

MEMORANDUM OF TRANSMITTAL

TO: MEMBERS OF THE BOARD OF TRUSTEES OF YOUNGSTOWN STATE UNIVERSITY, AND DR. CYNTHIA E. ANDERSON, PRESIDENT

FROM: FRANKLIN S. BENNETT, JR., SECRETARY TO THE BOARD

DATE: JUNE 10, 2011

**RE: MINUTES OF REGULAR BOARD MEETING
NOTICE OF REGULAR MEETING**



1. Board of Trustees Regular Meeting # 307 – March 14, 2012

Enclosed are minutes for the above-described meeting of the Board of Trustees of Youngstown State University.

Please be advised that the next regular meeting of the board of trustees of Youngstown State University will convene at 3:00 p.m., Wednesday, June 13, 2012, in the Board Room in Tod Hall.

MINUTES OF REGULAR MEETING
OF
BOARD OF TRUSTEES
OF
YOUNGSTOWN STATE UNIVERSITY

Tod Hall
Wednesday, March 14, 2012

Pursuant to notice duly given, a regular meeting (the three hundred seventh) of the Board of Trustees of Youngstown State University convened at 3:00 p.m., on Wednesday, March 14, 2012, in the Board Room in Tod Hall.

Nine trustees were present at the meeting, to-wit: Dr. Sudershan K. Garg, chairperson of the board, who presided, Ms. Millicent S. Counts, Mr. Scott R. Schulick, Mr. Harry Meshel, Mrs. Carole S. Weimer, Mr. Leonard D. Schiavone, Ms. Delores E. Crawford, Mr. David C. Deibel and Mr. Joshua M. Prest. Dr. John R. Jakubek and Mr. Ryan A. Meditz were absent.

Also present were: Dr. Cynthia E. Anderson, President; Dr. Ikram Khawaja, Provost and Vice President for Academic Affairs; Mr. Eugene P. Grilli, Vice President for Finance and Administration; Ms. Holly A. Jacobs, University General Counsel; Mr. John Fahey, Vice President for Student Affairs and Mr. Franklin S. Bennett, Jr., Secretary to the Board of Trustees. Also present were approximately 50 persons, including deans, members of the faculty, students, administrators, and members of the news media.

ITEM I – PROOF OF NOTICE OF MEETING.

Evidence was available to establish that pursuant to Article II, Section 1, of the board's *Bylaws*; written notice of today's regular meeting was timely provided to each of the trustees, the student trustees, and to the president.

ITEM II – DISPOSITION OF MINUTES FOR MEETING HELD DECEMBER 14, 2011.

Prior to the meeting, the secretary had provided draft copies of the minutes of the board's regular meeting held December 14, 2011 (#306) to each trustee, the student trustees and the president. There being no additions, corrections, or revisions thereto, the minutes of the said meeting were approved as provided.

ITEM III – REPORT OF THE PRESIDENT OF THE UNIVERSITY.

Dr. Anderson reported that the university continues to monitor the Fiscal Year 2012 budget, and that the university is on track with the budget. Dr. Anderson stated that actual spring enrollment is in line with budget estimates of 92% of fall enrollment. A budget task force has been assembled and will make a formal report to the board of trustees in June.

Dr. Anderson reported that the Higher Learning Commission has informed the university that it is eligible to participate in the “open pathway” form of accreditation, which is a simpler and more flexible option. The open pathway form is available only to institutions that meet criteria established by the Commission. The form utilizes an “assurance process” and an “improvement process,” the latter of which replaces the self-study process.

Dr. Anderson reported that, during the past academic year, 24 full-time faculty had been hired by the university. The Provost has approved the hiring of 34 full-time faculty in the coming academic year. Dr. Anderson stated that it is her intention to continue to invest in faculty and the academic affairs division in order to maintain and improve the quality of student education at Youngstown State University.

Dr. Anderson stated that the graduate school admissions process is being transitioned into the undergraduate admissions area with the goals of increasing graduate school enrollment, scholarships and assistanceships.

Dr. Anderson reported that the initial implementation of the Starfish retention software was successful.

Dr. Anderson thanked Ms. Millicent S. Counts and Mr. C. Reid Schmutz for their years of service to the university and its students.

ITEM IV – REPORTS OF THE COMMITTEES OF THE BOARD.

The chairperson asked whether any trustee had an objection to the approval by unanimous consent of the resolutions recommended for adoption by the committees of the board. There being no objection, the chairperson stated that the recommended resolutions would be considered for adoption by consent. The board considered the following committee reports and recommendations:

1. Academic Quality and Student Success Committee

The chairperson noted that the Academic Quality and Student Success Committee was recommending four resolutions for adoption by the board. There being no objection thereto, the chairperson declared the following resolution adopted by general consent:

Resolution to Authorize
Conferral of Honorary Degree

YR 2012-28

BE IT RESOLVED, that the Board of Trustees of Youngstown State University does hereby authorize the conferral of a Doctor of Arts (Art.D.) degree, honoris causa, upon Nanette Lepore, with all the rights and privileges attendant thereto.

Resolution to Approve
An Agreement of Cooperation Between
Youngstown State University and the
Youngstown State University Research Foundation (YSURF)

YR 2012-29

WHEREAS, the Board of Trustees of Youngstown State University approved a resolution on October 1, 2010, to establish the Youngstown State University Research Foundation; and

WHEREAS, the Youngstown State University Research Foundation was established as a non-profit corporation in accordance with ORC §1702 and has an application pending for status as an exempt/supporting organization under IRS Section 501(c)(3); and

WHEREAS, the Youngstown State University Research Foundation desires to further the research objectives of the University and to contribute to the economic benefits of the community and State; and

WHEREAS, the Youngstown State University Research Foundation wishes to administer a program of evaluation and marketing of University work products to persons, firms and corporations, including the rights to manufacture, use and sell such University work products; and

WHEREAS, such activities by the Youngstown State University Research Foundation will be of mutual benefit to both the University and Research Foundation, as well as the greater Mahoning Valley;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University enter into the proposed Agreement to memorialize the mutual responsibilities of Research Foundation and University in the furtherance of their mutual research and commercialization activities.

Resolution to Approve
A Master of Arts in Interdisciplinary Communications Degree

YR 2012-30

WHEREAS, a Master of Arts in Interdisciplinary Communication will serve the needs of people in Northeast Ohio and Western Pennsylvania in any organizational setting who wish to develop advanced communication knowledge and skills; and

WHEREAS, the program will provide graduate students with the necessary background and skills to succeed in professional writing, public relations, and management positions; and

WHEREAS, the program emphasizes skill and workforce development and is therefore unique among graduate communication programs in Northeast Ohio; and

WHEREAS, Youngstown State University has faculty with the requisite credentials to offer this degree; and

WHEREAS, the fiscal resources for the administration of such a degree currently exist in the College of Fine and Performing Arts, the College of Liberal Arts and Social Sciences, and the Williamson College of Business Administration;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University approves the offering of the Master of Arts in Interdisciplinary Communication degree subsequent to the approval of said degree by the Ohio Board of Regents.

Resolution to Establish
The Natural Gas and Water Resources Institute

YR 2012-31

WHEREAS, Youngstown State University created the College of Science, Technology, Engineering, and Mathematics to foster the growth of research and interdisciplinary programs; and

WHEREAS, the YSU 2020 strategic plan vision proposes the University will become a national model for university-community engagement that enhances teaching and learning, student and faculty research, and community well-being, with cornerstones in research and community engagement; and

WHEREAS, the Utica Shale natural gas and liquids deposits represent significant opportunity for jobs creation and economic development within the Mahoning Valley region, and Youngstown State University is strategically located within the heart of the Utica Shale region; and

WHEREAS, YSU faculty possess critical expertise in the areas of petroleum geology, geochemistry, hydrogeology, water quality, environmental microbiology, chemical detection and analysis, environmental impacts and conservation, and energy systems – the key technical areas needed for the education of students interested in working in the oil and gas industries and for

the development of new technologies associated with the clean production and use of gas resources;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University designates the Natural Gas and Water Resources Institute within the College of Science, Technology, Engineering, and Mathematics.

2. Institutional Engagement Committee.

The chairperson noted that the Institutional Engagement Committee was recommending one resolution for adoption by the board. There being no objection thereto, the chairperson declared the following resolution adopted by general consent:

Resolution to Accept Development Gifts

YR 2012-32

WHEREAS, Board policy provides that the President shall compile a list of gifts to the University for each meeting of the Board of Trustees and present the list accompanied by her recommendation for action by the Board; and

WHEREAS, the President has reported that the gifts as listed in Exhibit D attached hereto are being held pending acceptance and she recommends their acceptance;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees does hereby accept these gifts on behalf of Youngstown State University and requests that the President acknowledge the acceptance of these gifts and express our gratitude to the donors for their generosity in support of the University.

3. Finance and Facilities Committee.

The chairperson noted that the Finance and Facilities Committee was recommending two resolutions for adoption by the board. There being no objection thereto, the chairperson declared the following resolutions recommended by the Finance and Facilities Committee adopted by general consent:

Resolution to Modify
Purchasing Limits for Competitive Selection Policy

YR 2012-33

WHEREAS, the Institutional Policies are being reviewed and reconceptualized on an ongoing basis; and

WHEREAS, this process can result in the modification of existing policies, the creation of new policies, or the deletion of policies no longer needed; and

WHEREAS, action is required by the Board of Trustees prior to replacing and/or implementing modified or newly created policies, or to rescind existing policies;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University does hereby approve the modification of the Institutional Policy governing Purchasing Limits for Competitive Selection, policy number 3003.01 of the *University Guidebook*, shown as Exhibit E attached hereto. A copy of the policy indicating changes to be made is also attached.

