (Adult). A study of human development from adulthood through old age. Prereq.: PSYCH 560. 4 q.h.

*760. Perception. Theories and experimental evidence on how environmental, physiological, and personal factors influence the reception, organization, and interpretation of sensory input. Prereq.: PSYCH 615 or 618.

761. Cognition. Experimental methods, research findings, and current theories concerned with human cognitive processes. The information-processing approach, focusing on how information is transformed, stored, manipulated, and retrieved will be emphasized. Topics include attention, pattern recognition and categorization, memory, and language. Concurrent: PSYCH 761L. Prereq.: PSYCH 615 or PSYCH 618.

*761L. Cognition Laboratory. Laboratory demonstrations and experiments using research techniques in cognition. Three hours per week. Concurrent: PSYCH 761. 1 q.h.

762. Verbal Learning and Memory. This course provides an overview of problems, methods, experimental findings, and current and classical theories stemming from research on verbal learning and the temporary and long-range retention of that learning. Prereq.: PSYCH 615 or 618.

763. Comparative Psychology. The variety of behaviors within the animal kingdom. Prereq.: PSYCH 615 or 618 or consent of instructor. 4 q.h.

764. Psycholinguistics. An overview of language production, use and comprehension including the biological basis of speech and language, language development, social aspects of language and bilingualism. Concurrent: PSYCH 764L. Prereq.: PSYCH 615 or PSYCH 618.

*764L. Psycholinguistics Laboratory. Research techniques in basic and applied psycholinguistics. Three hours per week. Concurrent: PSYCH 764.

1 q.h.

765. Experimental Social Psychology. Problems, principles, methods, and techniques of experimental social psychology. Concurrent: PSYCH 765L. Prereq.: PSYCH 615 or PSYCH 618; and 700. 3 q.h.

*765L. Experimental Social Psychology Laboratory. Field and laboratory work culminating in the presentation of an individual project. Six hours per week. Concurrent: PSYCH 765. 2 q.h.

770. Individual Study. The individual study of a special problem, or a review of the literature relating to a specific psychological problem or issue. A written report is required, one copy of which will remain on file in the department. May be repeated for a maximum of six hours with different problems. Prereq.: Consent of the instructor the student selects.

775. Cross-cultural Developmental Psychology. Similarities and differences in psychological development in various cultural and national groups. Prereq.: psych 755 or PSYCH 756. 4 q.h.

777. Cross-Cultural Social Psychology . A psychological examination of the impact of culture on individual social behavior as applied to topics such as attribution, aggression, and group dynamics. Prereq.: A minimum of 20 hours of psychology including PSYCH 700 or consent of the instructor.

4 q.h.

780. Psychological Aspects of Disease and Death. The primary factors affecting an individual's attitudes toward illness, bereavement, and mortality; the psychological adjustments necessitated by physical illness or bereavement, appropriate counseling methods. Prereq.: PSYCH 560.

785H. Honors Seminar in Psychology. Study of selected topics within psychology suitable to the honors program. Prereq.: Admission to the Psychology Honors Program, permit required.

790. Field Work in Psychology. Supervised placement with a community agency or organization, under direction of a psychologist, social worker, psychiatrist, or other mental health or educational professional, to attain personal growth with respect to some area of psychology in which the student has a special interest, and to make classwork more meaningful and relevant. The student must write a paper integrating work experience with background reading, and is rated by the supervisors in situ. A maximum of three q.h. may be applied to the Psychology major. One q.h. credit is given for each three hours/week of field work for 10 weeks of the quarter. May be repeated up to six q.h. credit. Prereq .: 12 hours in psychology and permission of instruc-

800. Psychology of Learning . A study of the learning process with emphasis on factors such as reinforcement, discrimination, generalization, transfer, etc.; an introduction to modern learning theory. Prereq.: PSYCH 615 or 618 or consent of instructor.

4 q.h.

802. Personality. An investigation of the variables which determine personality. Normal patterns of behavior are discussed and consideration is given to the more prominent theories of personality. Prereq.: 20 hours of psychology.

805. Interviewing Techniques. The basic purposes, and problems of interviewing, including practicum and review. Prereq .: 20 hours of psychology or consent of instructor. 4 q.h.

806. Vocational Guidance. Techniques of vocational guidance and their application to high school and college students, vocational rehabilitation, and adults in general. Prereq.: 20 hours of psychology including PSYCH 840 or consent of instructor. 4 q.h.

807. Introduction to Counseling. The role of the pre-professional in helping the clinical and counseling psychologist; theories of adjustment; area re sources; referral; professional problems. Prereq.: Senior standing plus PSYCH 702 and 802 or consent of instructor. 4 q.h.

810. Psychophysiology and Behavioral Medicine. An introduction to the relationship between the psychological and physiological bases of behavior. Response systems, such as cardiovascular, respiratory, and gastrointestinal, are covered as well as application of principles, theories, and research to healthrelated behaviors. Prereq.: PSYCH 615 or 618 or consent of instructor. Concurrent: PSYCH 810L.

4 q.h.

*810L. Psychophysiology and Behavioral Medicine Laboratory. Measurement and research techniques in basic and applied psychophysiology. Three hours laboratory-discussion. Concurrent: PSYCH 810. 1 q.h.

815. Health Psychology. Psychosocial factors that affect the promotion and maintenance of health, as well as the prevention and treatment of illness. Prereq.: 20 hours in psychology or permission of instructor. 4 q.h.

828. Physiological Psychology. The structuralfunctional relationships of the various divisions of the neural system, their relationships to the organism as a whole, and their contributions to human behavior. Prereq.: PSYCH 615 or 618 or consent of instructor.

833. Principles of Operant Behavior. Experimental analysis of behavior from an operant viewpoint, emphasizing simple and complex schedules of reinforcement and stimulus control. Prereq. or concurrent: PSYCH 615 or 618. 4 q.h.

836. Psychology of the Exceptional Child: General. A survey of exceptionality including the orthopedically and physically handicapped, sensorially handicapped, socially and emotionally handicapped, and the intellectually exceptional. Prereq.: PSYCH 755 or 756 or consent of instructor. 3 q.h.

837. Psychology of the Exceptional Child: Retarded. A detailed investigation of the psychological characteristics of the mentally retarded and the disabled learner, on borderline, mild, and severe levels. Prereq.: PSYCH 755 or 756 or consent of instruc-

838. Psychology of the Exceptional Child: Gifted. A detailed investigation of the psychological characteristics of the gifted; problems of accommodation and adjustment of the gifted, the creative child. Prereq.: PSYCH 755 or 756 or consent of instructor.

*840. Psychological Measurement. Theories and principles of test construction, and an overview of psychological tests and questionnaires used in mental health, educational, and vocational settings. Prereq.: PSYCH 613 or 617 or consent of instructor.

841. *History of Psychology.* The development of scientific psychology, with major emphasis on trends since the mid-19th century. Prereq.: 12 q.h. in psychology.

845. Issues in Psychology. Issues and controversies in psychology both current and long-standing; a thorough review of ethical standards and obligations of the practitioner and/or teacher of psychology at the sub-professional, mid-professional, and full-professional levels. Prereq.: senior standing and consent of instructor.

850. Seminar. Major topics in psychology not covered in listed courses. Offered each quarter with a different topic. Applicable to the psychology major to the extent of three q.h. but may be repeated twice as elective hours. Prereq.: senior major in psychology, or consent of instructor.

3 q.h.

855. Infant Development. A detailed study of the processes influencing infant development, from behavior genetics to environmental factors; a review of current research on physical, perceptual and cognitive development. Prereq.: PSYCH 755. 4 q.h.

860. Motivation. Classical and contemporary theories of motivation. Overview of research and theory on the interactive role of biological, learned, and cognitive components in motivation of human behavior, including emotion, need for achievement, affiliation and power. Prereq.: PSYCH 615 or 618.

4 q.h.

870. Environmental Psychology. The functional relationship between individual behavior and physical environment, and the relevance of this psychological interaction for environmental planning for the regional, city, neighborhood, and individual habitat. Prereq.: 20 hours of psychology including PSYCH 613 and 700 or consent of instructor.

4 q.h.

891H. Honors Thesis. The student will write a research paper (experimental or theoretical) on a topic approved by an honors thesis advisor and honor's thesis committee. May be repeated for a maximum of 6 q.h. Prereq.: Admission to the Psychology Honors Program.

R&SK—READING AND STUDY SKILLS

*510A. Intermediate College Reading and Study Skills. Reading and study skills—emphasis on study skills development (notetaking, reading the text, time management, test-taking, etc.), on the development of critical reading skills, and on the development of reading speed. Practice is given in developing these skills on college level texts. Open to students on the basis of Composition and Reading Placement Test results. Grading for FOUND 510A is A, B, C/NC.

*510B. Introduction to College Reading. Reading and study skills—emphasis primarily on basic vo-

cabulary and literal comprehension development. Extensive practice and application of main idea skills to college level texts. Open to students on the basis of Composition and Reading Placement Test results. Grading for FOUND 510B is A, B, C/NC.

4 q.h.

570. Advanced Critical Thinking and Reading. Designed to assist students with transition to the university setting. Students critically analyze the role of the learner, the purpose of education and university life in general. Emphasis is on the development of systematic information processing, critical thinking, and reading and learning strategies. Prereq.: 565 or Composition and Reading Placement Test results.

RELIG—RELIGIOUS STUDIES

Lower-Division Courses

501. Contemporary Religion and Society. A study of the essential components and characteristics of religion; the role religion plays in the life of the individual and contemporary society. Intended for first year students.

4 q.h.

601. Introduction to World Religions. A survey of the major world religions exploring their distinctive features and common threads. A study of their founders, systems of thought, symbols, and sacred literatures.

4 q.h.

605. Myth, Symbol and Ritual. An introduction to the nature and function of myth, symbol, and ritual in various religious and spiritual contexts.

4 q.h

617. Introduction to Eastern Religions. An introductory survey of several Eastern religions and their systems of thought, institutions, practices for realization of goals, ritual forms, and symbolism.

4 q.h.

621. Religion and Moral Issues. The relation of specific religious and moral issues to questions of personal conduct and social policy. 4 q.h.

Upper-Division Courses

708. African-American Religion. The development of African-American religion from the days of slavery to the present. Topics include black theology, contemporary religious expressions, and the role of religion in social change. Prereq.: Any 600-level religious studies course, or black studies 600 or 601, or consent of instructor.

713. Religion and American Public Life. A critical and historical study of the role of religion in American public life. Topics include the separation of church and state, American civil religion, and debates on slavery, war and peace, sex and marriage, and foreign policy. Prereq.: Four hours in religious studies or philosophy, or consent of instructor.

4 q.h.

- 720. Islam. The origin and development of Islam with attention to the Koran, the prophetic writings, and Islamic theology; topics include the Islamic world view, mysticism, sects, contemporary revivalist movements, and Black Muslims in America. Prereq.: Four hours of religious studies or philosophy, or consent of instructor.
- 722. Christianity: The origin and development of Christianity; examination of the life and teachings of Jesus; Christian theology, liturgy and symbolism; discussion of divisions of contemporary Christianity. Prereq.: Four hours of religious studies or philosophy, or consent of instructor.

 4 q.h.
- 724. Judaism. The origin and development of Judaism including the biblical legacy, the Talmud, medieval Judaic philosophy, mysticism, the symbolic and mythic structure of classical Judaism, and transformations of the classical tradition in modern times. Prereq.: Four hours of religious studies or philosophy, or consent of instructor.
- 726. Buddhism. The origin and development of Buddhism from Theravada Buddhism to India to Zen Buddhism in Japan. Its systems of thought, institutions, and meditational practices. Prereq.: Four hours of philosophy or religious studies, or consent of instructor.

 4 q.h.
- 731. Hebrew Bible. A critical analysis of the Hebrew Bible in terms of historical background, textual development, and religious and ethical themes. Prereq.: Four hours in religious studies or philosophy, or consent of instructor.
- 732. Jesus and the Gospels. The life and teachings of Jesus in their historical context. An examination of the ways in which Jesus is interpreted within the synoptic gospels. Prereq.: Four hours of philosophy or religious studies or consent of instructor.

 4 q.h.
- 751. Liberation Theologies and Revolutionary Change. The origin and development of Third World theologies in Africa, Latin America, and the Caribbean, and of Black and Hispanic theologies in America. The study of theology will be related to questions of underdevelopment, poverty and oppression. Prereq.: Four hours in religious studies or philosophy, or consent of instructor.

 4 q.h.
- 752. Feminist Theology and Spirituality. A consideration of the history, development, and major theories of feminist theology, including the role of women in religions. Prereq.: Four hours in religious studies or philosophy, or consent of instructor. 4 q.h.
- 756. Psychology of Religion. An introductory review of the more prominent types of personal religious experience, including elementary consideration of conscious and unconscious factors bringing them about. Prereq.: PSYCH 560 (replaces PSYCH 601). Listed also as PSYCH 703. 4 q.h.
- 758. Transpersonal Studies. A critical study of contemporary developments in consciousness research including such topics as near-death episodes, rein-

- carnation, nonordinary states of consciousness, and the implications of quantum theory. Prereq.: Four hours in religious studies or philosophy, or consent of instructor. 4 q.h.
- 814. Mysticism and Meditation. A critical exploration of the mystical traditions of Eastern and Western religions. Description and classification of meditative experiences; the stages of the mystical path; the resulting world view. Prereq.: Four hours at the 700 level in religious studies, or consent of instructor.

 4 q.h.
- 816. The Shaping of Modern Religious Thought. A selective consideration of critical issues that have shaped modern religious thought including such topics as evolution, existentialism, and psychoanalysis. Prereq.: Four hours at the 700 level in religious studies or philosophy, or consent of instructor.
- 818. Contemporary Theological Figures. A survey of contemporary theology and the formative influences in the lives of prominent theologians such as Barth, Rahner, Niebuhr, Cox, Cobb, Cone, Gutierrez, and Reuther. Prereq.: Four hours at the 700 level in religious studies or philosophy, or consent of instructor.

 4 q.h.
- 850. Seminar in Religious Studies. An in-depth study of a particular topic not covered in listed courses. Prereq.: Any two upper-division courses in either philosophy or religious studies, or consent of instructor.

 1-4 q.h.
- 851. Directed Readings in Religion. An in-depth study of a religious problem, movement, thinker, or the relation of religion to problems in other disciplines. Intended to be an independent study course with subject matter dependent upon approval of the faculty member and student. May be repeated once with a different topic. Total credit in religious studies 851 cannot exceed eight hours. Prereq.: Any upper division course in either religious studies or philosophy, or consent of instructor.
- 870. On-Site Studies in Religion. An on-site investigation of the beliefs and practices of a particular religion or sect through readings, lectures, interviews, and travel to locations vital to its origin or development. Prereq.: Junior standing or consent of department chair.

 2-12 q.h.
- 871. Senior Research Project. Research and writing of a paper on a religious studies topic, under the supervision of a full-time faculty member in consultation with a committee of at least two other members of the department. Students will demonstrate a grasp of an area of religious studies and the ability to write clearly and persuasively, to analyze views and arguments accurately and fairly, and to develop, formulate, and defend a coherent personal stance. Prereq.: Restricted to majors in religious studies with senior standing who have completed 32 q.h. of religious studies.

RESPC—RESPIRATORY CARE

*501. Introduction to Respiratory Care . The scope of the respiratory care field including role in health care industry, key personnel and organization, and basic therapeutic procedures. Three hours lecture and three hours lab. Prereq.: Acceptance into Respiratory Care Program. 4 q.h.

*502. Introduction to Respiratory Care Equipment. An in-depth study of major equipment classifications and their application to clinical respiratory care. Three hours lecture and three hours laboratory. Prereq.: RESPC 501.

*503. Respiratory Procedures 1. Appropriate use of selected respiratory care procedures. Three hours lecture and three hours lab. Prereq.: RESPC 502

4 q.h.

*520. Respiratory Care Assessment 1. Techniques used in evaluating patients with cardiopulmonary disorders. Two hours lecture and two hours lab. Prereq.: RESPC 501.

*609. Pediatric Respiratory Care. This course is designed to encompass the various components of neonatal and pediatric respiratory care. The study of disease entities, specialized equipment and its application to pediatric patients will be investigated. Two hours lecture and three hours lab. Prereg.: RESPC 601 or permission of instructor.

*610L. Cardio-Pulmonary Diagnostics Lab. Theory and practice in setting up and evaluating EKGs. Basic and advanced dysrhythmia identification and recommended pharmaceutical interventions will also be discussed. Experience with 12 lead EKGs, telemetry, and hardwire monitoring equipment is included. Three hours laboratory. Prereq.: RESPC 606 or permission of instructor.

*620. Respiratory Care Assessment 2. Advanced techniques in the assessment of cardiopulmonary disorders. Three hours lecture and two hours lab. Prereq.: RESPC 520. 4 q.h.

621. Cardiopulmonary Disease. Review of cardiopulmonary disorders encountered by respiratory care practitioners. Prereq.: RESPC 620 or permission

*699. Introduction to Respiratory Care Clinics. Orientation to hospital and department policies, including exposure to and practice with basic respiratory care procedures. Five hours a week in clinics. Prereq.: RESPC 621.

*700. Clinical Practice 1. Application of Respiratory Care modalities. Includes basic aerosols, 0 2, BPH, and lung inflation therapy and assessment. Ten hours a week. Prereq.: RESPC 699. 2 q.h.

*701. Respiratory Procedures 2. Airway management techniques, basic EKG recognition, and other critical care procedures. Two hours lecture and three hours lab. Prereq.: RESPC 620. 3 q.h.

*702. Clinical Practice 2. Application of respiratory care modalities. Includes basic procedures, PFT, and orientation to neonatal and adult critical care. Twenty-five hours a week. Prereq.: RESPC 700.

*708. Clinical Specialties for Respiratory Care. Fundamentals of hemodynamic monitoring, management of burn patients, and assessment of neurotrauma. Three hours lecture and three hours lab. Prereq.: RESPC 701.

*709. Neonatal/Pediatric Respiratory Care. Respiratory care applications in neonatal/pediatric settings. Three hours lecture and three hours laboratory. Prereq.: RESPC 701.

*710. Cardiopulmonary Neurodiagnostics. Theory and practice in setting up and evaluating advanced EKGs. Also included will be Holter and EEG evaluation. One hour lecture and two hours lab. Prereq.: RESPC 708 or permission of instructor.

*720. Mechanical Ventilation 1. Basic theory and application of mechanical ventilation in critical care areas. Two hours lecture and three hours lab. Prereq.: RESPC 708.

*725. Mechanical Ventilation 2. Advanced theory and application of mechanical ventilation. Includes home care ventilators. Three hours lecture and three hours lab. Prereq.: RESPC 720. 4 q.h.

730. Cardiopulmonary Stress Testing. A study of the basic physiologic response to exercise and the clinical significance of stress testing. Relationships of test results and disease process are also discussed. Prereq.: RESPC 708 or permission of instructor.

731. Respiratory Therapy Management. A study of the basic managerial process, organizational concepts, budgeting, quantitative planning, decisionmaking, and issues of control as they relate to the manager of a hospital-based respiratory care department. Prereq.: RESPC 725.

*750. Rehabilitation and Preventive Pulmonary Care. Demonstration of the multidisciplinary nature of a pulmonary rehabilitation program. Also included is the role of the respiratory care practitioner in preventive care activities. Prereq.: RESPC 701.

3 q.h.

*760. Clinical Practice 3. Application of respiratory care modalities. Includes critical care skills, advanced assessment and diagnostics for pediatric and adult patients. Twenty hours a week. Prereq.: RESPC 702. 4 q.h.

*825. Clinical Practice 4. Application of respiratory care modalities. Includes critical care skills and long-term ventilator care in skilled nursing facilities. Twenty hours a week. Prereq.: RESPC 760.

4 q.h.

*826. Clinical Practice 5. Application of respiratory care modalities. Includes specialty rotations

with cardiopulmonary diagnostics, home care companies and public health agencies. Fifteen hours a week. Prereq.: RESPC 825. 3 q.h.

831. Pulmonary Case Management. Pathology as it relates to care of patients with pulmonary-related disorders. Prereq.: RESPC 725. 4 q.h.

SCWK—SOCIAL WORK

Lower-Division Courses

*620. Introduction to Social Work. A general overview of the development, philosophy, and values of the profession of social work from a historical viewpoint, with emphasis on current roles, interventions, trends, and issues. Representative social workers serve as guest lecturers. Prereq.: SOCIO 500.

4 q.1

- 622. Social Work Processes. Addresses the full range of communication skills in systems of all sizes for professional social work practice. Includes principles of effective communication, functions and purposes of communication and the roles of social workers. Arranged volunteer experience required. Four hours lecture and four hours of field. Prereq.: SOCWK 620.
- 641. American Social Welfare. Overview of the history and evolution of social welfare programs and services in America. Emphasis on the identification and interrelationship of social values and structures, political factors, and economic conditions on resource allocation, including meeting the needs of special populations. Prereq.: SOCWK 620.
- 642. Human Behavior and the Social Environment for Social Workers 1. A general social systems approach as a conceptual framework to the understanding of culture and society, communities, organizations, groups, families, and individuals as they develop over the life span. Application of theory and research to social work. Prereq.: BIOL 551, SOCWK 620, and PSYCH 560.
- 644. Human Behavior and the Social Environment for Social Workers 2. Continued application of theory and social research to life span development with emphasis on issues of race, gender, and sexual preference. Prereq.: SOCWK 642. 4 q.h.
- 692. Human Sexuality. An interdisciplinary approach to the study of human sexuality. This holistic approach includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Covers physiological reproduction, contraception, venereal disease, sexual dysfunctions, techniques, and response. Listed also as BIOL 692, HSC 692, and PSYCH 692. Prereq.: HPES 590. Does not count toward University general requirements.
- 695. Applied Social Work. A practicum in human services agencies for the Social Services Technology major. The student must spend 300 hours in an

agency for a total of eight hours credit over one or two quarters and attend a weekly seminar. Prereq.: completion of all courses for the two-year Social Services Technology Program. 4-8 q.h.