Resolution to Approve Interfund Transfers

YR 2012-34

WHEREAS, Policy Number 3010.01, Budget Transfers, of the *University Guidebook*, requires Board of Trustees approval for interfund transfers of \$100,000 or more; and

WHEREAS, certain accounting adjustments and transfers outside the operating budget are necessary;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University does hereby approve transfers outside the operating budget, as detailed in Exhibit F.

Mr. Schulick reported that the Audit Subcommittee met on February 28, 2012, and received reports from Packer Thomas firm, the university's internal auditors.

Ms. Crawford reported that the Investment Subcommittee also met on February 28, 2012, and received reports from Hartland & Co., the university's investment advisors. Ms. Crawford stated that the university's returns on non-endowment investments continue to exceed applicable benchmarks. Ms. Crawford reported that Hartford & Co. recommends a fund exchange within the investment portfolio and will return in June with recommended action.

4. University Affairs Committee.

The chairperson stated that the University Affairs Committee was recommending three resolutions for adoption by the board. There being no objection thereto, the chairperson declared the following resolutions recommended by the University Affairs Committee adopted by general consent:

Resolution to Approve
Records Management Policy

YR 2012-35

WHEREAS, the Institutional Policies are being reviewed and reconceptualized on an ongoing basis; and

WHEREAS, this process can result in the modification of existing policies, the creation of new policies, or the deletion of policies no longer needed; and

WHEREAS, action is required by the Board of Trustees prior to replacing and/or implementing modified or newly created policies, or to rescind existing policies;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University does hereby approve the creation of an Institutional Policy governing Records Management, policy number 9009.01 of the *University Guidebook*, shown as Exhibit G attached hereto.

Resolution to Modify
Fringe Benefits, Non-Credit Continuing Education Fee Remission Policy

YR 2012-36

WHEREAS, the Institutional Policies are being reviewed and reconceptualized on an ongoing basis; and

WHEREAS, this process can result in the modification of existing policies, the creation of new policies, or the deletion of policies no longer needed; and

WHEREAS, action is required by the Board of Trustees prior to replacing and/or implementing modified or newly created policies, or to rescind existing policies;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University does hereby approve the modification of the Institutional Policy governing Fringe Benefits, Continuing Education Fee Remission, policy number 7015.04 of the *University Guidebook*, to be retitled as Fringe Benefits, Non-Credit Continuing Education Fee Remission, shown as Exhibit H attached hereto. A copy of the policy indicating changes to be made is also attached.

Resolution to Ratify
Faculty/Staff Appointments

WHEREAS, the *Policies of the Board of Trustees* direct the President to appoint such employees as are necessary to effectively carry out the operation of the University; and

WHEREAS, new appointments have been made subsequent to the December 14, 2011, meeting of the Board of Trustees; and

WHEREAS, such appointments are in accordance with the 2011-2012 Budget and with the University policy on Equal Employment Opportunity;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Trustees of Youngstown State University does hereby ratify and confirm the appointments as listed in Exhibit I attached hereto.

Mr. Meshel reported that the Collective Bargaining and Negotiations Subcommittee had met, but had no report.

Mr. Schiavone reported that the Intercollegiate Athletics Subcommittee met on February 28, 2012, and reviewed the ICE MILLER outside audit of YSU Intercollegiate Athletics NCAA rules compliance and controls. Mr. Schiavone stated that the university would be hiring an additional compliance employee in intercollegiate athletics to implement the consultant’s recommendations.

5. Trusteeship Committee.

A. Nomination of 2012-2013 Board Officers. The chairperson reported that in accordance with Article III, Section 9, Paragraph c., Subparagraph 2. of the board's *By-laws*, the Trusteeship Committee had met and today makes its report to the board regarding its nominations of officers for the year starting this June. The chairperson stated today’s report would constitute a first reading only, and that voting on the election of officers would take place at the board’s June regular meeting. The Trusteeship Committee’s recommendations for the 2012-2013 board officers are:

Chairperson	Dr. Sudershan K. Garg
Vice Chairperson	Dr. John R. Jakubek
Secretary	Mr. Franklin S. Bennett, Jr.

ITEM V – COMMUNICATIONS AND MEMORIALS

The chairperson recognized the secretary to the board who read aloud the following resolution:

Resolution of Appreciation – Millicent S. Counts

YR 2011-38

WHEREAS, in 2003 Youngstown State University alumna Millicent S. Counts was appointed to the Board of Trustees of Youngstown State University by Governor Bob Taft; and

WHEREAS, Ms. Counts served faithfully as a Trustee of Youngstown State University, and generously devoted her time, talents, skills and efforts to the best interests of the University, its students, faculty and staff; and

WHEREAS, Ms. Counts served with distinction as a member and chairperson of the Academic & Student Affairs Committee and External Affairs Committee, and as a member of the Finance & Facilities Committee and Internal Affairs Committee of the Board of Trustees, and as a member of the 2009-2010 Presidential Search Advisory Committee to the Board of Trustees; and

WHEREAS, the experience and understanding acquired by Ms. Counts through her many years of service as the Executive Director of the United Methodist Community Center and as a leader of the Mahoning Valley African-American community provided an invaluable source of perspective to the Board of Trustees; and

WHEREAS, from its birth as an idea in early 2003 through today, Ms. Counts has been a steadfast and vocal advocate in support of the Youngstown Early College High School collaboration between Youngstown State University and the Youngstown City Schools; a program which is today recognized by the Ohio Department of Education as a School of Excellence; and

WHEREAS, Ms. Counts' decency and wisdom, coupled with her enthusiastic approach to service as a YSU trustee, have provided an example to her fellow trustees and the Youngstown State University community.

NOW, THEREFORE, BE IT RESOLVED, that the members of the Board of Trustees express their appreciation to Millicent S. Counts for her dedication and efforts to promote the welfare and best interests of the students, faculty, and staff of Youngstown State University and the community which it serves; and

BE IT FURTHER RESOLVED that a copy of this Resolution be furnished to Ms. Counts.

Following the secretary's reading of the Resolution of Appreciation, and upon motion by Mr. Schulick, seconded by Ms. Crawford, the trustees voted unanimously to adopt the Resolution. Ms. Counts expressed her appreciation and thanks to the trustees and administration during her term as trustee.

The chairperson recognized the secretary to the board who read aloud the following proposed resolution:

Resolution of Appreciation – Ryan A. Meditz

YR 2011-39

WHEREAS, Ryan A. Meditz was appointed a Student Trustee of Youngstown State University in 2010 by Governor Ted Strickland; and

WHEREAS, during his term as Student Trustee, Mr. Meditz served on the Academic and Student Affairs, External Relations, Finance and Facilities, and Internal Affairs Committees of the Board of Trustees of Youngstown State University; and

WHEREAS, Mr. Meditz served as Student Trustee while at the same time maintaining the rigorous academic and community service regimen of a YSU Cochran University Scholar; and

WHEREAS, as a Student Trustee, Mr. Meditz served Youngstown State University, its faculty, staff, and especially its students, with distinction, bringing to the Board of Trustees a valued and respected perspective on student issues and concerns; and

WHEREAS, Mr. Meditz' term as Student Trustee has proved mutually enriching to him and to the Board of Trustees, exemplifying the value of the Student Trustee experience both to the student and to the University; and

WHEREAS, its members wish to thank Mr. Meditz for the candid and thoughtful perspective which he brought to the Board of Trustees of Youngstown State University;

NOW, THEREFORE, BE IT RESOLVED, that the members of the Board of Trustees express their appreciation to Ryan A. Meditz for his dedication and efforts to promote the welfare and best interests of the students, faculty, and staff of Youngstown State University and the community which it serves; and

BE IT FURTHER RESOLVED, that a copy of this Resolution be furnished to Mr. Meditz.

Following the secretary's reading of the Resolution of Appreciation, and upon motion by Mr. Schiavone, seconded by Mr. Meshel, the trustees voted unanimously to adopt the Resolution.

The chairperson recognized the secretary to the board who read aloud the following proposed resolution:

Resolution of Appreciation – C. Reid Schmutz

YR 2011-40

WHEREAS, in 1989, Mr. C. Reid Schmutz was named President of the Youngstown State University Foundation by its board of trustees; and

WHEREAS, since Mr. Schmutz' appointment as President of the Foundation, its assets have grown from \$50 million to \$180 million, the income from which is dedicated solely to scholarship assistance for students of Youngstown State University; and

WHEREAS, under Mr. Schmutz' prudent leadership, the investment assets of the Foundation achieved returns rivaling those of the best of major money managers, at practically no cost or expense to the Foundation, allowing the Foundation and its trustees to efficiently provide as much scholarship assistance to YSU students as possible; and

WHEREAS, while on Mr. Schmutz' watch the University and the Foundation established the YSU University Scholars Program, which annually provides 40 incoming students who maintain a high level of academic excellence and community service achievement the opportunity to receive full tuition, room and board throughout their undergraduate years; and

WHEREAS, Mr. Schmutz served on the three consecutive Presidential Search Advisory Committees that resulted in the appointments of Dr. Leslie H. Cochran in 1992, Dr. David C. Sweet in 2000, and Dr. Cynthia E. Anderson in 2010, as President of Youngstown State University; and

WHEREAS, for many years Mr. Schmutz and his family have been well known within the YSU and greater Mahoning Valley communities as major philanthropists and supporters; and

WHEREAS, Mr. Schmutz and his wife, Judy, are an ever-present force of nature at YSU events, whether football or basketball games, student plays, cultural events, dinners honoring students, faculty or staff, or generally promoting University beneficence; and

WHEREAS, while he may no longer be the President of the YSU Foundation, the Board of Trustees is comforted in the knowledge that Reid Schmutz will always be there for YSU whenever the need may arise.

NOW, THEREFORE, BE IT RESOLVED, that the members of the Board of Trustees express their appreciation to C. Reid Schmutz for his twenty-three years of dedicated leadership and service to the Youngstown State University Foundation and its efforts in supporting the financial needs of the University's students; and

BE IT FURTHER RESOLVED that a copy of this Resolution be furnished to Mr. Schmutz.

Following the secretary's reading of the Resolution of Appreciation, and upon motion by Mr. Schulick, seconded by Ms. Crawford, the trustees voted unanimously to adopt the Resolution.

ITEM VI – UNFINISHED BUSINESS

The board considered no unfinished business.

ITEM VII – NEW BUSINESS

The board considered no new business.

ITEM VIII – CHAIRPERSON’S REMARKS

Dr. Garg stated that the past year has been a difficult one for the board, the President, the university’s students and the university community at-large. The combined efforts and sacrifices of all have allowed the university to pass through our first year “stress test.” While the economy appears to be improving, the future remains very uncertain. It appears that the “good old days” are probably over. Hopefully, as Ohio’s economy improves and new opportunities arise in the shale industry, funding from the state may improve, especially in capital funding.

Dr. Garg stated that the university is trying to stay ahead of the challenges of these times. Dr. Garg stated that he is very optimistic about the establishment today of the Natural Gas & Water Resources Institute. Dr. Garg stated that our biggest challenge will be to stay ahead in undergraduate enrollment efforts, student success and graduation rates for all students, but especially for minority students whose graduation rates are very low and unacceptable. Enrollment must also be increased within the university’s graduate programs as we seek to enhance our status as an urban research university.

On behalf of the board Dr. Garg thanked outgoing trustees Millicent Counts and Ryan Meditz for their dedicated service and wished them all the best in their future ventures. Dr. Garg noted that Ms. Counts was appointed in 2003 by Governor Bob Taft. Ms. Counts recently retired as the executive director of the United Methodist Community Center, formerly known as the Pearl Street Mission. Dr. Garg stated that he met Ms. Counts when he came to the board in 2005, and that he greatly appreciates her kindness, wisdom and wise counsel. Dr. Garg said that Ms. Counts is a lady of few words, but that when she speaks her words come from heart and carry a lot of weight with the rest of the trustees.

Dr. Garg said that in addition to being a great student trustee, Ryan Meditz maintained a 4.0 GPA while at YSU. Dr. Garg noted that since his graduation from Canfield High School, Mr. Meditz has been a teacher, secretary, coach, planner, volunteer and counselor. Despite his youth, Mr. Meditz has travelled to many countries, and developed many leadership skills that will undoubtedly serve him well during his lifetime.

ITEM IX – TIME AND PLACE OF UPCOMING REGULAR MEETINGS

Upon motion duly made and seconded, which received the affirmative vote of all trustees present, the trustees resolved to set the following dates and times for the next regular meetings of the board to be held in the Board Room in Tod Hall:

3:00 p.m., Wednesday, June 13, 2012
3:00 p.m., Friday, September 28, 2012
3:00 p.m., Wednesday, December 12, 2012

ITEM X – ADJOURNMENT

There being no further business to before the board of trustees, and upon motion duly made and seconded, the meeting was duly adjourned by unanimous vote of the trustees at 3:40 p.m.

Chairperson

ATTEST:

Secretary to the Board of Trustees

UNIVERSITY GUIDEBOOK

Title of Policy:	Fringe Benefits, Non-Credit Continuing Education Fee Remission
Responsible Division:	Finance & Administration/Human Resources
Approving Officer:	Vice President for Finance & Administration
Revision History:	March 1999; January 2012
Resolution Number(s):	YR 2012-
Board Committee:	University Affairs
EFFECTIVE DATE:	
Next Review:	2017

Policy: The University is committed to employment practices that promote the health and welfare of its employees. Through its various fringe benefits packages, it offers employees incentives to pursue additional education; to take advantage of events, activities and performances offered; and to otherwise enhance each employee’s standard of living. University employees who are in a bargaining unit should refer to their collective bargaining agreement for information regarding eligibility for continuing education fee remission.

Continuing Education Fee Remission Eligibility:

Full-time and .75 part-time employees shall be entitled to instructional fee remission twice per calendar year for non-credit continuing education courses offered through the University’s Metro College.

Parameters:

- An eligible employee’s spouse and dependent children shall each be entitled to instructional fee remission once per calendar year for such non-credit continuing education courses, provided there is an enrollment slot available above and beyond the enrollment level required to fund the course.
- Charges for materials, facilities, texts, and consumable or other non-instructional items are the responsibility of the enrollee and shall be payable at the time of registration.

- The responsibility for making a determination regarding the required enrollment level in any given course rests with the University.

Procedures:

1. Eligible employees or dependents are required to make application in advance of enrollment on a form provided by the Metro College Office of University Outreach and in accordance with established deadlines.
2. Enrollment in classes is restricted to times that do not interfere with the performance of an employee's assigned duties and responsibilities. Supervisors may make exceptions to this restriction provided that there is no adverse impact on the operational needs of the work unit and arrangements have been made for the employee to make up any missed work time. An employee wishing to enroll in a non-credit continuing education class that is offered during their normal work hours must initiate a discussion and obtain approval of the matter ~~with~~ from their appropriate academic department chairperson or department/unit supervisor well in advance of the class registration period.
3. If the discussion results in a decision that such enrollment will not interfere with the performance of assigned duties and responsibilities, the employee may proceed to register for the class. The employee and supervisor shall come to a written understanding as to how the employee will attend class and work his/her required number of hours.
4. In addition to the registration form, employees are required to complete a Metro College Employee Remission Form and forward it with the registration form. Employee Remission Forms are available on the Metro College website.

NEW POLICY
UNIVERSITY GUIDEBOOK

Title of Policy:	Records Management
Responsible Division:	Finance and Administration
Approving Officer:	Vice President for Finance & Administration
<i>Revision History:</i>	
Resolution Number(s):	YR 2012-
Board Committee:	University Affairs
EFFECTIVE DATE:	
Next review:	2017

Policy: The Board of Trustees directs the University to comply with all State and Federal laws regarding the creation, retention and disposition of University Records.

Purpose:

In compliance of Ohio Revised Code Section 149.33, the Board of Trustees updates its records management program to ensure the efficient and economical management of the University's records for the purpose of insuring proper scheduling, retention, preservation, storage and disposition of its records. The program shall be administered by the University Archivist, through the Archives and Special Collections unit of Maag Library, with the advice and approval of the President's Cabinet. The University Archivist shall develop and recommend to the President's Cabinet administrative procedures and guidelines to implement this policy.

Youngstown State University hereby adopts the "Records Retention for Public Colleges and Universities: A Manual" (hereafter: "The IUC Manual") as developed by the Inter-University Council of Ohio, as it may be amended upon recommendation of the University Archivist and with approval from the University Cabinet, as its guidelines for the retention of its records.

Definitions:

"Records" includes any document, device, or item, regardless of physical form or characteristic, that is created or received by or comes under the jurisdiction of the University and which serves to document the organization, functions, policies, decisions, procedures, operations, or other activities of the University. "Records" and their retention and associated retention schedules are enumerated in the IUC Manual.

Agenda Item E.4.a
Exhibit G

"Non-record materials" are documents, devices, or items in the University's custody that do not meet the above definition, because they are not needed to document the organization, functions, policies, decisions, procedures, operations, or other activities of the University. Examples include notes kept as personal papers and not as official records and which have not been circulated to any other employee; extra copies or duplications of documents; stocks of publications and processed documents; and library or museum materials intended solely for reference or exhibition. Third parties' records which are temporarily in the custody of the University, but do not serve to document the organization, functions, policies, decisions, procedures, operations, or other activities of the University, may also be excluded from the definition of records. Non-record materials may be retained or discarded at the discretion of the employees who create or receive them.

Procedures:

University employees shall make such records as are necessary for the adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the University and for the protection of the legal and financial rights of the State and persons directly affected by the University's activities.

The creation of unnecessary and duplicative records should be avoided. Duplicative records are not official and should not be used to represent official "records." Duplicative records should not be retained and should be destroyed as soon as their immediate need has passed.

University records shall be retained for such period as is required by retention schedules established by the IUC Manual and administered by University archives, and may be disposed of only in accordance with disposition instructions issued by the University archives. Removal, destruction, mutilation, alteration, transfer, or other disposition of University records, except as authorized by this rule, is prohibited and may result in disciplinary action.

Each Vice President or other officer having custody of University records shall designate one or more positions to be custodian of the records in his or her division/department in accordance with the requirements of this rule. Each position, so designated and referenced in relevant job descriptions, shall act as a liaison with the University Archivist and be responsible for working with the University Archivist to ensure divisional compliance with the administrative procedures and guidelines that are established to implement this policy.

The Vice President for Finance & Administration shall ensure timely and ongoing implementation of this policy.

Detailed administration guidelines for YSU records retention are found at:

<http://www.ysu.edu/recordsmgmt/>

BIOGRAPHY

NANETTE LEPORE

Nanette Lepore founded her namesake brand in New York City's Garment Center in 1992. Known for her signature prints, bold colors and flawless fit, Nanette Lepore has become a premier name in contemporary American fashion.

Born in Youngstown, Ohio, Nanette produced her first couture look at the tender age of nine, outfitting a neighbor in a floral bedspread, beaded choker, and face paint. The girl posed in the family's front yard behind a hand-lettered sign declaring "Lepore," and thus began Nanette's lifelong love for fashion.