Upper-Division Courses

- 718. Human Behavior and the Social Environment for Social Workers 3. The ecological model as applied to client systems of all sizes. Biological, psycho-social and cultural perspectives are integrated for application to practice. Prereq.: SCWK 644 and BIOL 552.
- 719. Health Care Systems. A sociological analysis of the roles of the physician, the nurse, the social worker, and paramedical personnel in a variety of settings with attention to federal programs as related to local systems. Lectures and field work. Prereq.: SCWK 620, or admission to the NEOUCOM-YSU program.
- 722. Social Work Methods 1. Overview of problem solving strategies with client systems of varying sizes using the systems perspective. Generalist practice methods and skills are emphasized including exploration and data gathering, differential assessment and planning, goal setting, client-system contracting, interviewing, skills, intervention strategies, and evaluation and termination. Practice issues with women and minorities are also studied. Prereq.: SCWK 622, 641, and 644.
- 726. The African American Family. An empirical study of the African American family: its origins and the factors of class, economics, politics, religion, education, and law that have affected the pattern of its functional and social behavior. Prereq.: BLKST 600 or SOCIO 500.
- 727. The African American Community. The African American community's uniqueness resulting from its experience in U.S. society. Population, cultural forms, and institutional structures are explored in terms of this uniqueness and in relationship to social and physical survival functions. Analysis of the effects of the dominant social system on the African American community. Prereq.: BLKST 600 or SOCIO 500.
- 728. Social Services for Children. Social welfare agencies and services developed by communities for the care and training of children. Development of a conceptual framework for understanding the issues, problems, and policies in children's services. Prereq.: SCWK 620.
- 730. Social Services and the Aged. An empirical and analytical base for understanding the policies, problems, and trends in services for the aged. Prereq.: SCWK 620.
- 731. Social Services and the Disabled. Problems arising from or related to illness and disability; adjustment of disabled persons. General interventive techniques for working with the disabled; recent research and treatment innovations. Prereq.: SCWK 620.

736. Social Work Methods 2. In-depth analysis of problem solving strategies and skills in working with individuals. Theory and research relating to practice will be examined. Social work purpose, functions, and values are addressed from the systems perspective. Prereq.: SCWK 722. 4 q.h.

737. Social Work Methods 3. In-depth analysis of problem solving strategies and skills in working with families and small groups. Theory and research relating to practice will be examined. Social Work purpose, function, and values are addressed from the systems perspective. Prereq.: SCWK 736.

4 q.h.

*750. Analysis of Social Work Practice Data. Techniques of data description and introduction to analytical methods used to evaluate service delivery at all levels of social work practice. Prereq.: SCWK 722.

4 q.h.

*760. Research Methods for Social Workers. Quantitative and qualitative research methodologies for building knowledge for social work practice. Systematic evaluation of outcomes, theoretical bases, relevant technological advances, and ethical standards. Prereq.: SCWK 750. 5 q.h.

820. Social Policy. Review of the programs, structure, and functions of social services including historical development and social, political, and economic issues. Application of scientific method to analyze and develop social work policies designed to achieve social work goals and purposes. Prereq.: SCWK 641 and two required policy courses. 4 q.h.

*822. Social Work Methods 4. In-depth analysis of problem solving strategies and skills in working with organizations and communities. Theory and research relating to practice will be examined. Social work purpose, functions, and values are addressed from the systems perspective. Prereq: SCWK 737.

823. Cultural Diversity in Social Work Practice. Emphasis is on understanding the experiences, beliefs, and inherent problems of racial and ethnic minority groups. Focuses also on populations distinguished by socioeconomic status, gender, age, sexual orientation, religion, and physical or mental disability. Application of theories, differential assessment, and intervention skills necessary for effective social work practice. Prereq.: SCWK 822.

4 q.h.

825. Field Work in Social Services. Professionally supervised practice in approved social agencies. The student must spend 162 hours per quarter in an agency for each 6 hours credit. Must be taken 3 consecutive quarters for a total of 18 credit hours. Concurrent: SCWK 826. Prereq.: Completion of all courses for social work major.

6 q.h.

826. Integrated Field Work Seminar. Consolidates learning experience of the social work student enrolled in field work; provides a synthesis of social work theory and knowledge. Must be taken three

times for the baccalaureate degree for a total of six credit hours. Concurrent: SCWK 825. Prereq.: Completion of all courses for social work major.

2 q.h.

850. Interventions With Families. The analysis of major social work processes applied to family system characteristics, observed in functional and dysfunctional families. Illustrated by family case situations typically seen within various types of social agencies. Will include role-playing and case discussion. Prereq.: SCWK 737.

851. Family Theories in Social Work. A comparison of major conceptual family theories in social work practice. Rationale for the selection and application of a specific theory. Prereq.: SCWK 737.

4 q.h.

860. Seminar Special Topics in Social Work. Study of selected topics in social work theory, methods and research. May be taken for credit three times with different topics. Prereq.: Junior standing or permission of instructor.

4 q.h.

SEDUC—SECONDARY EDUCATION PROGRAMS

Upper-Division Courses

(Open only to students who have been admitted to upper-division status in the College of Education.)

700. Foundations of Reading in the Secondary School. A study of the rationale, principles, and techniques of improving the reading skills of secondary school students, including a survey of specialized reading materials in various subject fields. The course is required for all secondary education students, except English and Comprehensive Communication majors, who take EMCE 883 instead. Prereq.: Must be taken concurrent with SEDUC 704.

704. Professional Laboratory Experiences: High School. Observational and participatory experiences under the direction of regular high school teachers and administrative personnel. Students work as "teachers' aides" in assigned schools for one full school day (or two half-days) each week. Minimum time must be at least six hours weekly, but the full school time involved in two half-days or one full day must be met even if it exceeds six hours. In addition, one hour of campus conference is required weekly. Course should be scheduled during the first quarter following admission to the College of Education and should precede SEDUC 706. Required of all regular high school and special teaching certificate candidates. Grading is CR/NC. Prereq .: Admission to upper-division status in the College of Education. 3 q.h.

*706. Principles of High School Teaching . Motivating, instructing, and managing classes with students of varying cultural and ability backgrounds. Working with disruptive students. Rights and responsibilities of teachers and students. Analysis of classroom behavior. Secondary school curriculum. Taken concurrently with SEDUC 706L. Prereq.: SECUD 704.

706L. Principles of High School Teaching Lab. A 90-hour set of clinical experiences in classroom teaching, including on-campus activities such as microteaching, reflective teaching, peer teaching, simulation, role playing, tutoring, and protocols as well as field activities in local secondary schools. Must be taken concurrently with SEDUC 706. Prereq.: SEDUC 704 (not required of P.E. majors).

3 q.h.

*800B. Techniques of Teaching Basic Business Subjects. Includes demonstration and practice of upto-date techniques. Prereq.: Junior standing, HMEC 780, BIS 706, ECON 621. 2 q.h.

800C. Special Methods: Speech Communication. Exploration of the content and methodology involved in the handling of traditional speech subjects. Emphasis on the identification of core concepts, planning, instructional strategies, and evaluation. Prereq.: SEDUC 706/706L unless taken concurrently with consent of instructor. Same as Speech Education 800C.

3 q.h.

*800D. Techniques of Teaching Accounting and Data Processing. Includes demonstration and practice of up-to-date techniques. Prereq.: Junior standing, BIS 710, ACCTG 606.

*800E. Special Methods-English. A study of the problems involved in the teaching of English. Observation of teaching in the secondary schools, reports, and term paper may be required. This course is prerequisite to SEDUC 842, Student Teaching. Prereq. or concurrent with permission of instructor: SEDUC 706, 706L, and senior standing. 3 q.h.

*800G. Reflective Teaching Methods for Adolescent Learning. Learning and demonstrating reflective teaching methods for adolescent learning within the student's content area, including: lesson and unit planning, execution of teaching/learning activities, authentic assessment, purposeful use of instructional technology, internet resources, educational web page development, and overall classroom management for effective teaching. Peer teaching and computer lab experience included. Prereq.: FOUND 702 (771), 708, SEDUC 704, 706/706L.

4 q.h.

*800M. Special Methods–Mathematics. A study of the problems involved in the teaching of mathematics. Observation of teaching in the secondary schools, reports, and term paper may be required. This course is prerequisite to SEDUC 842, Student Teaching. Prereq.: FOUND 702, 708 and 710, SEDUC 704, 706, and 706L.

800P. Techniques of Teaching Office Practice and Office Machines. Includes demonstration and practice of up-to-date techniques. Prereq.: Junior standing, BIS 510, 513, 615, 620, 820. 2 q.h.

*800S. Special Methods–Social Studies. A study of the problems involved in the teaching of secondary social studies. Observation of teaching in secondary schools, reports, and term paper may be required. Prereq.: SEDUC 704, 706, 706L and senior standing.

824. Techniques of Teaching K-12. Enables the prospective special subject K-12 teacher to learn instructional planning, strategy implementation, performance and achievement evaluation, and appropriate classroom management skills for use in elementary and middle school settings. Identical with EMCE 824. Prereq.: SEDUC 700 and 704. 706 and 706L recommended.

826. Teaching Intensive and Cooperative Business Education. Organization, administration, implementation, and evaluation of Intensive and Cooperative Business Education programs at the secondary and adult education levels. Selection, instruction, curriculum, and placement of vocational students. Same as BIS 826. Prereq.: SEDUC 706 and 706L.

827. Supervised Student Teaching: Language (K-12). Prereq.: SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710 or the equivalent method course(s) in the subject field; senior status and the approval of the Chair of the Department of Foreign Languages. Grading will be CR/NC. See requirements for Student Teaching under College of Education.

837. Supervised Student Teaching: Computer Science (K-12). Prereq.: SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710, or the equivalent method course(s) in the subject field; senior status and the approval of the Chair of the Department of Computer Science. Grading will be CR/NC. See requirements for Student Teaching under College of Education.

838. Supervised Student Teaching: Drama/Theatre (K-12). Prereq.: SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710, or the equivalent method course(s) in the subject field; senior status and the approval of the Chair of the Department of Communication and Theater. Grading will be CR/NC. See requirements for Student Teaching under College of Education.

842. Supervised Student Teaching: High School. Prereq.: Senior status and completion of SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710 or the equivalent methods course in the subject field; a grade of at least B in two-thirds of the minimum subject field requirements and professional education courses for certification with no subject field course grade in the minimum requirements below C; and the approval of the chair of the department

of the student's major. Grading will be CR/NC. See requirements for Student Teaching under College of Education.

1-15 q.h.

843. Supervised Student Teaching: Visual Art, Grades K-12. Prereq.: SEDUC 700, 704, 706, 706L, FOUND 702, 708, 710, ART 724, 760, 767, and 768, senior status and approval of the chair of the Art Department. Grading will be CR/NC. See requirements for Student Teaching under College of Education.

844. Supervised Student Teaching: Music, Grades K-12. Prereq.: SEDUC 700, 704, 706, 706L, FOUND 702, 708, 710, MUSIC 511, 715, 716/717, 815, and 823; senior status and approval of the director, Dana School of Music. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

845. Supervised Student Teaching: Health, Grades K-12. Prereq.: SEDUC 700, 704, 706, 706L, FOUND 702, 708, 710 (or HPES 860); HSC 680, 701, 721, 794, and 892; senior status and approval of the chair of the HSC Department. Grading will be CR/NC. See requirements for Student Teaching under College of Education.

846. Supervised Student Teaching: Physical Education, Grades K-12. Prereq.: SEDUC 700, 704, 706, FOUND 702, 708; HSC 680, HPES 750, 766, 767, 768, 780, 795, and 860; senior status and approval of the chair of the HPES Department. Grading will be CR/NC. See requirements for Student Teaching under College of Education.

880. Reading Applications in Content Areas. A study of the development of comprehension skills, word attack skills, study skills and related problems in the content areas from early childhood through adolescence. Preq.: Admission to COE upper-division status.

885. Teaching Strategies 1. Improving teaching skills of elementary and secondary in-service and pre-service teachers. Emphasis is on clarifying and extending concepts. Prereq.: Consent of instructor or junior standing.

886. Teaching Strategies 2 Improving teaching skills of elementary and secondary in-service and pre-service teachers. Emphasis is on interpreting data, developing valid conclusions based on inference, and extending such conclusions to generalizations. Prereq.: SEDUC 885.

887. Teaching Strategies 3. Improving teaching skills of elementary and secondary in-service and pre-service teachers. Emphasis is on helping students transfer or apply generalizations and learned knowledge to comparable situations. Prereq.: SEDUC 886.

891, 892, 893. Seminar in Secondary Education. Various topics of current interest in the secondary education area as selected by the staff. Prereq.: Admission to upper-division status in the College of Education or Graduate School.

1-6 q.h. (15 Maximum)

SOCIO-SOCIOLOGY

Lower-Division Courses

500. Fundamentals of Sociology. An introduction to the science of human societies and groups: analysis of the structures, functions, and processes that bring about changes in societies, groups, communities, classes, and institutions.

4 q.h.

590. Introduction to Women's Studies. Introduces students to key concepts, theoretical frameworks, and inter-disciplinary research drawn from current scholarship about women. The course includes cross-cultural and historical analyses but concentrates on major issues relevant to the status and roles of contemporary American women including an examination of the effects of sexism, racism, ethnicity, and class distinction. Does not count toward the Sociology major; does not fulfill the social science requirement. Prereq.: ENGL 550. 4 q.h.

600. Principles of Sociology. A continuation of Sociology 500 with greater emphasis on the major social institutions and their problem areas. Prereq.: SOCIO 500. 4 q.h.

601. Social Problems. A sociological overview of various contemporary social issues, analyzing significant discrepancies between standards of expectation and actual social behavior, and attempting to ascertain possible causes, and discuss trends and possible changes.

4 q.h.

630. Criminology. Study of the social context of crime in America. Review of historical theories offered in explanation of criminal behavior. Listed also as CRJUS 630. 4 q.h.

640. Women in Society. Attention will be paid to cross-cultural and historical issues, but the major focus will be on the contemporary status of women in the U.S. The effects of the political and economic institutions upon women, particularly the effect of stratification, gender roles, and the socialization process will be studied. Prereq.: SOCIO 500. 4 q.h.

Upper-Division Courses

700. Minority Groups. A survey of the origins and characteristics of ethnic and racial minority groups, with emphasis on the significance of membership in such a group for in-group, out-group, and community solidarity. Prereq.: SOCIO 500.

4 q.h.

*701. Social Statistics 1. Measurement and interpretation of social data by the use of descriptive techniques. Prereq.: SOCIO 500 or ANTHRO 602. Listed also as CRJUS 710.

*702. Social Statistics 2. Continuation of Sociology 701. The methods of probability theory as a basis for statistical inference, hypothesis testing, correlation, chi-square and variance analysis. Prereq.: SOCIO 701. Listed also as CRJUS 711. 4 q.h.

703. Aging and Society. A multidisciplinary introduction to studies in aging. This survey course examines the impact of population aging and its effect on the society at large. The individual aging processes as well as the social significance of aging are explored. Prereq.: SOCIO 600 or permission from instructor.

705. The Family. Family and kinship systems as a major institution; their development, functions, and relation to other basic institutions found in different cultures and social strata. Prereq.: SOCIO 500 or 602.

706. Industrial Sociology. The industrial social organizations and change processes in modern urban societies, particularly in America. The repercussions of technological change on social groups, viewed comparatively. Prereq.: SOCIO 500. 4 q.h.

707. Urban Sociology. A comparative study of cities of pre-industrial and industrial societies, historical and contemporary. The process of urbanization and changing urban structure and functions. Prereq.: SOCIO 500.

708. Political Sociology. The social conditions that affect government and politics and that may help to determine political order and regulate struggles for power; associations and movements leading to stability or change. Prereq.: SOCIO 500. 4 q.h.

709. Social Control. Means of control in primitive and advanced societies. The role of the family, school, church, clubs, economic institutions, government, the media, and movies. The modification of individual and group behavior by various social pressures. Prereq.: SOCIO 500. 4 q.h.

720. Applied Sociology. Uses of sociology in practical affairs, providing theory and data for public policy, institutional reform, social action programs, and social inventions. Contributions to architectural design, industrial engineering, community planning, and innovative legislation. Prereq.: SOCIO 500.

735. Juvenile Delinquency: Social and psychological factors underlying delinquency; the juvenile court and probation; treatment and preventive measures. Prereq.: SOCIO 500. Listed also as CRJUS 735.

4 a h

740. Complex Organization. Structures and processes of large-scale organizations: leadership, control techniques, tensions, bureaucratic pathologies, organizational change. Prereq.: SOCIO 500. 4 q.h.

741. Social Movements. An analysis of the role of social movements, intellectual criticism, and socioeconomic trends; study of the dynamics of change initiated outside of regular and institutionalized channels, including mobs and crowds. Prereq.: SOCIO 500. 4 q.h.

742. Small Group Processes. A study of small group behavior; influence, attitudes, and values of social microsystems. Prereq.: SOCIO 500. 4 q.h.

743. Social Stratification. A comparative analysis of social stratification systems with a major emphasis on modern Western societies. Prereq.: SOCIO 500.

4 q.h.

744. Social Deviance. Problems of drug abuse, sexual deviation, crime, and other forms of deviance. Theoretical approaches to deviant behavior; etiologies and methods of social control. Prereq.: SOCIO 500. 4 q.h.

745. Medical Sociology. Social attitudes toward illness. Cultural and social factors in disease definition of illness, and organization of the health professions and health facilities. Lectures and field work. Prereq.: SOCIO 500, or admission to the NEOUCOM-YSU program. 4 q.h.

749. History of Social Theory. The historical development of social theory from social philosophy, with emphasis on the scientific schools of thought of the 19th and early 20th centuries. Prereq.: SOCIO 600 or ANTHR 602.

*750. Research Methods. An introduction to methods employed in social research. Attention is given to the following: (1) the logic of sociological inquiry and the relationship between theory and methods (2) the various quantitative and qualitative methods (3) research design, data collection, organization, analysis, interpretation and application (4) the social, cultural, political, and ethical context of social research, and (5) computer skills employed in data analysis. Prereq.: SOCIO 701.

4 q.h

*751. Social Research. A seminar in social research wherein participants apply research methods in the theoretical and/or empirical investigation of a social issue and/or problem. Participants will be involved in all phases of the research process. Prereq.: SOCIO 701, 750.

752. Evaluation Research. An introduction to the field of evaluation research of social policy and programs. Attention is given to current procedures, concepts, and techniques as well as to the various social and ethical contexts in which they occur or in which they are used. Prereq.: SOCIO 701, 750, or permission from the instructor.

755. Theories of Gerontology. A review and critical analysis of current theories of the social aspects of aging, and their use in research. Prereq.: SOCIO 500.

756. Aging and Ethnicity. A study of aging in various American subcultures, noting differences in status/role systems, demographic distributions, life styles, methods of dealing with the aged, and related problems. Prereq.: SOCIO 500. 4 q.h.

757. Aging and Social Policy. An exploration and critical examination of the social policies and social systems which affect aging and retirement. The provisions outlined in the Older Americans Act, the Social Security Act, and other social policies to counteract ageism are examined and analyzed. Prereq.: SOCIO 500 or permission from instructor. 4 q.h.

759. Sociology of Dementia. The understanding of the nature, causes, symptoms, and social consequences of dementia. Attention is given to the status of aging, and to the status of those persons suffering from dementia in contemporary society. Prereq.: SOCIO 600.

761. Modern Sociological Theory. Analysis of key schools of present-day sociological theory. Prereq.: SOCIO 600 or 602. 4 q.h.

774. Comparative Community Studies. A comparative study of peasant society as a social type contrasted with primitive and industrial society; the impact of contact; problems of modernization; stability and conflict in developing cultures. Prereq.: SOCIO 500 or ANTHRO 602.

787. Population Movements. Trends in world population in their relation to history, migration, and urbanization. Human demography and ecology: various measurements of the size, density, and distribution of population as well as economic and social environments. Prereq.: Junior standing.

4 q.h

789. Human Beings and the Technological Society. An interdisciplinary critical examination of humankind in the modern technological society from the perspectives of social, engineering, and life science. The topics: (1) History of technology, (2) The World's available resources, (3) Population dynamics as they interact with nature and the human ecosystem. Prereq.: junior standing or consent of instructor. Listed also as CHEGR 789 and BIOL 789.

4 q.h.

798. Select Topics in Sociology. An in-depth examination of various sociological topics and issues, of both current and long-standing interest. May be taken two times if the topic is different. Prereq.: 4 hours of sociology or permission of instructor.

2-4 q.h.