After completing her undergraduate studies at Youngstown State University, she packed her bags and headed east to New York City's venerable Fashion Institute of Technology. She earned her degree in design, married painter Robert Savage and set out to pay her dues in design studios around town. Bolstered by a \$5,000 loan from her father to start her own label, Nanette set out to create a brand that women around the world would come to adore.

Today, Nanette continues to design in her atelier in New York City alongside her husband, Robert, who helms the business side of the worldwide brand as its President. Manufacturing the majority of her line in New York City, Nanette is an outspoken advocate for New York City's Garment Center.

Inspired by her worldwide travels and free spirit, Nanette's designs are adored among style-makers, celebrities, and VIPs, including Blake Lively, Taylor Swift, Scarlett Johansson, Lauren Conrad, Natalie Morales, Kelly Rutherford and Arianna Huffington.

The brand offers women's apparel, swimwear, handbags, footwear, and fragrance. Nanette also designs "*Oonagh*," a playful line of luxe basics.

Nanette Lepore has grown into an international brand with boutiques in the United States, Europe, and Asia. There are currently 9 stores in New York, Los Angeles, Bal Harbour, Chicago, Las Vegas, Boston, London, and Tokyo, with further expansion in Asia planned for 2012 and 2013.

**Agenda Item E.1.a
Support Material**

Fiscal Impact Statement

Master of Arts in Interdisciplinary Communication

	Year 1	Year 2	Year 3	Year 4	Year 5
	FY13	FY14	FY15	FY16	FY17
Projected Enrollment					
Head-count full time (fall/spring avg unduplicated)	4	9	12	15	16
Head-count part time (fall/spring avg unduplicated)	2	5	9	12	14
Full Time Equivalent (FTE) enrollment annualized (including summer)	3.20	7.60	10.90	13.90	15.30
Projected Program Income					
Tuition (paid by student or sponsor)	41,000	116,800	159,300	210,400	235,400
Expected state subsidy ⁴	N/A	N/A	N/A	N/A	N/A
Externally funded stipends					
Other income (describe below)					
Total Projected Income	\$ 41,000	\$ 116,800	\$ 159,300	\$ 210,400	\$ 235,400
Program Expenses					
New Personnel					
New Faculty					
Full 0	\$ -	\$ -	\$ -	\$ -	\$ -
Part Time 15 hours per year; TA's for remaining hours	\$ 16,100	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000
Non-instruction (indicate role(s) in narrative section below)					
Full					
Part time					
New facilities/space renovation (if applicable, describe below)					
Tuition Scholarship Support (if applicable, describe below)					
Graduate and Teaching Assistants total of 5 in year 5 and beyond ¹	7,900	15,800	23,600	39,400	39,400
University stipend support (if applicable, describe below) ²	5,700	11,400	17,000	28,400	28,400
Additional library resources (if applicable, describe below)					
	200	100	100	100	100
Additional technology or equipment (if applicable, describe below)					
	500	600	600	600	600
Other expenses (describe below) ³					
(e.g. waived tuition and fees, travel, office supplies, accreditation costs)	1,000	1,100	1,100	1,100	1,100
Total Projected Additional Expense	\$ 31,400	\$ 45,000	\$ 58,400	\$ 85,600	\$ 85,600
Net Program Income or (Expense)	\$ 9,600	\$ 71,800	\$ 100,900	\$ 124,800	\$ 149,800
without SSI considered⁴					

Assumptions:

3.5% Tuition Increase annually

4 students in first cohort; increasing to 8 new students each year FT and 5 PT in year 4 and beyond

Program courses will be taught by full-time faculty; replacement of other courses will be taught by TA's and PT faculty

25% out of state students (regional)

34% fringes for employees

²GA's and TA's total of 5 in year 4 and beyond includes ¹Tuition Remission

³Other expenses include general office supplies, marketing and publicity

⁴SSI is not calculated or considered in fiscal statement due to potential flat allocation.

SUMMARY OF PERSONNEL ACTIONS
October 1, 2011 – December 31, 2011

Appointments – 8

New Positions – 1

- Professional/Administrative – 1
 - Payroll Coordinator - Payroll

Replacement Positions – 7

- Professional/Administrative – 1
- Classified Civil Service – 6

Separations – 23

Resignations – 6

- Faculty – 1
- Professional/Administrative – 4
- Classified Civil Service – 1

Retirement – 17

- Faculty – 2
- Classified Civil Service – 15

SUMMARY OF PERSONNEL ACTIONS
Externally Funded Positions
October 1, 2011 – December 31, 2011

Appointments – 3

New Positions – 3

- Professional/Administrative – 3
 - Upward Bound Coordinator – Upward Bound
 - Coordinator – Center for Human Services Development
 - Instructional Specialist 1 – Rich Center for Autism

**UNIVERSITY GIFTS
EXECUTIVE SUMMARY
Fiscal Year 2011-2012 Second Quarter
October 1, 2011-December 31, 2011**

	Number of Gifts	Amount
ALUMNI RELATIONS		
Cash-One Year Single & Joint Members	125	\$ 4,020
Cash-Four Year Single & Joint Members	5	425
Cash-Single & Joint Life Members	5	1,450
Total Cash	135	\$ 5,895
Total Alumni Relations	135	\$ 5,895
UNIVERSITY DEVELOPMENT		
Annual Fund		
\$10,000 - \$49,999	8	\$ 132,886
\$1,000 - \$9,999	102	224,915
\$500 - \$999	69	38,475
Below \$500	1626	133,958
Total Annual Fund Pledged Cash	1805	\$ 530,234
Gifts-in-Kind	32	20,798
Total Annual Fund	1837	\$ 551,032
Major Gifts	14	\$ 913,150
Total Major Gifts Pledged Cash	14	\$ 913,150
Planned Gifts	1	\$ 788
Total Planned Gifts Pledged Cash	1	\$ 788
Special Projects	7	\$ 8,353
Total Special Projects Pledged Cash	7	\$ 8,353
Underwriting	6	\$ 5,650
Total Underwriting Pledged Cash	6	\$ 5,650
Total University Development	1865	\$ 1,478,973
WYSU-FM		
\$1,000 - \$9,999	9	\$ 16,036
\$500 - \$999	8	4,207
Below \$500	813	66,366
Total Pledged Cash	830	\$ 86,609
Total WYSU-FM	830	\$ 86,609
TOTAL GIFTS		
Grand Total Gifts	2830	\$ 1,571,477
		Agenda Item E.2.a
		Exhibit D

**YOUNGSTOWN STATE UNIVERSITY
PERSONNEL ACTIONS
OCTOBER 1, 2011 - DECEMBER 31, 2011**

FACULTY APPOINTMENTS FOR BOARD OF TRUSTEES APPROVAL

NAME	GENDER/RACE*	POSITION NEW or REPLACEMENT (Vacated Salary)	TITLE	DEPARTMENT	CONTRACT/ APPOINTMENT DATES	SALARY	COMMENTS
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October 2011

None.							
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November 2011

None.							
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December 2011

None.							
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PROFESSIONAL/ADMINISTRATIVE APPOINTMENTS FOR BOARD OF TRUSTEES APPROVAL

NAME	GENDER/RACE*	POSITION NEW or REPLACEMENT (Vacated Salary)	TITLE	DEPARTMENT	CONTRACT/ APPOINTMENT DATES	SALARY	COMMENTS
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October 2011

Ms. Marybeth Keeler	F/C	Replacement \$64,000	Career Coordinator	Career & Counseling Center	10/3/2011	\$41,928	\$22,072 decrease
Ms. Alisha Yanniello	F/C	New	Payroll Coordinator	Payroll	10/17/2011	\$55,000	\$55,000 increase

November 2011

None.							
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December 2011

None.							
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**YOUNGSTOWN STATE UNIVERSITY
PERSONNEL ACTIONS
OCTOBER 1, 2011 - DECEMBER 31, 2011**

CLASSIFIED APPOINTMENTS FOR INFORMATION ONLY							
NAME	GENDER/RACE*	POSITION <i>NEW or REPLACEMENT (Vacated Salary)</i>	TITLE	DEPARTMENT	CONTRACT/ APPOINTMENT DATES	SALARY	COMMENTS

October 2011

Ms. Regina Hawkins	F/C	Replacement \$49,130	Administrative Assistant 1	Financial Aid	10/24/2011	\$49,130	
Mr. Larry Russell	M/C	Replacement \$45,968	Groundskeeper II	Grounds	10/10/2011	\$30,264	\$15,704 decrease
Ms. Mary Dota	F/C	Replacement \$40,443	Administrative Assistant 1	Jambar	10/10/2011	\$24,033	\$16,410 decrease

November 2011

Ms. Christine Bidwell	F/C	Replacement \$74,256	Executive Secretary 2	VP-Finance & Administration	11/21/2011	\$50,794	\$23,462 decrease
Ms. Ashley Thompson Shilot	F/C	Replacement \$58,947	Administrative Assistant 1	Physical Therapy	11/14/2011	\$35,402	\$23,545 decrease
Ms. Grimilda Ocasio	F/H	Replacement \$44,554	Secretary	Maag Library	11/28/2011	\$47,986	\$3,432 increase

December 2011

None.							
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SEPARATIONS

NAME	GENDER/RACE*	CATEGORY OF EMPLOYMENT	TITLE	DEPARTMENT	SEPARATION DATE	VACANT POSITION BUDGETED SALARY	COMMENTS
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RETIREMENTS:

Ms. Evaline Abram-Diroll	F/C	Classified	Administrative Assistant 3	Human Resources	12/31/2011	\$78,811	
Mr. Michael Ashby	M/C	Classified	Delivery Worker	Delivery Services	12/31/2011	\$45,884	
Ms. Kathleen Bouquet	F/C	Classified	Administrative Assistant 4	Human Resources	12/31/2011	\$83,886	