800. Undergraduate Research. Research participation under the direction and guidance of a full-service faculty member. Designed to acquaint the advanced student with special research problems associated with various aspects of the discipline. May be repeated to a maximum of 6 q.h. Prereq.: Permission of instructor and 30 hours of sociology.

1-3 q.h.

803. Sociology of Aging. Use of the sociological frame of reference and the students' sociological imagination to examine the interrelationships between aging and society. The major social institutions such as the family, the state, religion, education, and the economy are examined as they relate to the elderly. Consideration of the period-cohortage controversy within sociological research. Prereq.: SOCIO 500 and SOCIO 703 or permission from instructor.

821. Internship in Sociology. Application of sociological knowledge in the work setting. Assist professionals in various settings such as social agencies, government, hospitals, nursing homes, correctional facilities, and industry. Prereq.: Junior standing and permission of internship advisor.

4-12 q.h.

898. Select Problems in Sociology and Anthropology. Readings in sociology and anthropology dealing with current problems in theory and methods. Credit is given according to the nature and extent of the problems and the readings. For students planning to enter graduate school. Prereq.: Departmental major in senior year. 1-5 q.h.

SOCSC—SOCIAL SCIENCE

Lower-Division Courses

510. Introduction to Social Science 1. An approach to the study of human society by integrating the general viewpoints of the various social science disciplines, focusing on the nature of culture and society as well as the basic institutions and processes which form the bases for social interaction. 4 q.h.

511. Introduction to Social Science 2. A continuation of Social Science 1 with a focus on the political and economic subsystems of society as they have developed and are conditioned by the culture and society of which they are an integral part. Prereq.: SOCSC 510.

SPED—SPECIAL EDUCATION

Upper-Division Courses

(Open only to students who have been admitted to upper-division status in the College of Education.)

730. Exceptional Learners in the Regular Classroom. Characteristics, adjustment problems, and special needs with emphasis upon educational solutions. The law and its implementation: placement, programming, due process, and resources available to the regular classroom teacher. This course is intended for non-special education majors. 2 q.h.

731. Intervention Strategies with Special Needs Children in Early Childhood. Development of teaching skills of the regular early childhood educator in meeting the intervention needs of young children with special needs (with disabilities, at-risk, and/or gifted) in inclusive classrooms and programs. Emphasis on classroom support for IEP/IFSP goals and objectives. Prereq.: PSYCH 755. 4 q.h.

802. Education of Exceptional Children. A survey of the problems and issues in the education of exceptional children and their characteristics and needs. Field observation required.

4 q.h.

828. Characteristics and Needs of Seriously Emotionally Disturbed Children and Youth. Instruction and curricula for use with troubled youth. Advanced behavior management interventions. To be taken concurrently with SPED 828L. Prereq.: SPED 835, 862. 4 q.h.

828L. Education of Children and Youth with Severe Behavior Disorders Lab . A sixty-hour clinical/field experience. Assessment of severe behavior disorders and development of intervention plans with children and youth in local intervention classrooms. Students are assigned to field sites 6-8 hours per week. To be taken concurrently with SPED 828. For students majoring in the moderate/intensive intervention program. Prereq.: SPED 835, 862. 3 q.h.

829. Supervised Student Teaching: Severe Behavior Handicapped Children. To be taken concurrently with SPED 869. Prereq.: FOUND 702, 708, 710, EMCE 705, 714, 715, 812, SPED 802, 828, 828L, 835, 852, 853, 862; senior status and approval of the chair of the Special Education Department. Grading will be CR/NC. See requirements for student teaching under College of Education.

831. Assessment and Referral in Early Childhood. Development of skills in referral and assessment techniques for the regular early childhood educator with emphasis on both informal and formal methods such as observation, authentic assessments, standardized measures and interviewing. Attention to children with disabilities and/or gifts and talents. Prereq.: Psych 755, SPED 731. 4 q.h.

833. Education of Child and Youth with Mild/ Moderate Disabilities: Mental Retardation. Description, classification, development and personal-social adjustment of mentally retarded individuals. Survey of community resources, service delivery systems, and the impact of current legislation. Prereq.: Admission to COE upper-division status.

4 q.h.

834. Education and Training of MSPR. Curriculum planning, teaching methods, and instructional materials for moderately, severely, and profoundly retarded, or developmentally disabled. To be taken concurrently with SPED 834L. Prereq.: SPED 802, 833.

834L. Practicum in Education and Training MSPR. Application of assessment, habilitation, and rehabilitation techniques in an education and/or vocational setting. Includes alternative modes of communication and advanced behavior management strategies including aggressive client training. To be taken concurrently with SPED 834. Prereq: SPED 802, 833.

835. Classroom Management for Exceptional Individuals. Management of the exceptional person's behavior; adaptations of the classroom environment to facilitate learning and personal social adjustment. Communicating effective management programs to parents. Prereq.: SPED 802. 4 q.h.

836. Characteristics and Needs of Exceptional Children and Youth with Moderate/Intensive Disabilities. Identification and intervention in critical

areas of development for individuals with moderate/intensive disabilities including autism. Developing objectives, planning and implementing adapted curriculum in consultation with interdisciplinary specialists. Field experience is required. Prereq.: Admission to COE upper-division status; SPED 833. 4 q.h.

839. Supervised Student Teaching: Moderate/Intensive Intervention Specialist. To be taken concurrently with SPED 869. Prereq.: FOUND 501, 702, 708, ASL 501, SPEECH 705, EMCE 705, 810, 812, 881, 882, SPED 802, 828, 828L, 833, 834, 834L, 835, 836, 851, 852, 853, 854, 863, 864, 866, 866L, 867. Grading will be CR/NC. See requirements for student teaching under College of Education.

6-15 q.h.

848. Supervised Student Teaching: Developmentally Handicapped Children. To be taken concurrently with SPED 869. Prereq.: FOUND 702, 708, 710, EMCE 705, 714, 715, 812, SPED 802, 833, 835, 851, 852, 853, senior status and approval of the chair of the Special Education Department. Grading will be CR/NC. See requirements for student teaching under College of Education.

849. Supervised Student Teaching: Specific Learning Disabled Children. To be taken concurrently with SPED 869. Prereq.: FOUND 702, 708, 710, EMCE 705, 715, 812, SPED 802, 835, 852, 853, 863, 866, senior status and approval of the chair of the Special Education Department. Grading will be CR/NC. See requirements for student teaching under College of Education.

851. Developing Personal and Social Growth of Exceptional Children and Youth. Effective teaching of interpersonal communication and social skills for children and youth with a wide variety of disabilities. Development of classroom climate and self-esteem. Prereq.: Admission to COE upper-division status; SPED 802, 833.

*852. Language Arts Methods in Special Education. Principles, practices, materials, and aids for teaching language arts in Special Education. Diagnostic and evaluation procedures; individual problems; techniques, curriculum units, guidance, planning; tutoring and participation. Prereq.: SPED 802, 863 or 833 and EMCE 812 or 813. Permit required through Department of Special Education. Outside field experience required.

*853. Arithmetic Methods in Special Education. Principles, practices, materials, and aids for teaching arithmetic in Special Education. Diagnostic and evaluation procedures; individualized instructional techniques; observation, tutoring, and participation. Prereq.: SPED 802, 833, 863; EMCE 713. Permit required through Department of Special Education. Outside field experience required.

*854. STEP Field Experience . Field application of principles of organization, curriculum and management of a special education classroom, part of 10-week STEP (Special Teacher Education Program).

Activities include IEP development, academic evaluation and instruction, behavior management, building self-esteem and a positive social climate, collaboration and parent conferencing. Prereq.: SPED 802, 863/833; EMCE 713, 812 or 813. Permit required through the Department of Special Education.

855. Transition Planning. Emphasis on lifelong career orientation and the development and implementation of a K-12 prevocational/vocational curriculum. Integration of practical experiences in the classroom, home, and community for transition services. Prereq.: Admission to COE upper-division status; SPED 802.

*858. Interview Concepts and Strategies in Early Childhood Special Education. Review and analysis of the methods by which young children construct knowledge about their physical, social, and intellectual worlds. Study of patterns of normal and atypical development from birth through age eight, as well as the development of appropriate models for effective intervention. Prereq.: PSYCH 755.

3 q.h.

862. Service Coordination, Collaboration, and Consultation for Intervention Specialists. Students learn self-awareness as they develop skills in communication, consultation and collaboration in the context of coordination of service delivery for children and youth with disabilities. Fostering cooperation among agencies and resources utilization. Sensitivity to individual and cultural differences. Prereq.: Admission to COE upper-division status.

3 q.h.

- 863. Characteristics and Needs of Children and Youths with Mild/Moderate Disabilities: Learning Disabilities. Description, classification, developmental, and academic and social adjustment of children with learning disabilities. Relates the contributions of diverse disciplines to theory and practice. A developmental approach to motor, perceptual, cognitive, language and social-emotional functioning within an educational context. Prereq.: Admission to COE upper-division status; SPED 802. 4 q.h.
- 864. Communication and Consultation Skills for the Intervention Specialist. Designed to enable teachers of exceptional individuals to gain the cooperation and involvement of professionals, parents, and children. Students will assume the role of child advocate and explore methods of facilitating educational placements and programming designed to best meet handicapped children's unique needs. Collaboration skills will be emphasized. Prereq.: Admission to the COE upper-division status, SPED 802.
- 865. Workshop in Special Education. Intensive study and related activities in one or more of the following special education curriculum areas: trainable mentally retarded, educable mentally retarded, learning disability/behavior disorder, multi-handicapped. May be repeated if content is different.

866. Assessment and Referral of Exceptional Children and Youth for the Intervention Specialist. Development of skills in referral and assessment techniques for the special educator in the areas of Mild/Moderate and Moderate/Intensive disabilities. Informal and formal methods such as observation, authentic assessments, standardized measures, and interviewing. Referral, initial and subsequent evaluation and assessment processes as annual review concerns. Prereq.: SPED 802. 4 q.h.

866L. Practicum in the Assessment and Referral of Exceptional Children and Youth for the Intervention Specialist. Application of referral and assessment skills through the review and use of various assessment instruments and techniques. Twenty hours clinical/field experiences are required. To be taken concurrently with SPED 866. Prereq.: SPED 802.

*867. Mild/Moderate Disabilities Practicum. Diagnostic procedures are used to develop a comprehensive assessment of a child's current functioning. Emphases are upon those areas explored in SPED 866. An individualized education program/case study will be developed and partially implemented. Prereq.: Admission to COE upper-division status; SPED 802, 835, 853, 863, 866, 866L, 868.

6 q.h.

- 868. Independent Study in Special Education. Individual work under special education staff guidance; curriculum development or special education areas; individual problems in community agencies or schools. Prereq.: SPED 802, 833 or 863, or equivalent. May be repeated to maximum of accumulative total of 6 q.h.
- 869. Student Teaching Seminar for Special Education. To be taken with student teaching. Applied behavior management and classroom environment as well as reflective teaching techniques. Daily lessons and the student teacher's interactions with children and youth, teachers and administrators. Prereq.: Admission to Student Teaching. See student teaching requirements.
- 870. Intervention and Remediation of Receptive/
 Expressive Language Dysfunctions. Theory and practice in the intervention and remediation of basic cognitive processes especially in areas of receptive and expressive language and cognitive skills for the intervention specialist. Prereq.: SPED 802, 833, 863, 866, 866L.
- *871. Characteristics and Needs of Gifted Children. Introduction to gifted education. An overview of the theoretical and research base for gifted education, including appropriate classroom environments, teacher qualifications, and support services to meet the diverse social, emotional, and intellectual needs of gifted children. Current program standards will be included. Prereq.: Admission to the College of Education.

*878. Teaching Gifted and Talented Students. Theory and organization of curriculum with design and integration of content subjects including strategies and identification of resources and materials. Prereq.: SPED 871. 4 q.h.

STAT—STATISTICS

Lower-Division Courses

*601. Introductory Statistics. A course designed for students from different disciplines who desire an introduction to statistical reasoning. Topics include collecting and summarizing data, concepts of randomness and sampling, statistical inference and reasoning, correlation and regression. Prereq.: MATH 504 or equivalent. 5 q.h.

*717. Statistical Methods. Probability and statistics designed for students majoring in the natural sciences. Topics include descriptive statistics, probability, estimation, testing hypotheses, analysis of variance and regression. Use of personal computers with computer software will be required. Credit will not be given for both STAT 601 and STAT 717. Prereq.: MATH 550 or equivalent.

Upper-Division Courses

*815. Applied Statistics. Applications of regression, survey sampling, analysis of variance, design and analysis of experiments, and related topics. Prereq.: either STAT 717 or both STAT 601 and MATH 645 or consent of instructor. 4 q.h.

*840. Statistical Computing. Computational methods used in statistics. Topics include generation and testing of random numbers, computer intensive methods, and simulation studies. Prereq.: STAT 601 or equivalent, and MATH 743, and CSIS 610 or equivalent, or consent of instructor. 4 q.h.

*846. Categorical Data Analysis. Discrete distributions, contingency table analysis, odds ratios, relative risk, logistic regression, hierarchical models. Prereq.: STAT 815 or MATH 841. 4 q.h.

847. Nonparametric Statistics. Nonparametric statistical inferences including tests of hypotheses for one-sample, two or more related or independent samples, dependence, goodness-of-fit, trend, and related topics. Prereq.: STAT 717 or equivalent or consent of instructor.

*849. Multivariate Statistical Analysis. The statistical analysis of multivariate observations. Topics include multivariate probability distribution theory, regression, analysis of variance and techniques in data analysis. Prereq.: MATH 725 and 841. 4 q.h.

895. Special Topics in Statistics. The study of a standard statistical topic in depth or the development of a special area of statistics. May be repeated with permission of the chair. Prereq.: permission of instructor.

2-5 q.h.

896. Statistical Project. Individualized study of a topic in statistics or its application. Includes the development of a special area of statistics or an original research project involving the application of statistical methods, culminating in a written report and an oral presentation. May be repeated once with the approval of the department chair. Prereq.: permission of instructor and department chair. 2 q.h.

STECH—SCHOOL OF TECHNOLOGY

*505. Elements of Engineering Technology. The role of the technician, technologist, and their relationships to the engineer; technical methods as applied to analysis, design, layout and testing; an introduction to BASIC programming on microcomputers; a study of the basic mathematical, scientific, computer, and communicative techniques as applied to the work of engineering technicians. Three hours lecture, three hours laboratory per week. Prereq. or concurrent: MATH 505.

615. Design Project. The student undertakes a project designed to utilize principal methods studied in previous courses. The subject of the project will be determined jointly by the student and instructor and developed formally by the student. The course is normally taken during the final stages of the student's program. Prereq.: Consent of instructor.

4 q.h.

715. Special Projects. The student undertakes a project designed to use principal methods studied in previous courses. The subject of the course will be determined jointly with the student and instructor and developed formally by the student. May be repeated up to a maximum of 4 q.h. toward the BSAS degree. Grading is PR, CR, NC. Prereq.: Junior standing and consent of instructor.

799. Professional Practice in Engineering Technology. This course provides students with cooperative education experiences in various engineering technology disciplines. To receive credit for the course, the student is expected to work at the assignment a minimum of 400 hours, submit a report of activities, and obtain approval of the department Professional Practice Committee. Course may be repeated up to a maximum of 4 q.h. credit toward BSAS. Students are considered full-time even though only 1 q.h. is given for each course. Grading: PR, CR, NC.

TCOM— TELECOMMUNICATION STUDIES

Lower-Division Courses

500. Orientation to Telecommunication Studies. Survey of University and Department programs, policies, practices and facilities with particular em-

phasis on needs of telecommunication studies majors. Creation of telecommunication studies portfolio materials and other aspects of the Telecommunication Studies program will be included. To be taken prior to TCOM 682 and TCOM 683. 1 q.h.

*580. Introduction to Telecommunication Studies. A survey course designed to familiarize students with the principles and practices involved in radio and television broadcasting and other electronic mass media. Includes three hours of lecture plus two hours group lab per week.

4 q.h.

*581. Survey of American Mass Communication. A rhetorical examination of the development, operation and functions of radio, television, film and print media in America. Television documentaries and films will illustrate the implications of mass communication. The student will be expected to examine how a person may be individually affected by mass communication. Satisfies the University's area requirement in the humanities. 4 q.h.

*682. Scriptwriting for Electronic Media. Fundamentals of telecommunication media writing with emphasis on the theory, analysis, and practices in the preparation of continuity, news, and documentaries. Prereq.: ENGL 550 and TCOMM 580 with a "C" or better in both.

*683. Media Operations and Performance. An introduction to practices and procedures basic to media production facilities. The equivalent of three hours lecture plus two hours lab per week. Prereq.: ENGL 550 and TCOMM 580 with a grade of C or better in both.

*684. Broadcast News Practices. Organization, preparation, and presentation of radio and television news programs. Includes study of journalistic requirements of broadcast media and broadcast newsroom operation. Includes the equivalent of three hours lecture plus two hours lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both 4 q.h.

*685. Studio Operations 1. A supervised application of operations and performance skills to audio programming. Repeatable to a maximum of 3 hours. Prereq.: TCOMM 682 and 683, with a grade of C or better in each.

*686. Studio Operations 2. A supervised application of operations and performance skills to video programming. Repeatable to a maximum of 3 hours. Prereq.: TCOMM 682 and 683, with a grade of C or better in each.

Upper-Division Courses

720. Current Issues in Telecommunication. An examination of contemporary issues in telecommunication. The course will focus on social, economic and technological questions. Prereq.: TCOMM 682 and 683 with a grade of 'C' or better. 4 q.h.

725. Implementing Telecommunication Systems. The course examines implementation from planning

to evaluation of telecommunication systems in business and social settings. Specific planning and evaluation techniques are emphasized. Prereq.: TCOMM 682 and 683 with a grade of 'C' or better. 4 q.h.

*780. Principles and Practices of Media Announcing. A study of the announcer's role in electronic mass media. Students will examine theories, techniques, and major styles of media announcing. Three hours lecture, two or more hours of individualized lab per week. Prereq.: TCOMM 682 and 683 with a grade of C or better in both.

*781. Audio Production. Study of the concepts of audio production, including student production of various types of programs. The equivalent of three hours lecture plus two hours lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

*782. Video Production. Study of studio production elements such as equipment, lighting, scene design, graphics, and special effects. Includes the equivalent of three hours lecture plus two hours lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

783. Telecommunication Regulation. Responsibilities of electronic media communicators as prescribed by law and administrative agency policies, and court decisions. Analysis of the regulatory environment of broadcasters, common carriers, and cable. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

*784. Telecommunication Programming. A study of contemporary broadcast and cable programming, including development, scheduling, and competitive strategies. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

*785. Studio Operations 3. Individual projects or assignments in planning, coordinating and assessing production and programming related to studio procedures. Repeatable to a maximum of 3 hours. Prereq.: TCOMM 685 or 686 with a grade of C or better; acceptance of Project Proposal Form by coordinating faculty member and department chair.

1 q.h.

*786. Video Production 2. A study and application of the television production elements. Production values of composition, transition, and sequence are explored from a communication perspective. Students produce, videotape, and critique several field-based productions. Equivalent of three hours of lecture plus two hours of lab per week. Prereq.: TCOMM 782.

*787. Practicum in Telecommunication. Individual study and practical application of communication principles to various telecommunication problems. Repeatable for a maximum of eight hours. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

788. Electronic Media Sales and Promotion. An examination of the principles and practices of selling electronic media. Analysis of rating-based sales and promotion strategies, as well as relations with agencies and station representatives. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

*789. Electronic Media Interviewing. A study and application of interviewing and reporting techniques, emphasizing the local news interview and public affairs reporting. Includes the equivalent of three hours lecture plus two hours of lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

881. Telecommunication Management. A study of the relationships of communication management with government, networks, ownership and other groups. Organization and procedures of typical units; common planning models. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

4 q.h

*882. Studio Operations Management 4. Advanced individual projects or assignments in planning, coordinating and assessing production and programming related to studio procedures. Repeatable for a maximum of 6 hours. Prereq.: TCOMM 785; acceptance of Project Proposal Form by coordinating faculty member and department chair.

2 q.h.

883. Telecommunication Industries and Public Policy. A study of the relationship between the telecommunication industry and public policy. The course will focus on industrial organization and examine how public policy is formulated. Prereq.: TCOMM 783.

*884. Video Production Direction. A study and application of the communication roles and skills associated with video directing. Emphasis on audience analysis. Includes the equivalent of three hours lecture and two hours lab per week. Prereq.: TCOMM 782.

885. Developments in Telecommunication Media. Study and application of uses of telecommunication media apart from commercial broadcasting. Study of new technologies and their potential. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

886. Audience and Market Measurement. Methods of collecting, analyzing and using information about media markets. Includes quantitative and non-quantitative techniques. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

887. Theories and Criticism of Telecommunication. Study of contemporary theories and research in telecommunication. Prereq.: TCOMM 682 and 683, with a grade of "C" or better in both. 4 q.h.

888. Internship in Telecommunication. An application of telecommunication theory and practices within organizations professionally concerned with telecommunication. Students are selected on the ba-

sis of special qualifications, including GPA, courses taken, and competitive interview. Enrollment is contingent on the availability of internship positions. Twenty hours a week of student time is expected. May be repeated for a total of six hours. Prereq.: Junior standing in telecommunications and permission of internship committee.

3 q.h.

897. Seminar in Telecommunications. This course is designed to investigate contemporary aspects of telecommunications. May be repeated for credit as long as specific seminar subjects are not repeated. Prereq.: TCOMM 682 and 683, with a grade of C or better in both.

899. Capstone. Students will demonstrate mastery of knowledge in a variety of degree assessment areas. Students will prepare and present a portfolio of their work. The course will assist the student in assembling and presenting the portfolio to department faculty and other interested parties. To be taken after completing senior status as a telecommunications major.

2 q.h.

THTR—THEATER

Lower-Division Courses

500. Auditions and Portfolios. Survey of departmental programs, policies, practices and facilities, with particular emphasis on the needs of theater majors. Various aspects of theater study which may increase chances for success in the field. Creation of production records, portfolios and vitae pertinent to the theater artist. To be taken within the first 45 hours of coursework.

*512. A Survey of Musical Theater. A study of the development of musical theater from its 17th century beginning to the present day. As an interdisciplinary course, it will place emphasis on the evolution of the American Musical with special attention paid to the problems of integrating drama, music, dance, and design. Also listed as MUSIC 512. Satisfies the University's area requirement in the humanities.

560. Introduction to Theater Arts. The theory, history, cultural role, and physical characteristics of the theater as an institution in human society. Satisfies the University's area requirement in the humanities.

4 q.h.

*561. Stagecraft. The technical elements of play production, with emphasis on stage mechanics, set construction, and scene painting. The course includes the equivalent of two hours of lecture and four hours of laboratory a week.

4 q.h.

*563. Costume Construction. Introduction to stage costuming through the study and application of costume construction techniques and costume crafts, the use of appropriate equipment, and costume maintenance through various projects involving the special techniques used for stage costuming. The course includes the equivalent of two hours lecture and four hours of laboratory a week. 4 q.h.

566. Summer Theater Workshop. Participation in the summer theater program involving all aspects of theatrical production including acting, scenery construction, lighting, costume, promotion, etc. Active involvement in the program is mandatory.

1-4 q.h.

568. Ballet 1. Theory and practice of classical ballet with emphasis on body placement and muscular awareness. Stressing fundamentals of vocabulary, structure, and placement. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 572.

2 g.h

569. Ballet 2. Continuation of THTR 568, expanding upon vocabulary and establishing patterns of balletic movement. Prereq.: Ballet I or consent of instructor. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 573.

*590. History of the Motion Picture. The history of the motion picture from its beginning to the present, with emphasis on the milestones of the film as a performing art. Viewing of significant films from various periods and countries. Satisfies the University's area requirement in the humanities.

4 q.h.

*661. Play Production. An introduction to the process of analyzing, directing, staging, and producing plays; demonstration and practice. Includes the equivalent of two hours of lecture and four hours of technical theater laboratory a week. Prereq.: Prior or concurrent enrollment in THTR 500. 4 q.h.

662. Practicum in Theater. Practical application of theater skills through participation in University Theater productions and supervised theater laboratories. Students should expect the equivalent of three hours of lab per week. Repeatable for a maximum of six (6) quarter hours. Prereq.: THTR 561 or THTR 661 or concurrent with MUSEN 012. 1 q.h.

663. Tap and Jazz 1. Principles and practices of the basic techniques of tap dance, soft shoe, jazz, and combinations of the fundamental forms of movement. Designed to introduce the student to various forms of dance and movement combinations performed in musical theater. Prereq.: HPES 540 or consent of instructor. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 570.

2 q.h.

664. Tap and Jazz 2. Emphasizes basic tap combinations and routines. Continuation of THTR 663. Prereq.: THTR 663 or consent of instructor. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 571.

*665. Theater Graphics. Introduce students to the theory and practice of translating theatrical ideas and concepts into standard graphic conventions. Practical experience with basic drafting tools and

materials; exercises in scale, proportion and perspective; introduction to computer-assisted drafting for theater. Recommended for students planning to take Scene Design or State Lighting. Prereq.: THTR 561 or 661 or permission of the instructor.

667. Theater Movement and Voice. The technical elements of movement and voice for the stage. Physical exercises designed to improve stage movement, vocal projection, articulation, and speech clarity for the actor will be included. Application of principles and skills to a variety of texts from a performer's perspective will receive emphasis.

4 q.h.

668. Fundamentals of Acting. The fundamental theories and techniques of acting. Major emphasis will be placed upon theater acting, but consideration will be given to radio and television acting. Two hours lecture and four hours laboratory per week.

4 q.h.

*690. The Art of Motion Pictures. Analysis of the structure of the motion picture, the development of the script, the function of editing, the approach to acting in film production, and the problems faced by a director in film production. Criteria of artistic film making are studied. Examples from motion pictures are screened and discussed. May be applied to the University's area requirement in the humanities.

Upper-Division Courses

*761. Stage Makeup. Design and application of makeup for the stage including techniques for character and age makeup, making and applying facial hair, and other specialized makeup procedures. The course includes the equivalent of two hours of lecture and four hours of laboratory per week. Prereq.: THTR 661 or permission of the instructor. 4 q.h.

762. Play Direction. An intensive study of the process of directing plays. Whenever possible, students direct the equivalent of a one-act play for public presentation. Laboratory hours by arrangement. Prereq.: THTR 661 or permission of instructor.

4 q.h

*763. Scene Design. The history of design in terms of stage scenery; an investigation of current trends, techniques, and media; practical execution of models and sketches by the student. Prereq.: THTR 561 and 661, or consent of instructor.

764. History of Stage Costuming. A survey of stage costumes based on western styles from the ancient Egyptians to the present with emphasis on periods in which the theater has flourished. May be counted toward the University humanities area requirement. Prereq.: THTR 560 or permission of the instructor.

*765. Stage Lighting. This course includes a study of historical development, basic electrical theory, switch-boards and lighting instruments; color theory, principles and practices in stage lighting.

Laboratory hours to be arranged. Prereq.: THTR 561 and 661, or consent of the instructor. 4 q.h.

*766. Stage Combat. A specialized approach to armed and unarmed combat for the stage. Safety factors in stage fighting will be stressed, including the safe use of rapier and dagger. Performance in public will be required. Class is scheduled for six contact hours per week–two hours lecture, and four hours lab/recital. Prereq.: THTR 668 or MUSIC 012 (Theatrical Fencing Unit) or HPES 514, or permission of the instructor.

768. Dance for the Musical Theater. Principles and practices of the basic techniques of tap dance, soft shoe, jazz and combinations of the fundamental forms of movement. Designed to introduce the student to various forms of dance and movement combinations performed in musical theater. Prereq.: HPES 540 (Modern Dance) or consent of instructor.

*769. Costume Design for Stage. Costume design for the stage through a study of script analysis, design concepts and principles, and costume rendering techniques. Prereq.: THTR 661 or permission of instructor.

4 q.h.

*790. Motion Picture Artists. In-depth analysis of significant motion picture creative artists and their contributions to motion picture art. Screenings and discussions of selected motion pictures. May be applied to the University's area requirement in the humanities. Prereq.: THTR 590 or ENGL 665. 4 q.h.

791. Rehearsal and Performance 1. Faculty-supervised study and practical application of the performance aspects of a play. Credit given for significant acting roles, assistant directing, or stage managing assignments in University Theater productions. For students with appropriate experience. Prereq.: THTR 668 or permission of the instructor, and theater faculty committee approval. 1-4 q.h.

792. Projects in Production Design 1. Faculty-supervised study resulting in the design and/or execution of scenery, lighting, or costumes for public performance. For students with appropriate experience. Prereq.: THTR 763, or 765, or 769, as appropriate, or special permission of the instructor, and theater faculty committee approval. 1-4 q.h.

800. Special Methods in Theater Education . An investigation of current methods and materials in theater education. To be taken concurrently with SEDUC 800G. Prereq.: Senior standing and current enrollment in SEDUC 800G. 1 q.h.

860. Drama 1. A study of dramatic texts in performance from antiquity through the 19th century. Study of performance histories with emphasis on how the scripts could be produced as period pieces and/or adaptations for the modern stage. Prereq.: THTR 762 or consent of the instructor. 4 q.h.

861. Drama 2. A study of 20th century dramatic texts in performance. Includes a study of production histories with an emphasis on the production

company's role as interpreter in terms of style, text, etc. Prereq.: THTR 762 or consent of instructor.

4 q.h.

862. Dramatic Writing and Criticism. Includes a study of the history of dramatic criticism and outstanding critics as well as a study of the elements of dramatic structure and the writing of dramas. Prereq.: THTR 661 or ENGL 746 or permission of the instructor.

863. Advanced Acting. A study of specific theories, techniques, and approaches to creating the various styles of acting. Emphasis will be placed on scene study featuring important historical styles of performance. Two hours lecture and four hours laboratory per week. Prereq.: THTR 661 and 668.

4 q.h

864. Advanced Directing. A study of specific theories, techniques, and various important styles in play directing. Prereq.: THTR 661 and 762. 4 q.h.

865. Rehearsal and Performance II. Independent study at an advanced level involving practical application of the performance aspects of a play. Credit given for major acting or directing assignments in University Theater. For students with appropriate experience. Prereq.: THTR 791, THTR 863, or special permission of the instructor, and theater faculty committee approval.

866. Advanced Summer Theater Workshop. Participation in the summer theater program involving all aspects of theatrical production. Positions of significant responsibility will be required. Prereq.: THTR 566.

867. Projects in Production Design 2. Independent study at the advanced level involving design and/or execution of scenery, lighting, or costumes for public performance. Prereq.: THTR 792 in the appropriate discipline and theater faculty committee approval of proposed project.

1-4 q.h.

868. Children's Theater. A study of the process of theater production by and for elementary school children, including theory, objectives and methods. Prereq.: THTR 762 or senior standing in Elementary Education with permission of the instructor.

4 q.h.

869. Creative Dramatics. Basic elements of playmaking, improvisation, story dramatization, pantomime, dialogue, and characterization. Experiences with area school children provided when possible. Intended for elementary education majors and drama certification. Prereq.: Junior standing with 12 hours of theater courses (including 661 and 668) or Junior standing in Elementary Education with permission of instructor.

4 q.h.

891. History of the Theater 1. A history of the physical theater and written drama from antiquity through the Renaissance. Emphasis on theater architecture and stagecraft, including scenery, costumes, and lighting. Prereq.: Upperclass standing

with a minimum of 12 hours of theater courses, or consent of instructor. Satisfies the University's area requirement in the humanities. 4 q.h.

892. History of the Theater 2. A history of the physical theater and the written drama from the post-renaissance period to the present. Emphasis on theater architecture and stagecraft, including scenery, costumes and lighting. Prereq.: Upperclass standing with a minimum of 12 hours of theater courses completed or consent of the instructor. Satisfies the University's area requirement in the humanities.

893. Independent Study in Theater. Independent work in theater production under faculty/staff guidance. Intended as a continuation of individualized creative work beyond Rehearsal and Performance II or Projects in Production Design II. Project dependent upon approval of the evaluating faculty member and the student. May be repeated with different topics for a maximum of 12 hours. Prereq.: THTR 865 or 867.

895. Arts in Education Internship: Theater. A practical application of drama/theater in education theories and skills in a field-based laboratory experience in the schools. Students will submit project proposals geared either to the elementary or secondary level. Proposals must be approved by a theater faculty committee. Repeatable for a maximum of 8 q.h. Prereq.: Committee approval and THTR 561, 661 and 762 or THTR 661, 761 and 868.

1-4 q.h.

897. Senior Project: BA. Independent studies in theater; required of seniors in the Bachelor of Arts in Speech Communication/Theater Emphasis degree program. The student will be expected to develop a portfolio, representing his or her theater-related activity over the entire course of study, a professional resume, and a philosophical statement focusing on the functions of theater in today's world. Prereq.: Senior standing in this degree program, with the expectation of graduation within the next two quarters. Grading is CR/NC/PR. 1 q.h.

898. Senior Project: BFA. Independent studies in theater; required of seniors in the Bachelors of Fine and Performing Arts (Production/Performance or Musical Theater) degree program. The student will develop a portfolio, representing his or her theater-related activity over the entire course of study, write a professional resume, and give a significant demonstration of practical theater ability (e.g. a major acting recital, design responsibility in the University Theater season, directing a play for public performance, or other projects having the approval of the theater faculty). Prereq.: Senior standing in this degree program, with the expectation of graduation within the next two quarters. Grading is CR/NC/PR.

899. Seminar in Theater. Exploration of areas in theater not covered in the regular course offerings. Subjects studied may include: advanced scene design, advanced stage lighting, theater styles, theater organization and management, and modern techniques and procedures in the contemporary American theater. Prereq.: Senior standing in theater or permission of instructor. May be repeated for credit as long as specific seminar subjects are not repeated. May satisfy the University's area requirement in the humanities depending on topic.

3 q.h

WOMEN'S STUDIES

See Women's Studies curriculum in the College of Arts and Sciences.

ZOOLOGY

See Biological Sciences

COURSE AREA ABBREVIATIONS

AccountingACC	G Engineeri	ing	ENGI
Advertising & Public Relations ADV	ER Environn	nental Studies	ENS
Allied HealthAHL	H Finance		FIN
American Sign Language	SL Fine and	Performing Arts	F&PA
American StudiesAN	ER Flute		FLUTI
Anthropology ANT	R Foreign L	anguage	FNLC
Art A	T Food and	Nutrition	. FNUTR
Arts and Sciences	S Foundation	ons of Education	FOUND
Astronomy AST	RO French		FRNCH
Baritone Horn/EuphoniumBHO	N French H	orn	FHORN
BassoonBAS	N Geograph	ıy	GEOC
Biology B	OL Geology		GEOI
Black Studies BLI	ST German		GERMN
Business Administration E	JS Greek	•	GREEK
Business Information Systems	IS Guitar		GUITR
Cello CEI	O Harpsiche	ord	HARPS
Chemical EngineeringCHE	R Health Pr	ofessions	. HPROI
ChemistryCHI	M Health Sc	iences	HSC
Child and FamilyCHF	M History		HIST
Civil Engineering Technology	ET History a	nd Literature of Music	MUSHI
Civil and Environmental Engineering CEE	GR Hospitali	ty Management	HMGT
Clarinet		rogram	
Classical Studies CLA	SS Human P	erformance and Exercise Science	HPES
Computer Information Systems	IS Human E	cology	HMEC
Communication and TheaterSP		es I	HUMAN
Composition CO		l and Systems Engineering	
CounselingCOU	IS Italian		ITALN
Computer ScienceComputer Science Computer Science		n	JOURN
Computer Science and Information Systems . Computer Science Science Science Science Systems . Computer Science S	S Labor Rel	ations	LREI
Criminal JusticeCRJ		dies Technology	LSTEC
Dental Hygiene DEN	Y Latin		LATIN
Drafting and Design Technology D		'S	LING
Early and Middle Childhood Education EM		ent	
Economics EC		ζ	
Educational Administration EDAI	M Materials	Engineering	MTEGR
Educational Administration, Research		tics	
and Foundations EA	F Mechanic	al Engineering	MECH
Electrical Engineering TechnologyE	T Mechanic	al Engineering Technology	MET
Elective ELC		Assisting Technology	
Electrical Engineering ELE		aboratory Technology	
Emergency Medical Technology EMT		lising: Fashion & Interiors	
English EN		cience	

Music - Applied Classes	MUSAC
Music - Conducting	
Music Education	
Music - Ensembles	
Nursing	NURSG
Oboe	ОВОЕ
Office Information Systems	OIS
Organ	DRGAN
Percussion	
Philosophy	PHIL
Physical Therapy	PHYTH
Physics	
Piano	PIANO
Political Science	. POLIT
Public Relations	PREL
Psychology	PSYCH
Reading & Study Skills	R&SK
Religious Studies	. RELIG
Respiratory Care	RESPC
Russian	
Saxophone	SAX
School of Technology	

Science	SCI
Secondary Education	SEDUC
Social Science	SOCSC
Social Studies	SOCST
Social Work	SCWK
Sociology	SOCIO
Spanish	
Speech Communication	
String Bass	
Special Education	SPED
Statistics	
Telecommunication Studies	
Theater	
Theory and Composition of Music	
Trombone	TROMB
Trumpet	
Tuba	
Viola	
Violin	VIOLN
Voice	
Women's Studies	WMST

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LAWRENCE I. HAIMS

Professor Emeritus

Retired 1996

AILI J. HAKOJARVI

Professor Emeritus of Home Economics

Retired 1982

CLYDE T. HANKEY

Professor Emeritus

FRANK A. HANKEY

Professor Emeritus Retired 1997

KENNETH P. HANKINS

Professor Emeritus

MARY V. HARE

Professor Emeritus of English

Retired 1985

C. EARL HARRIS

Professor Emeritus

Retired 1992

LARRY F. HARRIS

Professor Emeritus

Retired 1996

JAMES T. HENKE

Professor Emeritus

Retired 1994

LOUIS E. HILL

Professor Emeritus

Retired 1992

DOROTHY J. HILLE

Professor Emeritus of Business Education

and Technology

Retired 1982

LOIS M. HOPKINS

Professor Emeritus

ROBERT E. HOPKINS

Professor Emeritus

Retired 1992

MARGARET C. HORVATH

Professor Emeritus

Retired 1995

SALLY M. HOTCHKISS

Dean Emeritus

Retired 1992

SANFORD N. HOTCHKISS

Professor Emeritus

Retired 1992

DONALD E. HOVEY

Professor Emeritus

Retired 1995

PEI HUANG

Professor Emeritus

Retired 1996

BILL G. HULSOPPLE

Professor Emeritus

Retired 1992

NEIL D. HUMPHREY

President Emeritus

Retired 1992

RICHARD F. HUNTLEY

Administrator Emeritus

Retired 1992

RAYMOND W. HURD

Professor Emeritus

Retired 1990 EDWARD A. JAMES

Director Emeritus

Retired 1996

RICHARD D. JAMES

Professor Emeritus

Retired 1992

RICHARD W. JONES

Professor Emeritus

Retired 1996

THOMAS I. KANE

Director Emeritus Retired 1996 Prof

Professor Emeritus

Retired 1996

JOHN L. KEARNS

IAMES G. KARAS

Professor Emeritus of Industrial Engineering

Retired 1984

GEORGE W. KELLEY JR.

Professor Emeritus of Biological Sciences

Retired 1983

JEAN M. KELTY

Professor Emeritus of English

Retired 1987

DOROTHY M. KENNEDY

Professor Emeritus

Retired 1995

JAMES W. KIRIAZIS

Professor and Chairperson Emeritus

Retired 1991

IOSEPH KIRSCHNER

Professor Emeritus

Retired 1992

MICHAEL KLASOVSKY

Professor Emeritus

Retired 1983

ALBERT J. KLEIN

Professor Emeritus

Retired 1995

JANET S. KNAPP

Professor Emeritus

Retired 1992

LELAND W. KNAUF

Professor Emeritus

Retired 1992

MERVIN KOHN

Professor Emeritus of Management

Retired 1987

STEPHEN KOZARICH

Professor Emeritus

Retired 1992

RAYMOND E. KRAMER

Professor Emeritus of Electrical Engineering

Retired 1989

RICHARD D. KREUTZER

Professor Emeritus

Retired 1996

RAMA KRISHNAN

Professor Emeritus

Retired 1996

AHALYA KRISHNAN

Professor Emeritus

Retired 1996

BERTINA A. LABORDE

Professor Emeritus

Retired 1992

A. BARI LATEEF

Professor Emeritus Retired 1996

NICK J. LEONELLI

Director Emeritus

Retired 1982

JAMES J. LEPORE Professor Emeritus

GEORGE E. LETCHWORTH

Director Emeritus

Retired 1996

KAI C. LEUNG

Administrator Emeritus

Retired 1996

RENEE LINKHORN

Professor Emeritus

Retired 1991

LORETTA M. LIPTAK

Professor and Chairperson Emeritus

Retired 1996

WILLIAM LIVOSKY

Director Emeritus

Retired 1990

IOSEPH C. LONG

Professor Emeritus

Retired 1991

LAWRENCE E. LOOBY

Vice President Emeritus

Retired 1992

MARY BETH LOUD

Professor Emeritus

Retired 1996

JAMES G. LUCAS

Professor Emeritus

Retired 1996

IOSEPH R. LUCAS

Professor Emeritus of Philosphy and

Religious Studies

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MARVIN LUKIN

Professor Emeritus

Retired 1996

EMILY P. MACKALL

Professor and Chair Emeritus of Economics

Retired 1982

RICHARD MAGNER

Professor Emeritus

Retired 1992

IOSEPH F. MALMISUR

Director Emeritus

Retired 1996

GENEVRA E. MANN

Administrator Emeritus

Retired 1996

IOHN V. MANTON

Professor Emeritus of Geography

Retired 1987

PATRICIA D. MARTIN

Administrator Emeritus

Retired 1995

CAROLYN MARTINDALE

Professor Emeritus

Retired 1996

TOM H. MARTINDALE

Director Emeritus

Retired 1993

DONALD H. MATHEWS, JR.