**YOUNGSTOWN STATE UNIVERSITY
PERSONNEL ACTIONS
OCTOBER 1, 2011 - DECEMBER 31, 2011**

SEPARATIONS							
NAME	GENDER/RACE*	CATEGORY OF EMPLOYMENT	TITLE	DEPARTMENT	SEPARATION DATE	VACANT POSITION BUDGETED SALARY	COMMENTS
RETIREMENTS:							
Mr. Ralph Carfora	M/C	Classified	Network Services Technician 2	Media & Academic Computing	12/31/2011	\$83,761	
Dr. Greg Claypool	M/C	Faculty	Professor	Accounting & Finance	12/31/2011	\$124,899	
Ms. Susan Ferrier	F/C	Classified	Nurse Supervisor	Student Health Clinic	12/31/2011	\$97,843	
Mr. Dan Frati	M/C	Classified	Air Quality Tech	Facilities	12/31/2011	\$51,979	
Ms. Kris Gregory	F/C	Classified	Administrative Assistant 1	Chemistry	12/31/2011	\$50,627	
Ms. Cathlene Harvey	F/C	Classified	Administrative Assistant 1	Educ, Found, Research, Tech, &	12/31/2011	\$49,878	
Ms. Mary Ann Haydu	F/C	Classified	Administrative Assistant 2	Registration	12/31/2011	\$57,220	
Dr. Marleen Iannucci	F/C	Faculty	Professor	Physical Therapy	12/31/2011	\$109,821	
Ms. Barbara Kenville	F/C	Classified	Telephone Operator 2	Network Telecommunications	12/31/2011	\$32,181	
Mr. Anthony Matisi	M/C	Classified	Plumber	Facilities	12/31/2011	\$51,979	
Mr. James Ontko	M/C	Classified	Library Media Tech Asst. 1	Maag Library	12/31/2011	\$47,985	
Dr. William Slocum	M/C	Faculty	Professor	Dana School of Music	12/31/2011	\$124,117	
Mr. Edwin Taylor	M/C	Classified	Groundskeeper Supervisor	Grounds	12/31/2011	\$52,748	
Ms. Joanne Traylor	F/B	Classified	Administrative Assistant 2	Procurement Services	12/31/2011	\$65,436	
Ms. Joann Sarich	F/C	Classified	Administrative Assistant 2	Financial Aid	12/31/2011	\$64,480	

**YOUNGSTOWN STATE UNIVERSITY
PERSONNEL ACTIONS
OCTOBER 1, 2011 - DECEMBER 31, 2011**

SEPARATIONS:							
Mr. James Kapoun	M/C	P/A	Associate Director of Information Services	Maag Library	12/15/2011	\$76,781	Resignation
Mr. Paul McFadden	M/C	P/A	Chief Development Officer	University Development	12/9/2011	\$113,776	Resignation
Ms. Amanda Reardon	F/C	P/A	Development Officer I	University Development	12/2/2011	\$44,679	Funds no longer available; contract ended
Ms. Leonora Steverson	F/B	Classified	Administrative Assistant 1	Military Science	10/14/2011	\$52,956	Resignation
Ms. Ruth Werry	F/C	P/A	Payroll Manager	Payroll	11/30/2011	\$63,500	Resignation

A = Asian or Pacific Islander, origins in any of the original peoples of the Far East, Southeast Asia, Pacific Islands, or Indian subcontinent.

B = Black (not of Hispanic origin), origins in any of the black racial groups.

C = White (not of Hispanic origin), origins in the original peoples of Europe, North Africa, or the Middle East.

H = Hispanic, Mexican, Puerto Rican, Cuban, Central/South American or other Spanish culture.

N = American Indian or Alaskan Native, origins in any of the original peoples of North America.

UNIVERSITY GUIDEBOOK**Title of Policy: Purchasing Limits for Competitive Selection**

Responsible Division/Office: Procurement Services

Approving Officer: Vice President for Finance & Administration

Revision History: June 1998; June 2001; March 2007; May 2010;
January 2012Resolution Number(s): YR 1998-46; YR 2006-46; YR 2007-27; YR 2010-85;
YR 2012-

Board Committee: Finance and Facilities

EFFECTIVE DATE:

Next review: 2017

Policy: In all its business practices the University will adhere fully to all applicable laws, regulations, and rules of the federal, state of Ohio, and local regulatory bodies. Those conducting business for the University will always seek to protect the interests of the institution and seek to obtain the best value for the institution.

Parameters:

- Goods are defined as any tangible product.
- Services are defined as any deliverable resulting from labor performed specifically for the University, whether from the application of physical or intellectual skills. Services include repair work, consulting, maintenance, data processing, software design, etc.
- Construction work is defined as work needed to produce a complete and usable facility, including parking areas or work needed to make changes to the physical structure of a building or parking area. Construction work includes excavation, building, landscaping, etc. Evaluation and maintenance are not considered generally to be construction work.
- Professional design services are defined as services within the scope of practice of an architect or landscape architect, or a professional engineer or surveyor. See also Policy 4007.01, Selection of Architects/Engineers for University Capital Projects.
- Goods that will result in estimated payments of \$50,000 or more, per fiscal year per supplier, shall be obtained through a competitive selection process. Goods obtained by competitive selection process shall not count toward the \$50,000 limit.

- Services that will result in estimated payments of \$50,000 or more, per fiscal year per supplier, shall be obtained through a competitive selection process.
- Professional design services that will result in estimated payments of \$50,000 or more, per fiscal year per supplier, shall be obtained through a competitive selection process (refer to Ohio Revised Code section 153.71).
- A construction project that will result in estimated payments of \$200,000 or more shall be obtained through a competitive selection process. Construction contracts valued at \$200,000 or more shall be approved by the Attorney General or General Counsel as required by law, prior to the start of construction.
- All construction projects exceeding applicable State or federal Prevailing Wage limits must be coordinated through Facilities Planning and Construction.

Procedures:

1. Procurement Services considers the following to be appropriate forms of competitive selection when dollar thresholds are exceeded:
 - a. An Invitation to Bid (ITB) – A formal ITB document is drafted and sent to prospective bidders and published in appropriate media when seeking to purchase goods.
 - b. A Request for Proposal (RFP) - An RFP is drafted and sent to prospective bidders and may be published in appropriate media when seeking to purchase goods.
 - c. A Request for Qualifications (RFQ) - An RFQ is sent to prospective bidders and may be published in appropriate media when seeking to purchase services.
 - d. Written Quotes - When practical, three written quotes are required from prospective vendors.
 - e. Purchase under an approved competitively awarded governmental or Group Purchasing agreement such as State Term Schedule, General Services Administration (GSA) Schedule, Inter-University Council Purchasing Group, or others.
2. Financial managers are encouraged to use appropriate forms of competitive selection for purchases below the dollar thresholds whenever they deem prudent. Appropriate forms of competitive selection in regard to purchases below the

- dollar thresholds include those listed above, as well as pricing research and verbal or phone quotes. Financial managers are encouraged to seek help from Procurement Services to locate sources of supply. The Director of Procurement Services, or designee, reserves the right to require a competitive selection process for purchases under the dollar thresholds when it is in the best interest of the University to do so, or when regulations require.
3. However, if the nature of the purchase is such that competitive selection would be impractical due to emergency or other special circumstances, the department making the request for a purchase over the purchase amounts set herein, may make a written request for a Waiver of Competitive Bidding. Bid waivers must be forwarded to Procurement Services either in hard copy with full documentation or attached electronically to the Requisition being submitted seeking the purchase. Such requests must provide justification (e.g., single source, emergency purchase or economic efficacy) signed by the individual with account signature authority.
 4. If the Director of Procurement Services finds that sufficient justification has been presented, a recommendation to waive the bidding process is forwarded to the Vice President for Finance and Administration, or designee for final approval or denial. If the request is denied, Procurement Services will initiate the competitive selection process at the request of the user department.
 5. Details of procurement procedures may be found at: <http://web.yzu.edu/procure>

Executive Summary for the Full Proposal of the Master of Arts Degree in Interdisciplinary Communication

An Integrated Degree Offered by the Departments of Communication, English, & Marketing
Administered by the Department of Communication in the College of Fine and Performing Arts

Overview

The departments of Communication, English, and Marketing propose a new master's degree program entitled "Interdisciplinary Communication." This new degree will be housed in the Department of Communication in the College of Fine and Performing Arts but jointly administered. The program will provide graduate students with the necessary research methodology and practical skills to succeed in professional writing, public relations, and management positions.

The range of coursework will offer students substantial and high-level preparation for moving directly into challenging professional positions in businesses and organizations. Formal surveys and anecdotal information indicate that students who have completed undergraduate and graduate programs in professional writing, communication, and marketing have reported that their careers require a combination of skills and knowledge that their respective programs did not address fully. By collaborating, the three departments will provide students with a distinctive opportunity. Youngstown State University provides accessible programs to a unique geographic region. No such program is currently available to the greater Youngstown area.

As with other regional MA programs, theory and research are the foundation of understanding; however, this particular curriculum — needed in this region of the state to reduce unemployment, develop a more vibrant workforce, and reduce state and job attrition — is sorely needed.¹ Here, the program distinction is applied theory, oriented toward theoretical knowledge as well as skill development. There is a greater emphasis on writing skills, and course offerings present diverse alternatives. The program is also accessible and available to a variety of majors. We offer this program in the spirit of YSU's mission to aid development of the economy in the Mahoning Valley.

The Master of Arts in Interdisciplinary Communication is designed for people in any organizational setting who wish to develop advanced communication knowledge and skills, as an end in itself or as preparation for a doctoral degree. In profit and nonprofit, academic or non-academic worlds, the following learning outcomes will be beneficial to many, but especially to managers and administrators:

- Understand how theory guides practice in professional communication.
- Write effectively for multiple audiences using current technologies.
- Develop strategies for effective organizational marketing.
- Acquire advanced analytical and research skills appropriate to organizations.
- Gain effectiveness in face-to-face and computer-mediated interpersonal relationships.
- Appreciate ethical communication choices necessary for today's professionals.

¹ "Of Ohio's 88 counties, Columbiana, Trumbull and Mahoning were among the 25 reporting the highest rates of unemployment with 11.5%, 11.4% and 11.1% respectively," according to The Youngstown *Business Journal*, September 28, 2010. The article also noted that Youngstown and Warren remained the hardest-hit communities in the region, with unemployment rates of 13.7% and 13.1% respectively. According to the Ohio Board of Regents, "The more educated our workforce is overall, the easier it will be for businesses to find the workers they need to grow, creating new jobs for Ohioans." <http://www.uso.edu/strategicplan/downloads/documents/strategicPlan/USOstrategicPlan.pdf>)

Program Description

The three areas (PWE, Communication, and Marketing) share several key goals. All three areas aim to educate students in the theory and associated skills necessary for clear, professional communication. PWE offers professional and technical writing, document design, rhetorical theory, and instruction in managing publications. Communication offers a solid theoretical and practical basis in group dynamics, public speaking, and organizational communication. Marketing prepares students to plan and manage multiple media campaigns. In all cases, we work to provide students with solid abilities in writing, speaking, and research.

Rationale

The program is designed to educate students broadly, using an interdisciplinary emphasis, so they have an understanding of major issues and concerns in the professional arena. Technological and societal changes have reshaped today's communication practices. The proposed program is designed to provide our graduate students with both the praxis and the theory necessary to read, analyze, and negotiate the increasingly complex terrain of professional communications. Since successful communication in a professional environment is no longer limited to mastering standard communicative genres, contemporary professional communicators must be able to understand and use a wide-range of communicative tools ranging from informal formats (e-mail, blogs, personal pages, Twitter messages) to more formal formats (PowerPoint presentations, web pages, multi-media messages, streaming audio, and visual data), and less contemporary, print-based genres. The best way to approach this multi-faceted, challenging communicative environment is through an integrated interdisciplinary approach that weaves together courses in two or more related fields to produce a more complete understanding of the communicative process. As a result, students will be better prepared to communicate more effectively, in a greater variety of settings. Because professional communication in an organizational environment commonly involves interpersonal, mediated, and strategic discursive forms, we believe the proposed content areas and associated coursework are appropriate and will be beneficial. The pedagogical underpinnings of our proposed program are those of the Association for Integrative Studies:

- According to the Association for Integrative Studies (AIS), founded over 30 years ago, interdisciplinary approaches combine the insights of knowledge domains to produce a more comprehensive understanding of complex problems, issues, or questions ranging from comparison to fully realized integration.²
- AIS encourages and promotes development of, research into, and documentation of interdisciplinary and integrative studies in higher education at the undergraduate and graduate levels, and sustains the development of real world applications.
- We look forward to fully engaging with the resources of AIS, which offers conferences, consultants, publications, assessment materials, and awards in the support of interdisciplinary programs, as well as directories of master's and doctoral programs.

Bureau of Labor Statistics data³ suggest increases in employment opportunities through 2018 supported by this degree program. Specifically, the data forecast growth for relevant professions as follows:

- Increased demand for public relations specialists of 24.04%
- Increased demand for writers and editors of 9.37%
- Increased demand for public relations managers of 12.93%
- Increased demand for advertising, marketing, promotions, public relations, and salespeople of 12.88%

² Association for Integrative Studies (2010). *AIS Mission*. <http://www.units.muohio.edu/aisorg/About/mission.shtml>

³ http://www.bls.gov/emp/ep_table_102.pdf

Courses

Total Student Hours: 36

Core Courses (18 sh) (Thesis and Non-Thesis Option)

- CMST 6957 (3 sh) - Organizational Communication Research
 - CMST 6980 (3 sh) - Applied Research Methods
 - ENGL 6943 (3 sh) - Technical Communication
- ENGL 6944 (3 sh) - Document Design and Production
 - MKTG 6900 (3 sh) - Foundations of Marketing
- MKTG 6942 (3 sh) - Strategic Marketing Management

Non-Thesis Option (18 sh)

Elective Courses (12 sh)

Students will take a total of 4 three-credit courses, from at least two of the areas.

CMST 6970 (3 sh) – Professional Internship

CMST 6994 (3 sh) – Capstone
Applied Research Paper

Thesis Option (18 sh)

Elective Courses (9 sh)

Students will take a total of 3 three-credit courses, from at least two of the areas.

CMST 6970 (3 sh) – Professional Internship

CMST 6995 (6 sh) – Thesis
Prospectus, Completed Study

Anticipated Program Costs

The Master of Arts in Interdisciplinary Communication will draw on the strengths and resources of three concentration areas: Communication, Professional Writing and Editing (in English), and Marketing. Communication is developing new coursework and is using presently existing swing courses. This degree program will require few new resources. There will be a need to hire occasional limited service faculty to teach undergraduate courses otherwise taught by full-service faculty (who may teach graduate courses), but revenues generated by the augmented graduate enrollment should offset increased costs.

REDLINE VERSION
UNIVERSITY GUIDEBOOK

Title of Policy: Purchasing Limits for Competitive Selection

Responsible Division/Office: Procurement Services

Approving Officer: Vice President for Finance & Administration

Revision History: June 1998; June 2001; March 2007; May 2010;
January 2012Resolution Number(s): YR 1998-46; YR 2006-46; YR 2007-27; YR 2010-85;
YR 2012-

Board Committee: Finance and Facilities

EFFECTIVE DATE:

Next review: 2017

Policy: In all its business practices the University will adhere fully to all applicable laws, regulations, and rules of the federal, state of Ohio, and local regulatory bodies. Those conducting business for the University will always seek to protect the interests of the institution and seek to obtain the best value for the institution.

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Goods obtained by competitive selection process shall not count toward the \$50,000 limit.

- Services that will result in ~~an~~ estimated payments of \$50,000 or more, ~~per fiscal year per supplier~~, shall be obtained through a competitive selection process.
- Professional design services that will result in estimated payments of \$50,000 or more, per fiscal year per supplier, shall be obtained through a competitive selection process (refer to Ohio Revised Code section 153.71).
- A construction ~~project work~~ that will result in ~~an~~ estimated payments of ~~\$50,000~~ \$200,000 or more shall be obtained through a competitive selection process. Construction contracts valued at ~~\$50,000~~ \$200,000 or more shall be approved by the Attorney General or General Counsel as required by law, prior to the start of construction.
- All construction projects exceeding applicable State or federal Prevailing Wage limits must be coordinated through Facilities Planning and Construction.
- ~~Goods are defined as any tangible product.~~
- ~~Services are defined as any deliverable resulting from labor performed specifically for the University, whether from the application of physical or intellectual skills. Services include repair work, consulting, maintenance, data processing, software design, etc.~~
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Procedures:

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- b. A Request for Proposal (RFP) - An RFP is drafted and sent to prospective bidders and may be ~~advertised~~ published in appropriate media when seeking to purchase goods.
 - c. A Request for Qualifications (RFQ) - An RFQ is sent to prospective bidders and may be ~~advertised~~ published in appropriate media when seeking to purchase services.
 - d. Written Quotes - When practical, three written quotes are required from prospective vendors.
 - e. Purchase under an approved ~~competitively awarded governmental or~~ Group Purchasing agreement such as State Term Schedule, ~~General Services Administration (GSA) Schedule~~, Inter-University Council Purchasing Group, or others.
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 3. However, if the nature of the purchase is such that competitive selection would be impractical due to emergency or other special circumstances, the department making the request for a purchase over the purchase amounts set herein, may make a written request for a Waiver of Competitive Bidding. Bid waivers must be forwarded to Procurement Services either in hard copy with full documentation or attached electronically to the Requisition being submitted seeking the purchase. Such requests must provide justification (e.g., single source, emergency purchase or economic efficacy) signed by the individual with account signature authority.
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 5. Details of procurement procedures may be found at: <http://web.ysu.edu/procure>



YOUNGSTOWN STATE UNIVERSITY
Interfund Transfers Requiring Board Approval
Transfers Outside of the Operating Budget
Requested Transfers for Third Quarter 2012

FROM	TO	AMOUNT	REASON
General Fund	ERIP OPERS Fund (Designated Fund)	\$710,267	Transfer ERIP Savings for 1st quarter FY12.

Agenda Item E.3.b
Exhibit F

**AGREEMENT
BETWEEN
YOUNGSTOWN STATE UNIVERSITY AND
YOUNGSTOWN STATE UNIVERSITY RESEARCH FOUNDATION**

THIS AGREEMENT is made this ____ day of _____, 2012, between Youngstown State University (“University”) and Youngstown State University Research Foundation (“Research Foundation”), both corporations having places of business in Youngstown, Ohio 44555.