Professor and Chairperson Emeritus

Retired 1992

GUS MAVRIGIAN

Professor Emeritus

Retired 1992

WALTER S. MAYHALL

Professor Emeritus

Retired 1992

KEITH MCKEAN

Professor Emeritus

Retired 1996

DONALD E. MCLENNAN Professor Emeritus

Retired 1990

ROCCO A. MEDIATE

Director Emeritus

Retired 1996

MARGARITA W. METZGER

Professor Emeritus of Foreign Languages

Retired 1986

IAMES D. MILLER

Director Emeritus

Retired 1996

JAMES MINEO

Director Emeritus

Retired 1996 THELMA S. MINER

Professor Emeritus of English

Retired 1976

WARD L. MINER

Professor Emeritus of English

Retired 1976

DONALD M. MINNIS

Director Emeritus

Retired 1985

EDWARD MOONEY, JR.

Professor Emeritus

Retired 1996

MARGARET C. MOORE

Professor Emeritus of Sociology, Anthropology,

and Social Work

Retired 1982

JAMES W. MORRISON

Administrator Emeritus

Retired 1996

LOYAL B. MOULD

Professor Emeritus of Music

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JON N. NABEREZNY

Professor and Chairperson Emeritus

Retired 1992

ESTHER P. NIEMI

Professor Emeritus of Economics

Retired 1984

BERNADETTE J. NOLFI

Administrator Emeritus

Retired 1992

WENDELL E. ORR

Professor Emeritus

Retired 1992

NICHOLAS PARASKA Dean Emeritus of the College of Applied

Science and Technology

IOSEPH PARLINK

Professor Emeritus

Retired 1996

PIETRO J. PASCALE

Professor Emeritus

Retired 1996

TED PEDAS

Administrator Emeritus

Retired 1993 ESOTTO PELLEGRINI

Professor Emeritus of Music

Retired 1987

IOAN PHILLIP

Professor Emeritus

Retired 1992

RICHARD C. PHILLIPS

Professor Emeritus

Retired 1995

WEALTHIE PRINCE

Administrator Emeritus

Retired 1992

DAVID L. QUINBY

Professor Emeritus

Retired 1992 JOYCELYN L. RAMSEY Professor Emeritus

Retired 1996

ANN W. RASOR

Administrator Emeritus

Retired 1996

CHARLES L. REID

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Religious Studies

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RONALD J. RICHARDS

Professor Emeritus

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VICTOR A. RICHLEY

Dean Emeritus

Retired 1991

LEWIS B. RINGER

Professor Emeritus

Retired 1996

JOHN F. RITTER

Professor Emeritus

Retired 1996

SIDNEY I. ROBERTS

Professor Emeritus

Retired 1992

JUANITA A. RODERICK

Professor Emeritus of Elementary Education

and Reading

Retired 1987

STAMAN F. RODFONG

Professor Emeritus

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PHILIP E. ROGERS

Director Emeritus

Retired 1982

HASSAN A. RONAGHY

Professor Emeritus

Retired 1992

DOMINIC L. ROSSELLI

Administrator Emeritus

Retired 1982

SHEILA J. ROUTH

Administrator Emeritus

Retired 1993

CHESTER E. RUFH

Professor Emeritus

Retired 1996

A. DUANE SAMPLE

Professor Emeritus

Retired 1990

HILDEGARD K. SCHNUTTGEN

Administrator Emeritus

Retired 1993

LAUREN A. SCHROEDER

Professor Emeritus

Retired 1996

CAROL F. SCHULTZ

Director Emeritus

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Administrator Emeritus

Administrator Emeritus

Retired 1985

JAMES A. SCRIVEN

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RAYMOND J. SHUSTER

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Retired 1984

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SAMUEL I. SKAROTE

Professor Emeritus

Retired 1996

TADEUSZ K. SLAWECKI

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AGNES M. SMITH

Professor Emeritus of History

Retired 1984

CHARLES L. SMITH

Professor Emeritus of Special Education

Retired 1986

ROBERT K. SMITH

Professor Emeritus Retired 1995

PHILIP A. SNYDER

Director Emeritus

WILLIAM A. SNYDER

Administrator Emeritus

Retired 1996

ROBERT J. SOROKACH

Professor Emeritus

Retired 1996

LEONARD B. SPIEGEL

Professor Emeritus

Retired 1995

ARTHUR G. SPIRO

Professor Emeritus

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Retired 1996

ELIZABETH STAUDT

Professor Emeritus of Biological Sciences

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Professor Emeritus of Elementary Education

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Professor and Chairperson Emeritus

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NICHOLAS STURM

Professor Emeritus

Retired 1995

GEORGE E. SUTTON

Dean Emeritus

Retired 1994

WILLIAM O. SWAN

Professor Emeritus

Retired 1992

CALVIN I. SWANK

Professor Emeritus

Retired 1995

DAVID SWEETKIND

Dean Emeritus Retired 1997

PIERSON R. SYRING

Administrator Emeritus

Retired 1992

LESLIE V. SZIRMAY

Professor Emeritus

Retired 1997 FRANK TARANTINE

Professor and Chairperson Emeritus

Retired 1996

MARY PLACE THOMAS

Administrator Emeritus

Retired 1993

WILMA A. THOMPSON

Professor Emeritus of Health and

Physical Education Retired 1982

SARA THROOP

Professor Emeritus

Retired 1989

RICHARD A. ULRICH

Professor Emeritus

Retired 1996

CLYDE V. VANAMAN

Professor Emeritus of Administration &

Secondary Education

Retired 1986

PAUL D. VAN ZANDT

Professor and Chairperson Emeritus

Retired 1992

PETER W. VON OSTWALDEN

Professor Emeritus Retired 1992

CAROL WALL

Administrator Emeritus

Retired 1993

MARTHA Z. WALTON

Professor Emeritus of Business Education

and Technology Retired 1985 RICHARD G. WEBER

Administrator Emeritus

Retired 1990

MARY LOU WEDEKIND

Professor Emeritus of Health and

Physical Education

Retired 1988

NELL G. WHIPKEY

Professor Emeritus of Mathematical

and Computer Sciences

Retired 1986

CHARLES H. WHITMAN

Administrator Emeritus

Retired 1993

L. ANTHONY WHITNEY

Professor Emeritus

Retired 1996

IOHN WILKINSON Professor Emeritus

Retired 1996

ROBERT J. WOLANIN

Professor Emeritus

Retired 1995

BARBARA L. WRIGHT

Professor and Chairperson Emeritus

Retired 1996

RALPH E. YINGST

Professor Emeritus

Retired 1992

BERNARD J. YOZWIAK

Dean Emeritus

Retired 1992

STANLEY ZAGER

Professor Emeritus Retired 1996

THE WALLER E. AND CAROLINE	Leslie S. D
H. WATSON FOUNDATION	Joseph R. I
DISTINGUISHED PROFESSOR	Matthew S
AWARDS	Paul D. Va
1959-1960	1970-1971
Karl H. Benkne Mechanical Engineering	Margaret A
Karl Washburn Dykema English	Alfred L. B
Jay Rodkey Accounting	Raymond
George Milo Wilcox Education	Inally Mah
1960-1961	1971-1972
Mary Wagstaff Jones Communication	Frederick J Frank A. F
Margarita MillsSpanish	Thelma S.
Eugene Dodd Scudder Chemistry	Duane San
Bernard James Yozwiak Mathematics	1972-1973
1961-1962	Dwight V.
Gus Mavrigian Mathematics	Ronald L.
Alvin Myerovich	Renee D. L
Clair I. Worley Biology	Margaret I
Clair L. Worley Biology	1973-1974
1962-1963 Pauline Esterhay Botty So ciology	Barbara H.
Frank Angelo D'Isa Mechanical Engineering	E. Terry De
Francis Kravec Biology	1974-1975
Willard L. Webster Biology	Esotto Pell
1963-1964	James P. Rl
David Marion Behen History	1975-1976
Irwin Cohen Chemistry	Larry E. Es
Thaddeus Michael Dillon Mathematics	THE WA
George Henry Schoenhard Education	
1964-1965	H. WAT
Christine Rhoades DykemaFrench Anthony Michael Land . Philosophy and Religion	MERIT
Victor Anthony Richley Electrical Engineering	1977-1978
Myron James Wisler	Donald W.
1965-1966	Frank A. D
Thomas D.Y. Fok Civil Engineering	1978-1979
Philip Jerome Hahn Economics	Gilda M. D
Vera Jenkins Accounting and Business	Victor A. R
Theodore T. Macejko Business Administration	1979-1980
1966-1967	Barbara H.
Jack Donald Foster So ciology	Frank J. Se
Jon Michael Naberezny	John H. Ye
Paul C. Luginbill Chemical Engineering Lois M. Hopkins Music	1980-1981
	Thomas N. James C. M
1967-1968 Catherine M. Bridgham	Virginia K.
Frank M. EllisPhysics	111811111111
James W. Kiriazis So ciology	1981-1982
Bernard J. Vojtko Electrical Engineering	George D. 1
1968-1969	Lewis B. Ri
Ivis Boyer Political Science	1982-1983
Marvin W. Chrisp Education	Jack D. Bak
Esther P. Niemi Economics	Warren M.
William Petrych Accounting	1983-1984
	Mary J. Bea

THE WALTER E. AND CAROLINE

1969-1970
Leslie S. Domonkos
1970-1971 Margaret A. Braden Education Alfred L. Bright Art Raymond W. Hurd Mathematics Inally Mahadeviah Chemistry
1971-1972 Frederick J. Blue History Frank A. Fortunato Management Thelma S. Miner English Duane Sample Music
1972-1973 Dwight V. Beede Biology Ronald L. Gould Music Renee D. Linkhorn Foreign Languages Margaret I. Pfau English 1973-1974
Barbara H. Brothers English E. Terry Deiderick Marketing
1974-1975 Esotto Pellegrini
1975-1976 Larry E. Esterly Political Science
THE WALTER E. AND CAROLINE H. WATSON FOUNDATION
MERIT AWARDS
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1984-1985 Frank A. D'Isa Mechanical Engineering Richard C. Mitchell
1985-1986 Barbara Brothers English John Yemma Allied Health
1986-1987 Richard L. Burden Mathematics
1987-1988 Barbara H. Brothers English Lawrence E. Cummings Criminal Justice
1988-1989 William O. Barsch Engineering Technology
1989-1990 Alfred W. Owens II Speech Communication and Theatre
L. Allen ViehmeyerForeign Languages
1990-1991 Thomas A. Shipka

1991-1992	
Peter A. Baldino, Jr Foundations of	Education
1992-1993	
Robert J. Beebe Educational Adm Thomas N. Dobbelstein	
1993-94	
Madeleine Haggerty All Ikram Khawaja	
1994-95	
James C. Morrison I Susan Russo	sychology Art
1995-1996	
John J. Buoni Mathematics and	d Statistics
Joseph Edwards Dana School	ol of Music
1996-97	
Thomas A. Shipka Phi	ilosophy & ous Studies
Sandra W. Stephan	

APPENDIX A—Ohio Residency

Residency for State Subsidy and Tuition Surcharge Purposes

(A) Intent and Authority

- (1) It is the intent of the Ohio Board of Regents in promulgating this rule to exclude from treatment as residents, as that term is applied here, those persons who are present in the State of Ohio primarily for the purpose of receiving the benefit of a state-supported education.
- (2) This rule is adopted pursuant to Chapter 119. of the revised code, and under the authority conferred upon the Ohio Board of Regents by Section 3333.31 of the revised code.

(B) Definitions for Purposes of This Rule

- (1) A "resident of Ohio for all other legal purposes" shall mean any person who maintains a twelve-month place or places of residence in Ohio, who is qualified as a resident to vote in Ohio and receive state welfare benefits, and who may be subjected to tax liability under section 5747 02 of the Revised Code, provided such person has not, within the time prescribed by this rule, declared himself or herself to be or allowed himself or herself to remain a resident of any other state or nation for any of these or other purposes.
- (2) 'Financial Support' as used in this rule, shall not include grants, scholarships and awards from persons or entities which are not related to the recipient.
- (3) An 'Institution of Higher Education' as used in this rule shall mean any university, community college, technical institute or college, general and technical college, medical college or private medical or dental college which receives a direct subsidy from the State of Ohio.
 - (4) For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, "Domicile' is a person's permanent place of abode; there must exist a demonstrated intent to live permanently in Ohio, and a legal ability under federal and state law to reside permanently in the state. For the purpose of this policy, only one domicile may be maintained at a given time.

(5) For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, an individual's immigration status will not preclude an individual from obtaining resident status if that individual has the current legal status to remain permanently in the United States.

(C) Residency for Subsidy and Tuition Surcharge Purposes

The following persons shall be classified as residents of the State of Ohio for tuition surcharge purposes:

- (1) A dependent student, at least one of whose parents or legal guardian has been a resident of the State of Ohio for all other legal purposes for twelve consecutive months or more immediately preceding the enrollment of such student in an institution of higher advantage.
 - dent in an institution of higher education.
- (2) A person who has been a resident of Ohio for the purpose of this rule for at least twelve consecutive months immediately preceding his or her enrollment in an institution of higher education and who is not receiving, and has not directly or indirectly received in the preceding twelve consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.
- (3) A dependent child of a parent or legal guardian, or the spouse of a person who, as of the first day of a term of enrollment, has accepted full-time employment and established domicile in the State of Ohio for reasons other than gaining the benefit of favorable tuition rates.

Documentation of full-time employment and domicile shall include both of the following documents:

- (a) A sworn statement from the employer or the employer's representative on the letterhead of the employer or the employer's representative certifying that the parent or spouse of the student is employed full-time in Ohio.
- (b) A copy of the lease under which the parent or spouse is the lessee and occupant of rented residential property in the state; a copy of the closing statement on residential real property located in Ohio of

which the parent or spouse is the owner and occupant; or if the parent or spouse is not the lessee or owner of the residence in which he or she has established domicile, a letter from the owner of the residence certifying that the parent or spouse resides at that residence.

- (D) Additional Criteria Which May Be Considered in Determining Residency for the Purpose May Include But Are Not Limited to the Following:
 - (1) Criteria evidencing residency:
 - (a) If a person is subject to tax liability under section 5747.02 of the Revised Code;
 - (b) If a person qualifies to vote in Ohio;
 - (c) If a person is eligible to receive state welfare benefits;
 - (d) If a person has an Ohio driver's license and/or motor vehicle registration.
 - (2) Criteria evidencing lack of residency:
 - (a) If a person is a resident of or intends to be a resident of another state or nation for the purpose of tax liability, voting, receipt of welfare benefits, or student loan benefits (if the student qualified for that loan program by being a resident of that state or nation);
 - (b) If a person is a resident or intends to be a resident of another state or nation for any purpose other than tax liability, voting, or receipt of welfare benefits (see paragraph (D)(2)(a) of this rule).
- (E) Exceptions to the General Rule of Residency for Subsidy and Tuition Surcharge Purposes:
 - (1) A person who is living and is gainfully employed on a full-time or part-time and self-sustaining basis in Ohio and who is pursuing a part-time program of instruction at an institution of higher education shall be considered a resident of Ohio for these purposes.
 - (2) A person who enters and currently remains upon active duty status in the United States military service while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile.

- (3) A person on active duty status in the United States Military Service who is stationed and resides in Ohio and his or her dependents shall be considered residents of Ohio for these purposes.
- (4) A person who is transferred by his or her employer beyond the territorial limits of the 50 states of the United States and the District of Columbia while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile as long as such person has fulfilled his or her tax liability to the state of Ohio for at least the tax year preceding enrollment.
- (5) A person who has been employed as a migrant worker in the state of Ohio and his or her dependents shall be considered a resident for these purposes provided such person has worked in Ohio at least four months during each of the three years preceding the proposed enrollment.

(F) Procedures

- (1) A dependent person classified as a resident of Ohio for these purposes under the provisions of section (C)(1) of this rule and who is enrolled in an institution of higher education when his or her parents or legal guardian removes their residency from the state of Ohio shall continue to be considered a resident during continuous full-time enrollment and until his or her completion of any one academic degree program.
- (2) In considering residency, removal of the student or the student's parents or legal guardian from Ohio shall not, during a period of twelve months following such removal, constitute relinquishment of Ohio residency status otherwise established under paragraph (C)(1) or (C)(2) of this rule.
- (3) For students who qualify for residency status under (C)(3), residency status is lost immediately if the employed person upon whom resident student status was based accepts employment and establishes domicile outside Ohio less than twelve months after accepting employment and establishing domicile in Ohio.
- (4) Any person once classified as a nonresident, upon the completion of twelve consecutive months of residency, must apply to the institution he or she attends for reclassification as a resident of Ohio

for enrollment if such person in fact wants to be reclassified as a resident. Should such person present clear and convincing proof that no part of his or her financial support is or in the preceding twelve consecutive months has been provided directly or indirectly by persons or entities who are not residents of Ohio for all other legal purposes, such person shall be reclassified as a resident.

Evidentiary determinations under this rule shall be made by the institution which may require, among other things, the submission of documentation regarding the sources of a student's actual financial support.

- (5) Any reclassification of a person who was once classified as a nonresident for these purposes shall have prospective application only from the date of such reclassification.
- (6) Any institution of higher education charged with reporting student enrollment to the Ohio Board of Regents for state subsidy purposes and assessing the tuition surcharge shall provide individual students with a fair and adequate opportunity to present proof of his or her Ohio residency for purposes of this rule. Such an institution may require the submission of affidavits and other documentary evidence which it may deem necessary to a full and complete determination under this rule.

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APPENDIX B—Scholarships and Awards

SCHOLARSHIPS FOR EXCELLENCE

These are scholarships awarded by the University and largely funded by the YSU Foundation. The YSU Foundation, with an endowment of over \$100 million, is committed to providing this "edge of excellence" for the University, providing more than \$3 million in scholarship assistance annually for YSU students. These Scholarships for Excellence are awarded to eligible new high school graduates, transfer students, and current students. Students should apply for these scholarships before March 1. In addition, incoming freshmen should apply for admission before March 1 to be considered for these scholarships.

University Scholars Scholarships: These are four-year full-ride scholarships. This scholarship is awarded annually to incoming freshmen based on minimum criteria of an ACT of 28 or SAT of 1260 and upper 15% of the student's high school class.

Trustees' Scholarships: These are \$3,000, fouryear scholarships awarded to incoming high school valedictorians. Students must attend full-time and maintain at least a 3.5 cumulative GPA.

President's Scholarships: These are \$2,500, four-year scholarships awarded to the upper 10% of high school class with a minimum ACT of 27 or SAT of 1220. Must attend full-time and maintain a 3.5 GPA to renew.

Deans' Scholarships: These are \$2,000, four-year scholarships awarded to the upper 15% of the high school graduating class with a minimum ACT of 25 or SAT of 1140. Must attend full-time and maintain 3.5 GPA to renew.

Leadership Scholarships: These are \$1,000 scholarships (may be renewed as a \$1,500 Department Scholarship) awarded to the upper 15% of the high school graduating class with a minimum GPA of 3.0 or ACT of at least 23 or SAT of 1070. See Department Scholarship for subsequent years.

Community College Scholarships: These are \$1,500, three-year renewable scholarships available to transfer students with a minimum GPA of 3.5 and 36 transferable hours into YSU. Must attend at least half-time and maintain 3.5 GPA to renew.

Department Scholarships: These are \$1,500, three-year scholarships awarded to continuing YSU students with minimum criteria of 36 hours completed and a cumulative GPA of 3.5. Must attend at least half-time and maintain 3.5 GPA to renew.

DEPARTMENT/COLLEGE AWARDS AND SCHOLARSHIPS

The following are scholarships/awards/prizes according to the relevant department or college. For more information, contact your particular college or department.

*Designates YSU Foundation Scholarships

COLLEGE OF ARTS AND SCIENCES

American Chemical Society Award is a cash award given by the Penn-Ohio Border Section to an outstanding junior Chemistry major. Awarded at the Honors Convocation.

American Chemical Society Student Affiliates Award is awarded to the graduating senior in chemistry with the highest cumulative point average. Awarded at the Honors Convocation.

* APCO Conservation Club is for juniors or seniors majoring in environmental science.

B'Nai B'Rith Undergraduate History Award is given to the outstanding undergraduate history student. Awarded at the Honors Convocation.

* Thomas J. Carney Scholarship is awarded to a Political Science major, preferably a Mahoning County resident. Selection is made by the Political Science Department. Awarded at the Honors Convocation.

Frank M. Clark Scholarship was established to provide scholarship assistance to physics and astronomy majors on the basis of academic achievement and need.

CRC Press Freshman Chemistry Achievement Award is given for superior achievement in freshman chemistry and consists of the current edition of the Handbook of Chemistry and Physics, with a commemorative scroll. Awarded at the Honors Convocation.

* James Dale American Studies Award is presented annually to an outstanding upper division American Studies major. The award will be based on a combination of merit and financial need. Awarded at the Honors Convocation.

Delta Phi Alpha National German Honorary Society annually extends membership to a German major who has excelled in the study of German. Awarded at the Honors Convocation.

Charles Dobson Memorial Award is given each year in memory of Dr. Dobson as recognition for achievement in research by an undergraduate psychology student. Awarded at the Honors Convocation.

* Karl W. Dykema Scholarship was established in 1972 as a memorial to Karl Washburn Dykema, a nationally known authority on English grammar and a former dean of YSU's College of Arts and Sciences. It is awarded annually to a full-time College of Arts and Sciences student with a distinguished academic record. Given at Honors Convocation. Cannot be applied for by students. For Information contact the College of Arts and Sciences.