RECITALS

- A. University is a state university as defined in ORC §3345.011 and created pursuant to ORC §3356.01.
- B. Research Foundation is a non-profit corporation formed in accordance with ORC §1702 and has an application pending for status as an exempt/supporting organization under IRS Section 501(c)(3). Research Foundation has been organized and is to be operated for public, charitable, educational and scientific purposes.
- C. Pursuant to ORC §§ 3345.14 and 3356.04, University is authorized to retain patents, copyrights and trademarks on any “University work products”, defined as University-developed intellectual property, whether patented or not, and to license or sell rights therein to persons or firms as it shall deem proper; and, in addition, the University has objectives to further the research efforts at the University for the enhancement of knowledge, teaching and the welfare of humankind, to provide for compensation and incentives to its researchers and contribute to the economic benefits of the community and State.
- D. Research Foundation is authorized to administer a program of evaluation and marketing of University work products to persons, firms and corporations, including the rights to manufacture, use and sell such University work products. For these purposes, Research Foundation may utilize its subsidiary or third party for-profit and/or not-for-profit corporations and such other persons and firms that are permitted by applicable laws and regulations.
- E. University and Research Foundation desire to enter into this Agreement to memorialize the mutual responsibilities of Research Foundation and University in the furtherance of their mutual research and commercialization activities and in the licensing and sale of rights in University work products, including responsibilities to accept, administer and distribute funds generated in connection with Company Sponsored Research and such other work product-related activities as mutually determined by University and Research Foundation.

**Agenda Item E.1.b
Exhibit A**

THE AGREEMENT

In consideration of the foregoing recitals and the promises hereinafter made and exchanged, University and Research Foundation agree as follows:

1. Engagement

- A. To assist University in attaining its objectives and effectuate its purposes in furtherance of its research and educational activities and for licensing and selling rights to University work products in connection with Company Sponsored Research and such other work product-related activities as mutually determined by University and Research Foundation, University herein authorizes and engages Research Foundation and, subject to the terms and conditions of this Agreement, Research Foundation agrees to provide the following services:
- (i) Evaluate and market University work products;
 - (ii) Enter into contracts with persons, firms and companies to implement Company Sponsored Programs and/or evaluate and/or transfer commercialization and other rights in technology and intellectual property;
 - (iii) Collect, administer, disburse, hold, invest, account for and otherwise manage funds in connection with such contracts;
 - (iv) Enter into agreements with University employees, volunteers, students and others as appropriate regarding the allocation of revenues, and other activities with respect to inventions, works and other technology.
- B. In order to comply with subparagraph 1.A.(ii) above, University shall provide to Research Foundation such rights necessary to effectuate the contracts; such provision of rights may be in the form shown in Addendum A, attached hereto as a part of this Agreement.
- C. It is understood that Research Foundation, to fulfill its obligations under this Agreement, may delegate administrative authority to the University Office of the Associate Provost for Research, as the University's authorized institutional official, to perform certain of the above-described functions. For effective and efficient collaboration between the parties, University shall continue to maintain its records with respect to University research, intellectual property and licensing activities, and shall provide free access thereto to Research Foundation for the purposes of this Agreement.

2. Administration of Funds

Upon receipt of Revenue with respect to marketing of University intellectual property or management of grant or research programs, Research Foundation agrees to make such disbursements as may be required or appropriate pursuant to all applicable agreements, University and Research Foundation Policies and Bylaws and Addenda hereto. In this regard, Research Foundation will reimburse University's out-of-pocket costs, incurred after mutual agreement to incur such costs, in protecting such intellectual property. Likewise, Research Foundation agrees to pay twenty-five (25%) percent of indirect costs from grants managed by Research Foundation to University.

3. General Provisions

- A. As used herein, "Company Sponsored Research" means any University research, involving the payment of fees to or reimbursement of expenses from any non-Government entity otherwise complying with the definition of "Sponsored Program/Project" currently contained in the Youngstown State University Guide to Sponsored Programs Development (Section 1.3.1). "Revenue" means cash available for payment by Research Foundation net of all prepayments, non-grant related expenses, direct costs and indirect costs
- B. University agrees that as to Direct Costs, Research Foundation may retain appropriate funds to meet stated Research Foundation goals and objectives.
- C. In accordance with and subject to the rules and policies of the Ohio Board of Regents, Youngstown State University Board of Trustees and University and the terms of this Agreement, Research Foundation is authorized to use such property, facilities and personal services at University as may be designated by University. With respect to such property and facilities which Research Foundation uses, Research Foundation shall be a licensee without any property right therein.
- D. Research Foundation shall maintain books, records, and accounts of the kind normally maintained by a non-profit corporation and such other records as may be required by this Agreement. Research Foundation shall provide annual financial and activity reports to Youngstown State University Board of Trustees along with such other information as the Board of Trustees may request. Research Foundation shall permit duly authorized representatives of University and the Board of Trustees, at their request, to inspect Research Foundation's records.

Research Foundation and University agree to be bound by the terms and conditions of the Confidentiality Agreement attached hereto as Addendum B. Research Foundation shall cause its directors, officers, employees and agents to adhere to the terms and conditions thereof with respect to University confidential information. In addition, Research Foundation shall cause all third parties who are provided University confidential information in the course of Research Foundation's marketing and technology transfer activities to execute a Confidentiality Agreement substantially similar to Addendum B.

- E. This Agreement is not subject to modification or amendment except in a writing signed by the duly authorized representatives of University and Research Foundation. University and Research Foundation may from time to time enter into Operating Addenda which shall be in writing and signed by their duly authorized representatives. All such Operating Addenda shall be subject to the terms of this Agreement.
- F. The University and the Research Foundation agree to be responsible for any negligent acts or negligent omissions by or through itself or its agents, employees and each party further agrees to defend itself and themselves and pay any judgments and costs arising out of such negligent acts or negligent omissions, and nothing in this Agreement shall impute or transfer any such responsibility from one to the other.
- G. This Agreement shall be effective upon execution by both parties and shall continue in perpetuity unless terminated by one of the parties hereto, with or without cause, upon advance written notice of sixty (60) days to the other party.
- H. The parties agree that they will not discriminate against anyone in the performance of their duties with regard to this Agreement on the basis of race, color, religion, sex, age, national origin or disability.
- I. This Agreement may be modified only by mutual agreement of the parties and only in writing.
- J. The provisions of this Agreement are severable and independent, and if any such provision shall be determined to be unenforceable in whole or in part, the remaining provisions and any partially enforceable provision shall, to the extent enforceable in any jurisdiction, nevertheless be binding and enforceable.
- K. This Agreement and any claims arising in any way out of this Agreement shall be governed by the laws of the State of Ohio. Any provision of this Agreement prohibited by the laws of Ohio shall be deemed void and of no effect. Any litigation arising out of or relating in any way to this Agreement or the performance there under shall be brought only in the Courts of Ohio, and parties hereby irrevocably consent to such jurisdiction.

IN WITNESS WHEREOF, University and Research Foundation have caused this Agreement to be executed by their duly authorized representatives.

YOUNGSTOWN STATE UNIVERSITY

YOUNGSTOWN STATE UNIVERSITY
RESEARCH FOUNDATION

Cynthia E. Anderson
President
Youngstown State University

Chester R. Cooper
President
Youngstown State University Research
Foundation

Date

Date

ADDENDUM A

License

Pursuant to Section 3345.14, O.R.C., Youngstown State University, a state university (“University”), hereby grants to Youngstown State University Research Foundation, an Ohio not-for-profit corporation, (“Research Foundation”), in consideration of the services to be provided by Research Foundation and the benefits to University and its constituents to be derived there from:

an (exclusive non-exclusive) license (with without) right to sublicense

in the territory comprising (_____)

for the term ending (_____)

with respect to the following information, technology and/or intellectual property rights.

YOUNGSTOWN STATE UNIVERSITY

YOUNGSTOWN STATE UNIVERSITY
RESEARCH FOUNDATION

Cynthia E. Anderson
President
Youngstown State University

Chester R. Cooper
President
**Youngstown State University Research
Foundation**

Date: _____

Date: _____

The Natural Gas and Water Resources Institute
at
Youngstown State University
College of Science, Technology, Engineering, and Mathematics

Statement of Need and Purpose

The Utica Shale natural gas and liquids deposits represent the greatest opportunity for jobs creation and economic development to hit Ohio since the industrial revolution. Since first coming onto the radar in 2008 as a potential rival to the Marcellus Shale of Pennsylvania, New York, and West Virginia, the Utica Shale deposit has become a significant exploration and development target of major domestic and international oil and energy companies.

The Utica Shale is currently being explored in eastern Ohio by ten different operating companies. A total of fifty-nine horizontal production wells have been permitted in sixteen counties. Thirteen of these wells are drilled and three are currently producing (ODNR, 2011). The Buell #8H well in Harrison County achieved a peak production rate of 3,010 barrels of oil equivalent per day. Chesapeake Energy Inc. is the largest stakeholder in Utica natural gas and projects. In 2014 they will have forty drilling rigs operating, and by 2015 the daily production will be 250,000 barrels per day in liquids. In addition, Chesapeake Energy CEO Aubrey McClendon reports that his company has a current Utica investment in excess of \$2B, with an expected investment of \$20B per year, for the next 20 years.

Youngstown State University is strategically located within the heart of the Utica Shale region and well-poised to take advantage of near-term and future opportunities for growth and development. Development of the Utica Shale natural gas can be modeled after the success of the Marcellus Shale within Pennsylvania. A recent Pennsylvania Department of Labor and Industry report (October 2011) finds that employment in fields directly linked to Marcellus Shale in Pennsylvania's natural-gas extraction industry doubled over a three-year period, from 9,520 in 2008 to 20,387 in the first quarter of 2011. Employment in gas-related ancillary fields was 193,813.

Assuming that exploration and production activities of the Utica Shale follow a similar arc suggests huge job growth and economic development opportunities for Ohio. An economic impact study released in September 2011 by the Ohio Oil and Gas Energy Education Program (OOGEEP) predicts "more than 204,000 jobs will be created or supported (in Ohio) by 2015 due to exploration, leasing, drilling and connector pipeline construction for the Utica Shale reserve." While over 100,000 of these jobs are predicted to be in support activities for mining, OOGEEP predicts nearly 9,000 new jobs will be created in professional and technical services (OOGEEP, 2011). Regardless of specific job type, it is clear that new job opportunities will require knowledge and skill sets provided by educational and research components of STEM disciplines.