* Dr. E. Eugene Eminhizer Scholarship is awarded to a YSU student with a major or minor in Religious Studies. Apply in Philosophy & Religious Studies Department.

Candace Gay Memorial Awards were established by Professor Thomas Gay and the late Dr. Carol Gay of the Department of English in memory of their thirteen-year-old daughter, Candace McIntyre Gay, who died in 1977. This fund provides \$750 or three \$250 prizes for junior and senior high school students who exhibit distinctive writing ability in the Candace Gay Memorial Essay Contest. A grand total of \$1875 in prizes are presented at the annual YSU English Festival.

Geology Department Scholarship is awarded to a sophomore, junior, or senior who is a Geology major to help defray tuition at an appropriate field camp, and is based on academic achievement.

Sister Jean Gillespie Memorial Award in Religion was established in 1984 by Marie Weyrick and Mildred Gedeon in memory of their sister, Dominican Sister Jean Gillespie, O.P., who died in 1982 and who was deeply committed to the ecumenical work of the Jewish/Christian Dialogue Group of Youngstown. It provides income from an endowment of \$2500 to a distinguished senior in Religious Studies whose academic program best exhibits an interest in comparative religion. Awarded at the Honors Convocation.

Gary L. Green Award was established in 1990 in memory of Dr. Gary L. Green, an English Department faculty member. An annual award will be presented to an English major with 48-107 hours who has done outstanding work in Introduction to Literary Studies and otherwise shown strong academic promise. Award given by the English Department at the Honors Convocation. Cannot be applied for by student. For information, contact the College of Arts and Sciences.

Dorothy Zola Greenberger Memorial Scholarship is one \$300 scholarship awarded per year. This scholarship was established in 1971 by Sidney Greenberger in memory of his wife, Dorothy Zola Greenberger, a former member of the YSU faculty. The income from an endowment makes possible an annual scholarship for a student in the College of Arts and Sciences who is committed to peace or social justice issues. Apply in the Political Science Department and submit a letter specifying your major, grade point average, and a statement that reveals a demonstrated commitment to peace and

social justice. Application deadline: middle of Spring Quarter; Must reapply each year.

Albert A. Guerrieri, Jr. Memorial Scholarship is presented to a student majoring in science education or pre-med. Applicant must be a graduating senior of Wilson High School. Must have a 3.0 GPA and an ACT score of at least 22 or an SAT score of at least 900. Awarded at the Honors Convocation.

* Hilda George Hanna Scholarship was established in 1964, given annually to a woman who is a full-time student in the secretarial field.

Robert R. Hare Award for Distinction in Journalistic Writing was established in 1974 by Dr. Mary Virginia Hare in memory of her husband Dr. Robert R. Hare, a distinguished member of the English faculty of Youngstown State University. The award provides \$100 each year to each of two full-time students who have demonstrated distinction in journalistic writing. Special consideration for one of the awards will be given to work published in The Janibar. The recipients are chosen by the Journalism faculty and outside experts designated by them. Awarded at the Honors Convocation.

Robert R. Hare Award for Distinction in Creative and Critical Writing was established in 1974 by Dr. Mary Virginia Hare in memory of her husband, Dr. Robert R. Hare, a distinguished member of the English faculty of Youngstown State University. The award provides \$100 each year to each of three students who demonstrate distinction in one of the following categories of writing: poetry, fiction and drama, and literary criticism. The recipients are chosen by the Hare Awards Committee composed of members of the English faculty. Awarded at the Honors Convocation.

Harris Scholarship is an annual award to help defray the cost of summer field camp of a student majoring in Geology or Earth Science. Must be a junior or senior who has demonstrated an above average potential in the geological sciences and needs financial assistance. Chosen by the students in the Youngstown State University Geological Society. Apply at YSU Geological Society. Complete the application and return to YSU Geological Society c/o Geology Department. Application deadline: 8th week of Spring Quarter.

Department of History Chairperson's Award is a monetary award given for the best undergraduate research paper in any field of history. Awarded at the Honors Convocation.

David Scott Ives Memorial is an annual prize presented to an upper division student to recognize achievement in classical languages. The recipient is chosen by a Foreign Language Professor. Awarded at the Honors Convocation.

Clingan Jackson Scholarship in Political Science is awarded annually at the Honors Convocation for scholarship invigorated by the traditions of a free and inquiring press and by active participation in the work of a government agency or a political party. Awarded at the Honors Convocation.

Michael Klasovsky Scholarship in Geography is awarded to a student majoring in geography. The Department of Geography faculty will select the recipient.

Albert & Adele Krotzer Fund This scholarship provides an annual scholarship to a declared business major who maintains at least a 3.0 GPA with at least 96 quarter hours completed. May be full or part-time. Must complete studies within two consecutive academic years (45 credit hours per year). Must not have any other major sources of tuition funding. Financial need will be considered. Candidates must be approved by Krotzer Scholarship official.

Evangelos Meshell Memorial Award in Greek is given to the best student in elementary or intermediate Ancient Greek. Awarded at the Honors Convocation.

* Lewis B. Miller/Retter Barge Miller Outstanding Geography Paper Award is awarded annually for the best undergraduate research paper in any field of Geography.

Ohio Chapter of the American Institute of Chemists Award is given to an outstanding chemistry senior, consists of a one-year Student Associate membership in the Institute and a subscription to *The Chemist*, a monthly publication. Awarded at the Honors Convocation.

Omicron Lambda Honorary Biology Fraternity Award for Scholarship is an award given to an outstanding graduating biology student.

* Judge Joseph O'Neill is for a prelaw student. Apply within the College of Arts and Science.

Outstanding Undergraduate in Mathematics Award is a book award given annually to a student selected by the Department of Mathematics. Awarded at the Honors Convocation.

* Margaret I. Pfau Scholarship was founded in 1973 by the friends of Margaret I. Pfau, who served with distinction as Chairperson of the Department of English. Income from the fund provides two annual awards to students majoring in English who have demonstrated academic excellence while attending YSU. Awarded at the Honors Convocation.

Rawson-Moritz Memorial Award is given to the outstanding freshman in biological sciences.

- * Dr. James Reeder Scholarship is for a graduate student in chemistry. Apply in the Chemistry Department.
- * John R. Rowland English Scholarship was established in 1957 and is available to an outstanding student majoring in English. Awarded at the Honors Convocation but cannot be applied for by students. For more information contact the College of Arts and Sciences.

- * Ann Bernard Schaffer Scholarship is available for a non-traditional English major. Apply within the English Department. Awarded at the Honors Convocation.
- * Kenneth L. Schafer Scholarship is available to a member of the TKE Fraternity. Preference will be given to history majors. Apply with the TKE Advisor.

Ann and Jerome Schmerin Scholarship was established by Drs. Susan and James Borchert and is for a full or part-time, non-traditional Arts and Sciences student with a 2.5 GPA or higher who demonstrate a financial need. Apply by completing and submitting YSU's Institutional Aid Application from YSU's Office of Financial Aid and Scholarships.

- * Dr. Eugene D. Scudder Organic Chemistry Award is a cash award given to a chemistry undergraduate student for outstanding performance in organic chemistry. Awarded at the Honors Convocation. For more information, contact the Chemistry Department.
- * Dr. Eugene D. Scudder Physical Chemistry Award is a cash award given to a chemistry undergraduate student for outstanding performance in physical chemistry. Awarded at the Honors Convocation. For more information contact the Chemistry Department.
- * Vere Stalker Shaklee/Nina Pierce Shaklee Outstanding Geography Major Award is given annually to the outstanding undergraduate Geography major. Awarded at the Honors Convocation.
- * Miller, Lewis & Retta Shaklee Award is given annually to the student with the outstanding geography paper. Awarded at the Honors Convocation. For more information, contact the Geography Department.

Georgene M. Smith Scholarship was established in 1972 for students in botany, geology, or forestry, with funds bequeathed by Georgene M. Smith, an ardent conservationist and a past president of the Trumbull Arboretum and Conservation Association.

* Joseph E. Smith Scholarship provides funds for a worthy and needy student. The scholarship was established in 1971 by friends as a memorial to Dr. Joseph Earle Smith, a former dean of the College of Arts and Sciences and the first dean of the University. Awarded at the Honors Convocation. For more information, contact the College of Arts and Sciences.

Society for Analytical Chemists of Pittsburgh Award is a cash award given to a chemistry junior or senior with a 3.0 GPA or better. The award recognizes student participation in chemistry-related projects, special honors and awards received, and overall accomplishments in the field of chemistry. Awarded at the Honors Convocation. For more information, contact the Chemistry Department.

Paul and Marguerite K. Thomas Scholarships in Economics are three scholarships awarded to junior or senior students majoring in economics. Students will be nominated by faculty from the department. Students determined from overall academic achievement and performance. Students nominated shall be selected by the dean of the College of Arts and Sciences. Given at Honors Convocation, but cannot be applied for by students.

Undergraduate Award in Analytical Chemistry is sponsored by the Division of Analytical Chemistry of the American Chemical Society to encourage student interest in analytical chemistry and to recognize students who display an aptitude for a career in this field. The award consists of a subscription to the journal *Analytical Chemistry* and an honorary membership in the Division of Analytical Chemistry. Awarded at the Honors Convocation. For more information, contact the Chemistry Department.

* John C. Vitullo Political Science Scholarship is given in honor of John C. Vitullo, former Mahoning County Democratic Party Chairman. Awarded to a junior or senior political science major. Preference will be given to Mahoning County residents. Awarded at the Honors Convocation. For more information, contact the Political Science Department.

Myron C. Wick, Jr. Scholarships were established in 1985 by a \$93,000 endowment by Alice Tod Wick Hall in memory of her father, Myron C. Wick, Jr. The endowment makes possible three academic scholarships, two in physical sciences and one in engineering. Applicants must be full-time students who have completed at least 100 quarter hours by the end of the Winter quarter and have a minimum cumulative grade point average of 3.0 and a declared major in Chemistry, Earth Science, Geology or Physics. Award is based primarily on academic performance, but involvement in University activities and a personal statement of educational and career goals will be taken into consideration by the selection committee. Apply at the Dean's office of Arts and Sciences or departments of Chemistry, Geology, or Physics and Astronomy. Awarded at the Honors Convocation.

Wolves Club Awards in Advanced Latin presented for meritorious work in Latin on the upper division level. Awarded at the Honors Convocation.

Wolves Club Awards in Intermediate Latin presented for meritorious work in Latin on the intermediate level. Awarded at the Honors Convocation.

* Ralph E. Yingst Scholarship in Chemistry is for a junior or senior who has completed various inorganic chemistry courses. Awarded at the Honors Convocation. For more information, contact the Chemistry Department.

WILLIAMSON COLLEGE OF BUSINESS ADMINISTRATION

Alpha Delta Sigma National Professional Advertising Society is an award made annually to an outstanding senior who is a member of the advertising fraternity. Awarded at the Honors Convocation.

Alpha Tau Gamma Fraternity Student of the Year Award is given annually to the member of the fraternity who has contributed the most to the University through a combination of academic proficiency and extracurricular activities.

American Society for Women Accountants Scholarship was established in 1963 for a woman majoring in accounting with at least a 3.5 GPA. To apply, contact the Williamson College of Business.

American Business Women's Association Scholarship was instituted in 1957. Provided by the Youngstown Chapter of the American Business Women's Association for a woman student in business administration.

Arby's 25th Anniversary Youngstown State University Scholarship Program was established in the Fall of 1989 and is awarded annually for 25 years from that date. Scholarship will be offered to a junior or senior student from Mahoning, Trumbull, or Columbiana counties in Ohio, or from Mercer County in Pennsylvania, who is majoring in business management. Student must be attending YSU on at least a half-time basis. Students shall be recommended by the faculty and selected by the Dean of the Williamson College of Business Administration on the basis of scholastic achievement and contribution to the College of Business.

ASQC Quality Management Scholarship is presented to a management major with a minimum grade point average of 3.0, membership in ASQC, and nominated by a faculty member for showing promise in Quality Management.

* William W. Battin Scholarship is given to a junior or senior WCBA student active in extracurricular activities and hold a leadership position in a WCBA organization or club. To apply, contact the Williamson College of Business.

Becker CPA Review Award is presented to 2 accounting seniors who are outstanding in scholastic achievement and interested in careers in public accounting. Recipients each receive tuition and materials for the Becker CPA Review Course to prepare for the CPA examination. Recipients must take the Becker Course before taking the examination. Awarded at the Honors Convocation.

Business and Professional Women's Club Scholarship is given annually to an upperclass woman by the Business and Professional Women's Club of Youngstown. Cohen & Company Award is for a junior or senior accounting major with at least a 3.5 GPA. To apply, contact the Williamson College of Business. Awarded at the Honors Convocation.

Cope Farm Equipment Scholarship is for an accounting and finance, management or marketing major with at least a 3.5 GPA. To apply, contact the Williamson College of Business.

* Credit Reporting Services Scholarship is awarded to a junior or senior, enrolled full-time, with a declared major in WCBA and have at least a 3.0 GPA in your academic major. To apply, contact the Williamson College of Business.

Deloitte & Touche Alumni Award Two scholarships are awarded annually to a junior or senior accounting major with at least a 3.5 GPA. To apply, contact the Williamson College of Business.

District Directors Tax Institute Award Four scholarships are awarded annually to a junior or senior accounting major with at least a 3.5 GPA. To apply, contact the Williamson College of Business.

Kenmore B. Drake Memorial Award was established by students and faculty of the Business Education and Technology Department in memory of Kenmore B. Drake. Applicants must be juniors preparing for certification for teaching one of the following areas: business education comprehensive, bookkeeping and basic business, or stenography. Selection criteria is by a committee of the Department of Computer Science and Information Systems which will include a minimum of 2.5 GPA, leadership, and a demonstrated commitment and enthusiasm for teaching business education. Awarded at the Honors Convocation.

Conviser Duffy CPA Review Award Each recipient receives tuition and materials for the Conviser Duffy CPA Review Course to prepare for the CPA examination. Recipients must take the Conviser Duffy Course before taking the examination. Awarded at the Honors Convocation.

Mildred N. Graebing Scholarships were established in 1973 by Mildred N. Graebing. The income from an endowment makes available annual grants to deserving Ohio or Pennsylvania students enrolled full-time in degree programs in business education or secretarial studies.

Eugene Green Memorial Scholarship Fund was established in 1984 in memory of Attorney Eugene Green. This scholarship will provide aid to students selected by the director of the Labor Studies Program. Two recipients will be selected annually. Recipients must be members of local trade unions and must be full-time students with high academic promise. To apply, contact the Williamson College of Business.

Grocery Manufacturers Representatives of Youngstown is given to students enrolled in the College of Business Administration with preference given to students whose parents work in the Youngstown area grocery business.

Abe Harshman Scholarship This scholarship is awarded to a junior or senior accounting major with at least a 3.5 GPA. To apply, contact the Williamson College of Business. Awarded at the Honors Convocation.

* Hilda George Hanna Scholarship was established in 1964, given annually to a woman who is a full-time student in the secretarial field.

Institute of Management Accountants Award Given annually to a junior or senior accounting major with at least a 3.5 GPA. To apply, contact the Williamson College of Business. Awarded at the Honors Convocation.

* Arthur L. Jones Accounting Scholarship This scholarship provides three annual awards to full-time accounting majors with financial need. To apply, contact the Williamson College of Business. Awarded at the Honors Convocation.

Albert & Adele Krotzer Fund This scholarship provides an annual scholarship to a declared business major who maintains at least a 3.0 GPA with at least 96 quarter hours completed. May be full or part-time. Must complete studies within two consecutive academic years (45 credit hours per year). Must not have any other major sources of tuition funding. Financial need will be considered. Candidates must be approved by Krotzer Scholarship official. To apply, contact the Williamson College of Business. Awarded at the Honors Convocation.

- * John V. Maglery Scholarship for a junior or senior accounting major with a 3.0 cumulative GPA. Financial need is considered. To apply, contact the Williamson College of Business. Awarded at the Honors Convocation.
- * Mahoning National Bank Minority Scholarship for a WCBA minority student from Mahoning, Trumbull, Columbiana, Lawrence, or Mercer counties. To apply, contact the Williamson College of Business.

Mahoning Valley Chapter of Certified Public Accountants This scholarship is awarded to a junior or senior accounting major with at least a 3.5 GPA. Awarded at the Honors Convocation.

Mahoning Valley Chapter of Certified Public Accountants Wives Auxiliary Recipient must be a junior or senior accounting major with at least a 3.5 GPA. Awarded at the Honors Convocation.

Mahoning Valley Chapter of Certified Public Accountants Outstanding Intern (approx. \$150); Must be a junior or senior accounting major with at least a 3.5 GPA. Awarded at the Honors Convocation.

- * Robert P. Mayberry, Sr. Scholarship for a junior or senior marketing major with a concentration in entrepreneurship. To apply, contact the Williamson College of Business.
- * Harry & Helene Meyer Freshman Scholarship This scholarship is awarded to a freshman planning to major in business administration or economics.

Awarded on the basis of superior scholarship and financial need. To apply, contact the Williamson College of Business.

Dean Robert L. Miller Scholarship The recipient of this award must be a junior or senior accounting major with at least a 3.5 GPA and with financial need. Awarded at the Honors Convocation. To apply, contact the Williamson College of Business.

Peter George Parthemos Scholarship Recipient must be a WCBA student with at least a 3.0 GPA in high school or college and be from Greece or of Greek descent. To apply, contact the Williamson College of Business.

William Petrych Memorial Scholarship awards one or two scholarships annually to a junior or senior student majoring in accounting. The recipient should demonstrate financial need and maintain a 3.2 GPA. The scholarship is renewable each year until the student graduates. The recipient will be selected by the Dean of the College of Business or their designee. To apply, contact the Williamson College of Business. Awarded at the Honors Convocation.

Edna J. Pickard Memorial Scholarship is awarded annually to a student pursuing a degree in Office Information Systems (or related field of study) or Business Teacher Education. The award was established in 1991 by Yo-Mah-O Chapter of Professional Secretaries International, the Association for Office Professionals.

* J. Ronald Pittman Memorial Scholarship is for a WCBA student who displays leadership and community commitment. Created by the Citizens League of Greater Youngstown as a memorial to the life of J. Ronald Pittman, who was a charter member and officer. Recipient is chosen by a selection committee of the Greater Youngstown Citizens League. To apply, contact the Williamson College of Business.

S.C.O.R.E. (Service Core of Retired Executives)
Three scholarships awarded to a junior or senior
marketing major with at least a 3.0 GPA. To apply,
contact the Williamson College of Business.

Second National Bank Five annual scholarships awarded for Spring Quarter. Recipient can be an accounting, marketing, or general business major, and be interested in a career in banking. Recipients must attend bank's Spring luncheon. To apply, contact the Williamson College of Business.

Raymond J. Shuster Award for Excellence in Human Resources Management is an award given annually to undergraduate and graduate students.

Paul J. and Marguerite K. Thomas Scholarships in Accounting and Finance Three scholarships awarded to a junior or senior accounting or finance major with at least a 3.5 GPA. To apply, contact the Williamson College of Business. Wall Street Journal Student Achievement Award is presented to a senior in the Williamson College of Business Administration for academic excellence and outstanding performance.

Western Reserve Public Relations Society Scholarship is awarded to a Williamson College of Business Administration student majoring in advertising and public relations. The student must be a junior, have a 3.0 GPA, show financial need, and complete a 500 word essay. Recipient will be selected by the Board of the Western Reserve Public Relations Society. Awarded at the Honors Convocation.

Williamson Leadership This scholarship is given to freshman with a WCBA major. Student must have at least a 3.0 high school GPA.

Yo-Mah-O Chapter, Professional Secretaries International Scholarship pays in-state fees and is provided by the Youngstown Chapter of the National Secretaries Association (International). It is awarded to a woman interested in completing the two-year secretarial course and qualifying for the Associate in Applied Business Degree.

Youngstown Business and Professional Women's Scholarship is a scholarship awarded to a female student who is accepted into an accredited school of higher education in an undergraduate or graduate program. Financial need is considered.

Youngstown District Purchasing Management Association This scholarship is awarded to a student who is a marketing major with financial need.

* Youngstown Traffic Club, Inc. Scholarship is for a WCBA student and a full-time sophomore with a minimum 2.8 GPA and demonstrated financial need. Recipient must attend Club's annual dinner meeting. To apply, contact the Williamson College of Business.

COLLEGE OF EDUCATION

*Eugene Capone Memorial Scholarship was established in memory of Eugene A. Capone, a YSU graduate who spent his life in elementary and secondary education. Children of elementary and secondary school teachers in Trumbull, Mahoning, and Columbiana county schools are eligible. A brief essay is required.

Frieda F. Chapman Award is given annually to an elementary education major who shows evidence of becoming an outstanding elementary school teacher. Awarded at the Honors Convocation in May.

Margaret Davis (Youngstown Education Association) Award. One award per academic year is given to a full-time education major with a 3.3 GPA or better. Student must be a graduate of a Youngstown City School or a dependent of a Y.E.A. member.

Delta Kappa Gamma (Mu Chapter) Award is a scholarship awarded to a junior who is enrolled full-time in the teacher education program with a 3.0 GPA or better.

Delta Kappa Gamma Society International (Alpha Delta State) Award is a scholarship awarded to a resident of Ohio who is enrolled full-time in a teacher education program. Student must be in the junior level with senior status in the Fall. Financial need is considered.