To serve the needs of the Mahoning Valley and the State of Ohio, Youngstown State University and the College of STEM must identify appropriate research and education opportunities associated with development of the Utica Shale. Marietta College's Edwy R. Brown Department of Petroleum

Agenda Item E.1.d
Exhibit C

Engineering has the only established petroleum-based academic/research program within Ohio. But new programs are emerging regularly. Eastern Gateway Community College is a member of ShaleNet, an alliance of community colleges focused on workforce training for the drilling industry. On October 26, 2011, Zane State Community College announced a Natural Gas Engineering Technology program and an opportunity for students to begin enrolling. Ohio State University recently created (September 2011) the Subsurface Energy Resource Center to conduct relevant research and serve as a resource to subsurface energy stakeholders. Establishing YSU's presence in this fast-changing field is a critical necessity if we are to have a role in educating the future workforce to support this economic growth opportunity.

Recognizing the significant opportunities brought on by the natural gas and liquids resource development of the Utica and Marcellus Shale formations taking place within our immediate geographic region, we propose the creation of the Natural Gas and Water Resources Institute (NGWRI) at Youngstown State University. This interdisciplinary Institute will seek opportunities to expand teaching and research activities central to the growing needs of the regional natural gas industry. The proposed Institute will be the first in Ohio to emphasize the educational needs of the Bachelor's trained scientist and engineer. The interdisciplinary nature of YSU's STEM College allows for a balanced approach to meet the diverse educational needs of our students. The applied research emphasis on water directly addresses one of the major challenges currently facing the gas industry in Ohio.

Description of Institute and Meeting of Stated Needs

The Natural Gas and Water Resources Institute will address the following educational and research opportunities specific to shale natural gas and liquids development:

- Water resources and contamination issues
- Production infrastructure (well pads, pipelines, compressors, fluid separators)
- Well site reclamation
- Petroleum geology

Water Resources and Contamination Issues

The production of natural gas and liquids from deep shale formations requires the use and recovery of large volumes of water for the hydraulic fracturing process of well stimulation. Typical hydraulic fracture stimulation may use approximately four million gallons of fresh water combined with up to 1500 tons of sand and 30,000 gallons of chemical additives. This "frack water" is of two types: 1) flowback water comprised essentially of the fluid that is used to fracture the well (plus other naturally occurring materials that may be present in the well formation), and 2) produced water, which is the naturally occurring water from the shale formation. In both cases, the water contains high concentrations of salts, dissolved solids, and other chemicals that are injected into the well or naturally present in the formation. Neither flowback nor produced water can be effectively treated in municipal water systems. Deep injection wells (Class 2) remain the industry's best management practice for disposal of these waters; however, the increased demand on these facilities has raised serious environmental concerns regarding subsurface disposal capacity, earthquakes, and potential contamination of ground water and surface water resources. The need to improve existing treatment and disposal methods--including the recovery and reuse of flowback and produced water--represents one opportunity for technology development. Improved water quality analysis and monitoring are anticipated areas of future research opportunities.

A major environmental issue that will always be associated with petroleum production is water and soil contamination due to improper or negligent handling (spills) of production fluids and flow back water. Ohio regulatory agencies such as Mineral Resources Management (ODNR) and the Ohio EPA will have increased demand for geologists and environmental scientists to address these issues. Contamination-related research opportunities are already robust, and growth in this area is expected.

Production Infrastructure

Natural gas and liquids production from Utica Shale may require as many as 20,000 wells being drilled during the next twenty years. Production will require land clearing, excavation, grading, drill pad and road construction, impoundments, liners, and much more. As stated by Pennsylvania representative Fred Keller while introducing proposed construction regulations, “every untapped natural gas well is a potential multi-million dollar construction project.” Once the well is completed and producing, an extensive network of transmission pipelines, compressor stations, and fluid separation facilities will be needed. The design and construction of this infrastructure require a workforce of environmental scientists, civil, mechanical, and industrial engineers, who understand the issues associated with the natural gas industry, to effectively oversee construction, operations, and regulatory compliance.

Well Site Reclamation

A typical Utica or Marcellus well pad has the capacity for six to eight individual wells. These well pads occupy as much as six acres during drilling operations. State law requires post-drilling reclamation of the sites. Environmental scientists and civil engineers will be needed to design and conduct reclamation operations and ensure compliance with environmental regulations.

Petroleum Geology

Utica Shale exploration and development have already attracted national and international oil and energy corporations to Ohio, but they are relying on a workforce largely imported from Texas and Louisiana. It has been nearly thirty years since Ohio has experienced growth in the oil and gas industry, and thus the petroleum geology professionals in Ohio represent an aged and contracted workforce. For drilling companies to effectively understand the details of the formation, the movement of fluids within the formation, and the relationship of drilling wells to production, a renewed petroleum geology workforce will be required.

Proposed Institute Activities

Because of the need to train workers throughout the STEM disciplines, YSU already has a distinct advantage relative to its peer institutions. The formation of the STEM College allows students to select courses from science and engineering without losing time toward their degree. We propose to enhance this opportunity, by identifying a series of appropriate courses that would lead to a minor in Natural Gas and Water Resources. The minor will be comprised of existing courses from throughout the STEM programs, supplemented by select new courses needed to address specific issues outside our current curriculum. We envision students majoring in Geology, Environmental Studies, Chemistry, Civil Engineering, Chemical Engineering, Mechanical Engineering, and Mechanical Engineering Technology to be the primary beneficiaries of this minor. Other students throughout YSU, most notably those majoring in Business, should also find this minor accessible and appropriate for preparing them for careers in the gas industry.

The second major opportunity for YSU is through the formation of an interdisciplinary research effort that targets water related issues such as analysis/monitoring, instrumentation, and contamination. Within our Chemistry program, YSU has already established a leadership position in analysis of materials, and the use of remote access for our analytical tools. The expansion of this analytical capability to instrumentation for water analysis is a natural expansion of our existing expertise. Issues of analysis are multi-dimensional, including real time sensing capability, analysis at the parts-per-billion and parts-per-trillion level, and remote monitoring. These cross-disciplinary issues benefit from the administrative structure of our STEM College, once again allowing faculty from chemistry and mechanical engineering, or environmental science and chemical engineering, or geology and civil engineering, to work together seamlessly seeking solutions to these problems. An ancillary benefit to our research activities is an increased need for manufacturing capability to produce the instrumentation needed for the testing and analysis. Our STEM programs are already heavily engaged in the manufacturing sector and are ready to support the sector's development needs as they identify opportunities to move into the gas industries.

Finally, we propose to take advantage of existing equipment and new equipment that we might develop through our research activities to provide an analytical service for the petroleum industry. This effort couples Institute teaching and research efforts by taking advantage of the specialized equipment required for the analysis and the trained workforce prepared to use this equipment. These unique services would complement EPA-certified drinking water test services that are beyond the current scope and capability of the proposed Institute.

Stakeholder Departments and Personnel

Youngstown State University has existing academic departments and personnel needed to establish the Natural Gas and Water Resources Institute. Biographical sketches are included in Appendix A.

Geological and Environmental Sciences

Isam E. Amin	Hydrogeology and Ground Water Modeling
Felicia P. Armstrong	Soil Chemistry
Jeffrey C. Dick	Petroleum Geology and Hydrogeology
Colleen McLean	Aqueous Geochemistry

Civil/Environmental and Chemical Engineering

Scott C. Martin	Water Quality Analysis
Hans Tritico	Sustainable Hydraulics

Biology

Carl Johnston	Environmental Microbiology
Ian Renne	Ecology

Chemistry

Brian D. Leskiw	Quantification of Trace Contaminants
Josef B. Simeonsson	Environmental Analysis and Environmental Remediation

Mechanical and Industrial Engineering

Martin Cala	Manufacturing Engineering
Yogen Panta	Detection/Analysis of Chemicals

Geography

Brad Shellito

Geospatial Technologies

Accounting and Finance

Norbert Pierre

Corporate Governance, Economic Networks

Proposed Minor Curriculum

The educational component of the Natural Gas and Water Resources Institute will be established with a multi-disciplinary minor in Natural Gas and Water Resources. The purpose of the minor is to provide the technically trained student with the background to effectively work in the oil and gas industry upon graduation. The minor is directed toward students interested in pursuing careers in professions and technical fields directly related to shale gas and other unconventional resources or the petroleum industry in general.

The proposed minor will consist of eight semester hours of core courses and a minimum of twelve semester hours of elective courses. The core courses provide a fundamental understanding of Utica and Marcellus Shale natural gas and liquids exploration and development and environmental concerns associated with these activities. Elective courses are selected primarily from courses from the STEM departments of Biological Sciences, Geological and Environmental Sciences, Civil/Environmental and Chemical Engineering, Chemistry, Mechanical Engineering, Industrial Engineering and Engineering Technology; the Williamson College of Business Administration's Department of Accounting; and the College of Liberal Arts and Social Sciences' Department of Geography, and distributed into three separate areas of concentration:

- **Water Resources and Environmental Management**
Seventeen courses from eight departments providing content in environmental regulations, natural water systems, environmental chemistry, water analysis, biotechnology, environmental engineering, and land development.
- **Natural Gas Production**
Ten courses from nine departments providing content in oil and gas valuation, geophysical well log interpretation, geographic information systems, energy assessment, and fluid mechanics.
- **Natural Gas and Water Resources Applications**
Practical experience through oil and gas industry internships and independent research.

A more detailed curriculum proposal, including curriculum action forms, is included in Appendix B.

Institute Needs and Resources Available

The proposed