*Bartley and Sarah Doyle Scholarship is a scholarship awarded to an incoming freshman who is a recent graduate of a Mahoning, Trumbull, or Columbiana private or public high school and is pursing a degree in education. Apply at Fedor Hall. Deadline: to be announced Spring or Summer. Scholarship is renewable and reapplication for renewal is not necessary. Requirements for renewal: at least a 3.0 GPA.

John W. and Lucille G. Fedor Scholarships are awarded annually to elementary and special education students. The number of scholarships and amount of each depend on available funds and on each applicant's financial need and academic record. Scholarships are available for both part-time and full-time students. Renewal is possible.

- * Thomas G. and Ellen H. Fitzsimons Scholarship is awarded to an incoming freshman who is a recent graduate of a Mahoning, Trumbull, or Columbiana private or public high school and pursuing a degree in education.
- * Anjulie Fitzsimons-Keegan Scholarship is awarded to a high school senior at time of application in a Mahoning, Trumbull, or Columbiana private or public high school and seeking a degree in education. Apply in the College of Education, Fedor Hall. Reapplication is not required for renewal. Requirements for renewal: full-time, at least 3.0 GPA.

Fleming Education Scholarship. This scholarship is awarded annually by the Youngstown-Mahoning County Retired Teachers Association to a Mahoning county resident who is a senior with at least a "B" grade point average and who will be eligible for a Provisional (standard) Teaching Certificate upon graduation.

* Lions Club of Downtown Youngstown Special Scholarship was established in 1987 by the Lions Club of Downtown Youngstown. Provides a one year award to a sophomore, junior, or senior student majoring in special education. Recipients are selected by a committee within the College of Education.

Kappa Delta Pi Award is given annually by the society to a member who, as a senior, exhibits outstanding scholarship, leadership, character, and service to the organization.

O.E.A. Jean Kershaw Award is an award given to an undergraduate sophomore, junior, or fourthyear student currently enrolled in an approved teacher education program; or a senior in a teacher education program who has been accepted for graduate study at an Ohio college or university. The applicant must be a current member of O.S.E.A. and N.E.A. student program.

Harvey Neal Kretzer Memorial Scholarship Fund This scholarship is for a College of Education Master's candidate in school counseling and/ or related pupil personnel services. If no recipient is available, it may be awarded to undergraduate students pursuing a career in teaching disadvantaged students, based upon scholarship and need.

Bernadine Marinelli Memorial Scholarship is awarded in memory of Bernadine Marinelli, the first female high school principal in the Youngstown City Schools. The scholarship is given to an outstanding upper division secondary education major who is a graduate of the Youngstown City Schools. Awarded at the Honors Convocation in May.

Medina County Retired Teachers Award The recipient of this scholarship must be a graduate of a Medina County high school. Student must be enrolled as a junior or senior in the College of Education.

Ohio Council of Teachers of Mathematics (Len Pikaart Memorial) Award is given to a resident of Ohio who is working toward math teacher certification which includes teaching of math in grades K-12. Individuals who have taught professionally are not eligible for this scholarship.

Dora Schwebel Scholarship was established in 1968 by the family of Mrs. Dora Schwebel as a memorial to her. Students in the College of Education who desire to teach in the Mahoning County School for the Retarded may apply. The scholarship is given to a student needing financial assistance and is renewable for a total of four years subject to good academic progress, continuing financial need, and availability of funds.

Department of Special Education Award is awarded annually to a special education major who, as a senior, exhibits exemplary scholarship and potential for work with exceptional individuals. Awarded at the Honors Convocation in May.

Helen Edward Stoll Scholarship Fund was established in 1993 with an endowment from David Edward. This scholarship provides an award for an education major with an interest in learning disabilities. Recipient must have an overall GPA of 2.5 and be a resident of Mahoning County.

Elvin W. and Margery Swander Memorial Scholarship (Mahoning County Retired Teachers Association) This scholarship is designed for a graduating senior enrolled in the College of Education and is non-renewable. Application deadline: to be announced or posted in Spring or early Summer for the next academic year.

George M. Wilcox Award is an annual award to a secondary education major who shows evidence of becoming an outstanding secondary school teacher. Awarded at the Honors Convocation in May.

COLLEGE OF ENGINEERING

Adlaka and Associates Scholarships established in 1986, provides five partial scholarships, three to senior civil or structural engineering students and two in computer information systems. Recipient shall be a son or daughter coming from a family where the head of the household is presently unemployed.

American Chemical Society Student Affiliates Award is a copy of Van Nostrand's Chemists' Dictionary or other suitable book presented annually to the graduating senior with the highest cumulative point average in chemistry and chemical engineering courses as a full-time student.

American Institute of Chemical Engineers Award is given to the best junior chemical engineering student. The award is one copy of *Chemical* Engineer Handbook published by McGraw Hill.

American Society of Civil Engineers, Youngstown Branch, Award in Civil Engineering is granted annually to the outstanding graduate in civil and environmental engineering.

Builders Association of Eastern Ohio and Western Pennsylvania Scholarship is a tuition scholarship awarded each year to an entering freshman in civil engineering technology. The recipient, who must be a full-time student, receives tuition for two years until graduation with an associate degree, as long as academic standards are met and full-time status is maintained.

Louis A. Deesz Memorial Award is given by the Mahoning Valley Chapter of the Ohio Society of Professional and Registered Engineers, Tri-County Section, to the graduating engineering student outstanding in overall achievement.

Diamond Shamrock Corporation Scholarships These scholarships are for outstanding chemical engineering students recommended by the chemical engineering faculty.

* The John W. Guffey, Jr. and Paula D. Guffey Memorial Scholarship is given annually to a student from New Springfield High School, preferably for a student in the College of Engineering. Renewable for an additional three years based on academic performance. Apply at New Springfield High School.

Robert E. Heltzel, Sr. Memorial Scholarship is awarded on the basis of academic achievement and financial need to an undergraduate engineering student who has completed the first year of the engineering program.

* Ronald J. Hepp Memorial Fund was established in 1985 in memory of the late Ronald J. Hepp, and provides an award each year to a graduating electrical engineering student who exemplifies hard work, dedication, and service to others. Awarded at the Honors Convocation.

Virgil A. Hobart Scholarship is a scholarship awarded annually to an engineering student based on need or merit.

Institute of Electrical and Electronics Engineers, Sharon Section, Award in Electrical Engineering is given annually to the outstanding graduate in electrical engineering.

Institute of Industrial Engineers Award in Industrial Engineering is given to the outstanding graduating industrial and systems engineering student.

Koppers Foundation Company Scholarships are awarded to outstanding students in chemical, mechanical, or electrical engineering. Recipients are chosen on the basis of merit by a faculty committee of the William Rayen College of Engineering. The amount of each scholarship is related to financial need.

Professor Paul Luginbill Chemical Engineering Award goes to the best all-around senior student in chemical engineering.

* Minority Engineering Scholarships are available to minority students studying engineering. Applications may be obtained at the YSU Office of Financial Aid and Scholarships, the YSU Foundation, or the scholarship department of the various colleges. Award created by LTV Steel.

ms consultants award in Civil Engineering Technology recognizes the students who work fulltime while completing the program on a part-time basis. Outstanding students are recommended by the faculty for the certificate and monetary award.

* National Electrical Contractors' Association Scholarships are available for a junior and senior majoring in electrical engineering. Applications available at the Department of Electrical Engineering or the YSU Foundation.

Lenora and Jack Reel and Joe, Steve, and Pete Fabek Memorial Scholarship was established in 1991 by Thomas M. Fabek and is given to a student with the rank of sophomore or higher with a financial need and in good standing in electrical engineering.

Remacor Scholarship is a scholarship awarded to an outstanding junior materials engineering student. The recipient is chosen by the current chair of the Penn-Ohio Chapter of the American Institute of Mining and Metallurgical Engineers, together with the Director of the Division of Materials Engineering.

Nicola and Rocchina Richley Memorial Award is an annual award given to a sophomore student of engineering or engineering technology. Established by family and friends in memory of Nicola and Rocchina Richley. Applicants must have completed at least one term of the sophomore year of their program, have a 3.0 GPA, and demonstrate a commitment to complete the program. The recipient will be selected by a committee of engineering and engineering technology faculty.

Michael A. Rigo Memorial Scholarship is awarded to Mechanical Engineering students who have completed 95 hours. Awards will be based on academic achievement determined by the faculty of the Rayen College of Engineering and financial need determined by the Office of Financial Aid and Scholarships. Students must be residents of Mahoning County. The scholarship is renewable. Awarded at the Honors Convocation.

Edmund J. Salata Scholarship provides assistance to a civil engineering student with a GPA of at least 3.0.

Gerhardt M. Stein Electrical Engineering Scholarship provides an award each year to an electrical engineering student. It was established in memory of Dr. Stein, a former professor of electrical engineering at YSU, by a daughter, Dr. Waltraut J.H. Stein of Atlanta and his son, Dr. Ronald P. Stein of Seattle.

Myron C. Wick, Jr. Scholarships was established in 1985 by a \$93,000 endowment by Alice Tod Wick Hall in Memory of her father, Myron C. Wick, Jr. The endowment makes possible three academic scholarships, two in the physical sciences and one in engineering.

COLLEGE OF FINE AND PERFORMING ARTS

Alpha Psi Omega Award is given annually to a freshman student who has demonstrated distinguished accomplishment in dramatic arts through participation in University Theater productions.

- * Florence Simon Beecher Art and Theater Talent Awards are renewable grants-in-aid given to incoming art or theater students who demonstrate outstanding talent.
- * Larue R. Boals Scholarship was established in 1961 and is awarded to a student in the Dana School of Music.

Charles A. Borawski Memorial Art Award is a cash award for artistic accomplishment given in memory of art student Charles A. Borawski (1951-1978). It is presented annually at the Youngstown State University Student Art Exhibition at the McDonough Museum of Art.

* B. Carrol Cubbison Music Scholarship is funded by a gift from Attorney Theodore R. Cubbison in honor of his wife, B. Carrol Cubbison. Recipients will be selected on a basis of talent and need from YSU's Dana School of Music's Department of Voice. Awarded at the Honors Convocation. Doris I. Dalrymple Award is given to an outstanding ensemble participant.

Dusi Memorial Scholarship Fund was established in 1993 with an endowment from Joseph Dusi, Sr. The scholarship provides an award for students in the Dana School of Music who demonstrate musical talent in any area in the study of music. Awarded at the Honors Convocation.

* R. Donald Elser Award is given to an outstanding junior or senior in the Department of Communication and Theater for scholarship and achievement. Preference for graduates of South Range High School.

Fine and Performing Arts Dean's Awards Three awards are given each year to outstanding seniors. Awarded at the Honors Convocation.

* Dolores Fitzer Scholarship was established in 1979 to honor former member of the Dana School of Music piano faculty. This annual award is presented to a freshman piano student.

Forensics Grant-in-Aid. This award is given to a student in the Department of Communication and Theater. The student must be full-time and participate on the speech team. An interview/audition is required.

Friends of Music Award is given annually to two outstanding students in the field of music.

- * George A. Gabler Music Scholarship provides scholarships to those students who are attending the Dana School of Music and who are majoring in piano. Awarded at the Honors Convocation.
- * Richard A. Martin and Aurora Ragaini-Martin Piano Award was given by a YSU graduate who, with her husband's support, dedicated her life to teaching and playing the piano professionally. The recipient will be the outstanding graduate who has demonstrated excellence in the field of piano and intends to continue in this field. This is an undergraduate graduation award. It is a prize, so students cannot apply for this.

Nellie P. Nick Music Scholarship was established in 1971 by Mildred N. Graebing in memory of her mother, Nellie P. Nick, in recognition of her 100th birthday anniversary. The income from an endowment makes possible annual awards to deserving female students in the Dana School of Music.

* Don Oliver Memorial Fine Arts Scholarship is for an art student at Youngstown State University with a 2.5 or higher GPA. Preference will be given to African-American students. Apply to the Art Department Chair.

Esotto and Vera Pellegrini Brass Scholarship is awarded to an outstanding brass student who is enrolled full-time, maintains a 3.0 GPA, and is a member of a major ensemble. * Rudy and Wealthie Prince Scholarship is a renewable scholarship to assist a worthy and needy student studying music at the Dana School of Music at YSU. The selection is made by the scholarship committee of the Dana School of Music.

Mary P. Rigo Memorial Scholarship was established in 1986. This endowment will be awarded to students in the Dana School of Music who have completed 95 hours. Students must be music majors with emphasis in keyboard instruments. Selection, made on the basis of talent, will be determined by the Dana School of Music faculty. Students must be residents of Mahoning County. The scholarship is renewable. Recipients are awarded at the Honors Convocation.

* Herman C. Ritter Scholarship for the Violin is an endowment from the estate of Miss Juliet L. Ritter and was made available in 1957. The annual income provides a scholarship for a needy student who intends to make a career of music and shows particular promise on the violin. Awarded at the Honors Convocation.

SAI Honor Certificate is a music award given to the graduating Sigma Alpha Iota women's fraternity member with the highest grade point average.

Gina Tenney Memorial Scholarship is for applicants who have a 3.4 GPA or higher, be a sophomore, a fine arts or humanities major, and be involved in extra-curricular activities.

Theater Grant-in-Aid. Four grants are available to full-time students who agree to major in theater with a minimum of a 3.0 GPA and have demonstrated ability. Participation in the theater production program is required.

Miriam S. Ullman Scholarship is provided annually by the Monday Musical Club of Youngstown. It is intended primarily for students who attend the Dana School of Music. This scholarship is renewable.

* Bessie Wilson Music Scholarships . The income from an endowment from the estate of Katharine Wilson in memory of her sister, Miss Bessie Wilson, is used for scholarships for music students. Applications may be sent to the Director of the Dana School of Music, who makes the recommendations to the Scholarship Committee.

Youngstown Music Teachers Association Scholarship is a scholarship awarded to an upplerclass music major chosen through a competitive audition each Spring.

COLLEGE OF HEALTH AND HUMAN SERVICES

* Dr. Jean Aboul-Ela Graduation Prize is a one year membership in the American Dietetics Association to a senior graduating from the Coordinated Program in Dietetics. Apply in the Department of Human Ecology, 3043 Cushwa Hall, 742-3344. Application deadline: May 1. Not renewable.

American Legion Post 15 Awards are given to two cadets who rank in the top 25% of their academic class and have demonstrated outstanding leadership traits.

Association of the United States Army Medal is awarded to the cadet completing the first year of advanced courses who is the most outstanding in all academic subjects and who has completed one full year of the ROTC program at YSU.

- * Mary J. Beaubien Human Ecology Alumni Scholarship is given to a student who has completed the sophomore year and majored in a four-year degree program in the Department of Human Ecology while maintaining a 3.0 GPA and who produces the outstanding essay on a current public policy issue. Applications are in the Department of Human Ecology. If you have questions, call 742-3344 or fax 742-2309. Not renewable. Recipients are announced at the Honors Convocation.
- * Colonel Lloyd Booth Scholarship was established in 1965 by the Mahoning Chapter of the Reserve Officers' Association as a memorial to Colonel Lloyd Booth. It pays \$250 for the Military Science tuition during the recipient's junior year in the advanced course. Selection is based on the student's academic and military records and on financial need.
- * Doris Burdman Scholarship was created in 1983 by the grandchildren and great grandchildren to honor the memory of Doris Burdman who worked tirelessly for the benefit of mentally, physically and emotionally handicapped persons. The scholarship will be awarded on the basis of financial need and scholastic achievement to a graduate or upper-level undergraduate student of Youngstown State University majoring in the field of social work.

Daughters of the American Revolution Award is a gold medal presented annually to the graduating cadet in the top 25% of the ROTC and the academic class.

Gilda DeCapita Award is given annually by the nursing chapter of the YSU Alumni Association to an honors student in the nursing program. The student must be in good standing and in need of financial assistance. The amount of the award given is determined annually by the chapter's board.

* James W. Degarmo Criminal Justice Scholarship was established in 1976 by the Law Enforcement Honor Society of the Department of Criminal Justice of YSU. Its purpose is to give recognition to the contributions of James W. Degarmo to the profession of law enforcement and criminal justice education. Upperclass students evidencing outstanding scholastic performance in criminal justice studies are eligible for this award. Recipients are announced at the annual Honors Convocation.

Department of the Army Superior Cadet Ribbon Award is given to the outstanding student in Military Science.

Distinguished Military Graduate Honor Award is presented by the president of YSU to designated distinguished military graduates.

- * Ilajean Feldmiller Scholarship is an annual award established in 1985 to honor Ilajean Feldmiller, a long-time faculty member and former chairperson of the Human Ecology Department. Its purpose is to assist in the development of concerned professionals. The recipient is selected by a committee of the faculty and the students must be currently enrolled in one of the Human Ecology programs.
- * Mary Ferry Memorial Paper Competition was established in 1996 by Dr. Joan Ferry DiGiulio, Chair of the Social Work Department, to honor the memory of her mother. Two awards are given yearly to declared social work majors. The scholarship committee of the Department of Social Work determines the topic for the papers each year. This committee also judges the entrants. Students submit papers to the Scholarship Committee, Department of Social Work at Cushwa Hall. Students may call 742-1598 with questions. Awarded at the Honors Convocation.

Dean Gillespie Award is presented to the ROTC senior who has demonstrated the most facets of leadership.

Lori Grenich Student Nurse Award is issued by District #3 of the Ohio Nurses Association to a student demonstrating excellence in clinical nursing as judged by the faculty.

Nathan Hale Chapter, Sons of the American Revolution Awards are presented to the ROTC cadet completing the basic course who is selected for and enrolls in the advanced course, and to the cadet completing the advanced course who is commissioned in the Officers Reserve Corps of the Army of the United States and who best exhibited the qualities of leadership.

- * Health-O-Rama Scholarship is a one year scholarship awarded to a student of sophomore rank or higher majoring in pre-med or other health-related field. Student must have a 3.2 GPA, demonstrate financial need and have graduated from high school in Mahoning, Trumbull or Columbiana counties in Ohio or in Mercer or Lawrence counties in Pennsylvania. Selection is made by a committee of CHHS faculty through review and evaluation of applications.
- * Jermaine Hopkins Academic Scholarship is awarded to a hospitality management major, junior or senior, who exemplifies the career planning, community service, and academic dedication of Jermaine Hopkins. Apply in the Department of Human Ecology to the Hospitality Management Program Coordinator. A selection committee com-

- posed of interested faculty and 2 students selected by the Hospitality Management Society Board review the applications. Apply at Cushwa Hall 3043, or call 742-3344 for details. Deadline: Feb. 1. Not renewable. Announced at the Honors Convocation.
- * Margaret C. Horvath Scholarship provides financial assistance to Human Ecology Department students to attend professional meetings at which they will be presenting papers or posters. Complete an application in the Department of Human Ecology, 3043 Cushwa Hall or call 742-3344. Deadline varies. Based on students' requests to attend professional meetings. Not renewable.
- * Hynes-Finnegan Scholarship in Nursing is awarded to a qualified nursing student at YSU. Must be accepted into the Nursing Program; have met full eligibility requirements; have 3.0 or higher GPA; be a graduate of an accredited high school in Mahoning, Trumbull, or Columbiana counties in Ohio or in Mercer or Lawrence Counties in Pennsylvania; and must have a financial need. Applications at the Department of Nursing. Not renewable.

Mahoning Chapter, Reserve Officers Association, ROTC Honor Awards are medals presented to the cadet completing the basic course who is selected for and enrolls in the advanced course, and to the cadet completing the advanced course who is commissioned in the Officers Reserve Corps of the Army of the United States and who best exhibited the qualities of leadership.

Ohio Nurses Association District III Award is given annually to the member of the graduating class in the nursing program who has the best scholastic record in clinical nursing.

Outstanding Home Economics Student Award is given to a graduating senior chosen by the faculty for superior academic achievement and service.

Corydon Palmer Dental Society Award is presented to two outstanding dental hygiene students in year one of the program and one to a graduating student on a yearly basis.

* Nicholas Paraska Scholarship was created in 1982 by friends and colleagues to honor Nicholas Paraska for his service as dean of College of Health and Human Services. It is awarded annually on the basis of academic achievement and need to a student majoring in one of the College of Health and Human Services programs who is completing an associates degree.

President-Professor of Military Science Award is presented to the senior cadet judged by the Military Science Cadre to be the most outstanding student in the class.

* Barbara Lewis Roberts Memorial Scholarship was established in 1997 by family members and former employees of Northeast Ohio Adoption Services to honor Barbara Roberts, who was instrumental in founding this agency. One to two scholarships per year are awarded to declared majors in Social Work. Preference will be given to applicants with the intention of employment in the field of child welfare and/or special needs adoption. Applications are available in the Department of Social Work, Cushwa Hall, 742-1598. Scholarship is not renewable. Awarded at the Honors Convocation.

* Lieutenant Colonel Joseph Louis Sacchini ROTC Scholarship is for a full-time Military Science cadet. Apply at the Military Science Department.

Alice W. Tod Scholarship is awarded by the Women's Board of the Youngstown Hospital Association to an upperclass student seeking a Bachelor of Science in Nursing degree. It is awarded on the basis of academic excellence and is renewable for a second year provided the recipient maintains full-time status and meets the established academic standards governing the award. Selection of the recipient is based on the recommendation of the director of the Associate Degree Nursing Program and the Women's Board of the Youngstown Hospital Association, in cooperation with the University's Director of the Office of Financial Aid and Scholarships.

Roseann Waindel Memorial Foundation Nursing Scholarship is awarded to a student who is planning a career as an emergency room/trauma nurse, who has a 3.0 or higher GPA, and who demonstrates financial need.

Woman's Board of Youngstown Hospital Association Award for Excellence in Nursing is awarded annually to the member of the graduating class in the nursing program who has the highest grade point average.

GENERAL SCHOLARSHIPS

The following are general scholarships/awards/ prizes awarded by the University, organizations, individuals, and/or state agencies. To find out more, contact the Office of Financial Aid and Scholarships or the particular organization or agency.

*Designates YSU Foundation Scholarships

American Association of University Women, Youngstown Branch, Scholarship was established in 1950. A grant is awarded each year to an upperclass woman student, on the basis of high scholarship and financial need.

Army Four-Year ROTC Scholarship pays full tuition, mandatory and miscellaneous fees, \$450 per year for books and an annual stipend of \$1,500 (\$150 per month of the school year). Students must apply as high school seniors, must be American citizens with an ACT of at least 19 or SAT score of 850. Results in commission as an officer in the U.S. Army upon graduation.

Army Two and Three Year ROTC Scholarships are available for current freshmen or sophomores.

Pays \$2,550 per year in tuition, mandatory and miscellaneous fees, \$450 per year for books, and \$1,500 annual stipend (\$150 per month for the ten months). Must be a U.S. citizen and have a cumulative GPA of 2.5. Results in commission as an officer in the U.S. Army upon graduation.

Army ROTC Graduate School Scholarship is available to current college seniors who will complete graduate degree requirements in two years of graduate school. Some entitlements are obligations as Army Two and Three Year R.O.T.C. Scholarships.

* Eugene C. Beach Memorial Scholarship was established in 1976 by the members and friends of First Christian Church of Youngstown, Ohio, as a memorial to Dr. Eugene C. Beach, minister and national president of Tau Kappa Epsilon Fraternity. The income from the endowment provides an annual scholarship for a worthy and needy member of Epsilon Iota, the local chapter of Tau Kappa Epsilon. The board of control of Epsilon Iota recommends a recipient.

Brier Hill Scholarship was established in 1992 by residents and former residents of Brier Hill. This endowment provides a scholarship to descendants of Brier Hill residents and former residents. Applicants must have an overall GPA of 2.8 or above. Preference will be given to non-traditional students with the rank of junior or above. Financial need will be considered where more than one student qualifies.

Buechner Foundation Scholarships The Lucy R. Buechner Foundation, which operates a 75-bed residence hall for women on the YSU campus, provides two \$6000 scholarships each year to freshman women who will reside in Buechner Hall. These scholarships are for full-time (12 hours per quarter) students and are payable at the rate of \$500 per academic quarter. Eligible women will have a 2.5 or higher cumulative GPA at YSU for renewal. Financial need is a factor in these scholarships. Contact the Office of Financial Aid and Scholarships at YSU for application forms. Women need not be residents of Buechner Hall to apply, but must reside there to receive the award. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

* James Campbell Scholarship provides assistance to residents of Mahoning County. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 of each year.

Theodore P. & Evelyn H. Chengelis Memorial Scholarship was established in 1997 by Patricia, Perry, Nicholas, and Dr. James Chengelis, in memory of their parents, Theodore and Evelyn Chengelis. The scholarship will be awarded to a student of Hellenic heritage who will matriculate to medical school. The scholarship will be awarded at the Honors Convocation. The recipient will be selected by the Chengelis family of Boston, Massachusetts.

Betty J. Connors Memorial Scholarship is intended to provide aid to a mother over 35 who wishes to begin or resume a college education but requires financial assistance to do so. Applicants are reviewed by a committee established by the University, and the recipient is chosen on the basis of her life experience, financial need and academic potential. For more information and application procedures contact the Office of Financial Aid and Scholarships.

Copperweld Steel Company's Warren Employees' Trust Scholarships are provided by the employees of the Copperweld Steel Company in Warren, Ohio, to aid deserving and able employees of the company, or their dependents, to secure a college education. The number of scholarships and the amount of each depend on available funds, the number of applicants, and each applicant's financial need and academic promise.

- J. Ford Crandall Memorial Foundation Scholarships provide tuition for full-time undergraduate students from Mahoning County and are renewable for a maximum of 11 additional academic quarters. Recipients are selected on the basis of scholastic record from among students nominated by the Buckeye Elks Lodge of Youngstown. To apply, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.
- * Cora E. Emerson Memorial Scholarship was founded in 1972 by a bequest of Cora E. Emerson to provide assistance annually to a deserving and needy full-time student.

Thomas M. Fabek and Peter A. Fabek Scholarship is for a student who is an orphan or a foster child from Youngstown with a grade point average of 2.5 or higher. If a candidate from Youngstown does not qualify, candidate may come from any city in Mahoning County. First year students may apply. The scholarship is renewable for recipient that maintains a 2.5 GPA. Candidate may be suggested by Youngstown Catholic Services or Mahoning County Juvenile Department.

General Extrusion, Inc., Scholarship was established to help deserving and able employees of General Extrusion, Inc., or their dependents to secure an education at YSU. It is awarded annually to an entering freshman who is a three-year employee with the company, or a dependent of a three-year employee, retiree or former employee who died while still associated with the firm. It is renewable for up to four academic years provided the student maintains the scholarship level and fulfills the requirements governing the scholarship. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1.

* Hindu Community Scholarship is for students of the Hindu and Vedic cultures. The recipient must be of Asian-Indian ancestry and must maintain a GPA of 3.0 or above. Application forms may be obtained from the Hindu Community Foundation or the YSU Foundation.

Home Savings and Loan Scholarship is available to children of active employees of The Home Savings and Loan Co. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

- * Neil D. Humphrey Scholarship was established by family and friends of Dr. Neil D. Humphrey, fourth president of Youngstown State University. This scholarship is awarded annually at the Honors Convocation to a YSU student completing his or her junior year. Applications are reviewed by a three-member committee consisting of the president of the YSU Foundation, the provost and the vice president of Student Services. Students will be selected on the basis of scholarship and participation in campus activities.
- * Hynes Industries, Inc. Scholarships provides two annual grants to children of Hynes employees, with first consideration given to incoming firstyear students. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.
- * IGS Scholarships are awarded annually to incoming freshmen, one each from Liberty and Lowellville. Recipients must attend YSU full-time, maintain good academic standing and have demonstrated financial need.

The Interfraternity Council Awards for Scholarship is given annually to the fraternity chapter with the highest aggregate point index and to the member of a fraternity with the highest individual point index, based on the academic work of the previous three quarters. The awards are presented during the Spring quarter at the Greek Sing.

- * JAD Scholarship is awarded annually to a fulltime student in good academic standing with a minimum GPA of 2.5 and demonstrated financial need.
- * Judge Nathaniel R. Jones Scholarship is awarded to minority and/or economically disadvantaged students with a 2.5 GPA who are pursuing careers designed to advance intergroup relations. Includes a public service requirement.
- * Howard W. Jones Scholarship was created in 1980 to honor Dr. Howard Jones, the University's first president, who served for more than 35 years and was subsequently president of the Youngstown State University Foundation for an additional 11 years. It provides an award for a YSU student in need of financial assistance who has a good academic record in high school and/or college. The recipient is selected by a committee of the Youngstown State University Foundation.

Junior Civic League Scholarships were established in 1961, provides for worthy students by the Junior Civic League of Youngstown.

* Michael B. Kaufman Memorial Scholarships are funded by an endowment created by GEN. Jack D. Kaufman and Beatrice Kaufman in memory of their son, Michael B. Kaufman. Michael B. Kaufman Memorial Scholarships are available to members, spouses or the children of members of United Steel Workers of America. Officers, directors, staff persons, employees of this Union or their offspring are not eligible for these scholarships. No individual will be eligible for more than one scholarship. Recipients will be selected by the YSU Office of Financial Aid and Scholarships on the basis of need, from the first 20 applications received. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Martin T. Kennedy Scholarship was established by the will of Martin T. Kennedy. This scholarship is used to assist needy students.

Michael Klasovsky Fund for Urban Studies This scholarship is awarded to a student majoring in geography who is employed in the Department of Urban Studies.

- * William F. Maag, Jr. Scholarship was established in 1947 in honor of William F. Maag, Jr. by his friends. Awarded to an upperclass student and is non-renewable. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.
- * William F. Maag, Jr. Vindicator Scholarship provides annual awards to worthy students based on academic excellence and financial need. First consideration will be given to students majoring in the humanities. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Ronald Barnes and Emily Parker Mackall Scholarship is for a junior or senior with at least a 2.8 GPA. The student must have completed one year of basic economic principles and one year of fine arts classes. The selection committee shall consist of the department chair or the assistant provost as well as two to three faculty members. This scholarship is available to students in the five county area as well as Beaver County, PA.

* Mahoning National Bank Scholarship is for full-time freshman students whose parent(s) are employed by Mahoning National Bank. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Honorable Erskine Maiden, Jr. Scholarship provides annual awards to worthy students based on financial need and academic excellence. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

* Martin Family Scholarships are for YSU junior or senior students who are residents of Mahoning, Trumbull, or Columbiana counties in Ohio, or Lawrence or Mercer counties in Pennsylvania. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Paul E. Martin Scholarship was established by a northeast Ohio area business leader. Provides financial aid to Youngstown State University students for Mahoning and Trumbull counties. Applicants may be enrolled in either associate or bachelor's degree programs as either full- or parttime (min. 6 quarter hours) students. They must have at least a 3.0 GPA. The scholarship is awarded on the basis of academic achievement and financial need, without regard to sex, race or creed. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

* Pete Matsouris Scholarship is available for worthy and needy students who are residents of Mahoning or Trumbull counties. Applications may be obtained at YSU's Office of Financial Aid and Scholarships.

Edna K. McDonald Cultural Awareness Award to recognize an outstanding individual who has made a lasting contribution to encourage and increase awareness of cultural diversity at Youngstown State University. All faculty, staff, students, and members of the extended YSU community are eligible for the award.

* Minority General Scholarship Awards were created during the 1995-1998 Capital Campaign to encourage and reward promising minority students. A committee of various college personnel, the YSU Foundation and the minority community will make the selection. Apply at the various colleges.

National Guard Scholarship Program. The state funds this program to assist persons who enlist in the Ohio National Guard after September 1, 1977 for at least six years. Awards cover 60% of the cost of instructional and general fees. Eligible guardsmen should contact the Adjutant General's Office to apply for this program.

New Center Associates Scholarship is given to a full-time junior or senior with at least a 2.0 GPA. Must be a student who, without the scholarship, would not be able to pursue his or her education.

* Carl Nunziato Scholarships are awarded annually to high school seniors who have received the Army Four-Year R.O.T.C. Scholarship. This scholarship pays for room and board at a YSU dormitory. Apply through R.O.T.C.

Ohio Academic Scholarship Program The state funds this program to assist undergraduate students who exhibit exceptional academic ability. High school seniors who are residents of Ohio and who plan to attend an approved Ohio institution of higher learning on a full-time basis may apply. The recipients are chosen by the Ohio Board of Regents on the basis of grade point average and performance on a competitive examination. The scholarships are awarded in the amount of \$1,000 per academic year for four years of undergraduate education.

Ohio Masonic Lodge Scholarship was established in 1963 by Grand Lodge of Masons of Ohio and is given to a worthy student. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Ohio War Orphans Scholarship This undergraduate tuition scholarship is awarded on a renewable basis to children of members of the U.S. Armed Services who incurred disability or died while in service. This program is sponsored through the Ohio Board of Regents. Each recipient must have a cumulative grade point average of at least 2.0 by the end of the freshman year and must maintain no less than a 2.0 cumulative grade point average for each following year. Students must be enrolled at least 12 credit hours.

Panhellenic Council Award for Scholarship is given annually to the sorority chapter with the highest aggregate point index and to the member of a sorority with the highest individual point index, based on the academic work of the previous three quarters. The awards are presented during the Spring quarter at the Greek Sing.

- * Tom Pemberton Memorial Scholarships provide for graduates of Mahoning County high schools in the upper two-thirds of their high school classes. Preference given to those with deceased fathers. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.
- * Joseph Potochny Scholarship is made possible by a bequest of Joseph Potochny in 1963, and is granted to needy and deserving students of Ukrainian descent. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.
- Rudy M. Prince Memorial Scholarship was established in 1991 by the Boardman Rotary Club and the Prince family. This endowment will be awarded annually to a student from the Mahoning County Vocational School who will attend Youngstown State University.
- * Haig Ramage Scholarships provide scholarships for the freshman year. Selection of recipients is based on scholastic and leadership qualities and need for assistance.
- * ROTC Military Science (Gold Bar) Scholarships. Twenty (20) one-year scholarships were established by the Youngstown State University Foundation in the amount of \$333 per quarter. Available to entering freshmen and current YSU sophomores.
- * Kenneth L. Schafer Scholarship is available to a member of the TKE fraternity. Preference will be given to history majors.
- * Irving Schwebel Memorial Scholarship was created in 1985 by the Schwebel Baking Company in memory of the late Irving Schwebel who was its president and chairman of the board. The Irving

Schwebel Memorial Scholarship is available for the children of full-time Schwebel Baking Company employees who have at least two years of continuous service. First priority will be given to incoming freshman students. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

* Mary B. Smith Scholarship was established in 1980 to honor Mary B. Smith on her completion of 41 years of exemplary service at YSU. Provides scholarship aid to a deserving adult student who cannot otherwise qualify for specific financial assistance. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Louis and Julia Spitzer Memorial Scholarships were established in 1961 for students of the Jewish faith who need financial assistance. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

* Stephens Family Scholarships are available to Ohio residents with a minimum 2.5 GPA. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Strouss Scholarship established in 1984, provides aid to two students nominated by the Buckeye Elks Lodge of Youngstown, Ohio.

* C.J. Strouss Memorial Scholarship is awarded annually to an upperclass student in memory of the late Clarence J. Strouss, a longtime trustee and devoted friend of the University.

Louis D. Tauro Scholarship was established in 1986. Awards are available to entering freshmen based on financial need and high school academic achievement. The scholarship is renewable for four years provided the student maintains a 3.0 GPA. Recipients may be nominated by the donor. The annual award will be in the amount sufficient to cover the instructional fee for a full-time student. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

UAW Local 1112-BOC Lordstown Assembly Joint Scholarship was established in 1990, to assist spouses and other legal dependents of UAW Local 1112 and full-time, salaried employees of BOC Lordstown Assembly Plant with one year or more affiliation. Full-time students with the rank of sophomore or higher, with at least a 2.5 GPA, and receiving no other financial aid other than a student loan are eligible. Application process is through the union locals.

- * Grace and Blanche Vail Scholarship is available for worthy and needy students. Applications may be obtained at YSU's Office of Financial Aid and Scholarships.
- * The Lia N. Vouros Memorial Scholarship was created by Attorney Joseph E. Vouros and friends in memory of Attorney Vouros's wife, the late Lia

N. Vouros, available for YSU students whose parents are members of St. Johns Greek Orthodox Church of Boardman, Ohio. Recipients are selected on the basis of academic performance from a list of candidates provided by an advisory committee of St. John's Greek Orthodox Church. Apply at the church.

* Sally Watson Scholarships were established in 1969 by friends of the late Sally Watson, to provide assistance to worthy students. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1.

* Walter Wollet Family Scholarships are available for worthy and needy students. Applications may be obtained at YSU's Office of Financial Aid and Scholarships.

Wolves Club Scholarship is for worthy and needy Mahoning County high school graduates. Renewable up to four years. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

Youngstown Claims Association Scholarship is provided to a dependent child of an active member who is in good standing of the Youngstown Claims Association, Inc. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

* YSU Retired Women's Club Scholarship is awarded to a full-time female junior or senior in good academic standing. Apply at the Women's Center.

Youngstown State University Women's Club Scholarship is awarded to a full-time female student with a minimum GPA of 3.3 who has achieved 48+ hours and has a declared major. Apply in the Women's Center.

- * William Zemko Memorial Scholarship is available to a student majoring in Emergency Medical Technology (EMT) with a minimum 2.0 GPA.
- * Isadore Zobel Scholarship was established in 1966 under the will of Isadore Zobel. This scholarship provides assistance to needy students of the Jewish faith. To apply for consideration, check this on YSU's Institutional Aid Application. Deadline: March 1 each year.

ATHLETIC SCHOLARSHIPS/ AWARDS/PRIZES

* Gene D'Antonio Memorial Golf Scholarship was established in 1980 in memory of the late Gene D'Atonio, who took great joy in teaching golf to young people. For a member of the YSU golf team who lives in Mahoning or Trumbull County. The recipient is selected by the Athletic Director and the Head Golf Coach at Youngstown State University.

Bill Dailey Scholarship This award is available to a former member of the YSU intercollegiate basketball team to continue and/or complete his or her undergraduate studies. Recipient is recommended by the Dailey family and the Athletic Director.

- * Lester F. Donnell Memorial Athletic Scholarship Lester F. Donnell's interest in athletics and higher education prompted the creation of this scholarship fund. This scholarship addresses the belief in development of the total person. It seeks to encourage the student athlete to strive for excellence in his or her academic and athletic pursuits. Sophomore, junior, and senior students who have a cumulative grade point average of at least 3.0 and are members of a YSU intercollegiate athletic team in a non-revenue sport are eligible to apply.
- * Bill Dunn Scholarship is given in memory of a YSU graduate who was an all-american tennis player.

Harry K. Graebing Athletic Scholarship was established in 1969 by Mildred N. Graebing in memory of her husband, Harry K. Graebing. The income from an endowment makes possible annual grants to deserving Ohio or Pennsylvania students participating in YSU athletics as recommended by the Athletic Director.

- * Jermaine Hopkins Scholarship is given in memory of an all-american football player.
- * William Lakin Scholarship is given in memory of a Dollar Bank employee who enjoyed golf.
- * YSU Lineman Leadership Award is given to an interior offensive lineman.
- * Richard Mayberry Scholarship is a general athletic scholarship.
- * Lawrence M. Stolle Athletic Scholarships were established in 1973 by the Greater Youngstown Old Timers Association and other sports enthusiasts to honor Lawrence M. Stolle as sports editor of the Youngstown *Vindicator*. The income from an endowment makes possible annual scholarships for deserving students who participate in the University's athletic program.

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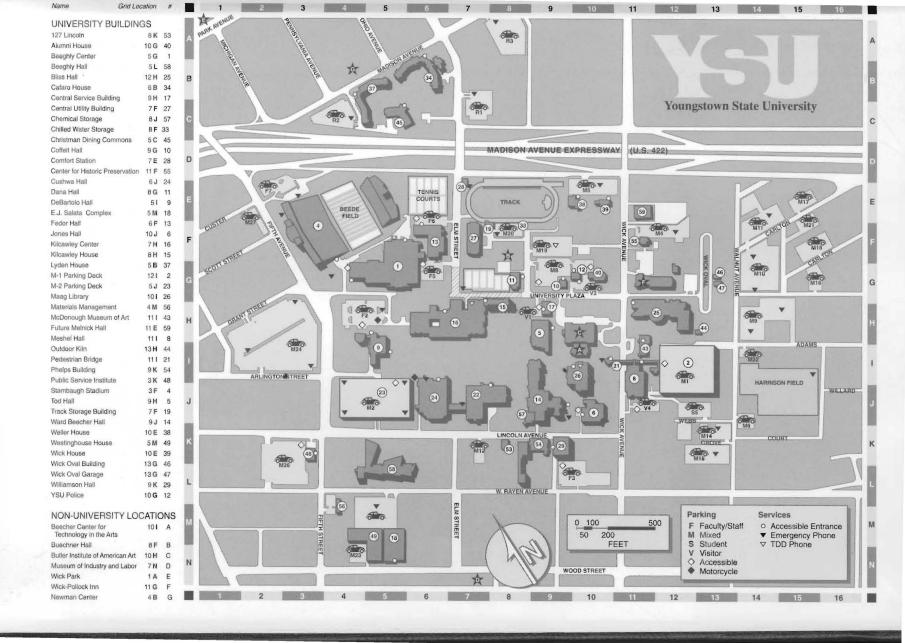
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Mathematics and Statistics, Dept. of,	TODA141
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McDonough Museum of Art	Student Health Services, BEEG200
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Metro College—Eastwood Mall 652-2828	Ticket Office, Athletics, STAM2036
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Military Science, Dept. of, STAM1112 3205	Transcript Office, JONE1013
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DEBH444	YSU Website www.ysu.edu
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r resident, Office of the, 100A210	
BUILDI	NG KEY
ALUM Alumni House	MAAG Maag Library
BEEG Beeghly Health & Physical	
Education Center	METS Metro College, 100 DeBartolo Place, Youngstown (Southwoods Commons)
BEGH Beeghly Hall	PHLPPhelps Building
BLSS Bliss Hall	POLC
COFF Cof felt Hall	
CUSH Cushwa Hall	Statement To the State of the S
DANA Dana Hall	TODA
DEBH DeBartolo Hall	WBSHWard Beecher Science Hall
ENGR Engineering Science Building	WELL Weller House
IONE Jones Hall	WICKWick House

KILC Kilcawley Center



Youngstown State University

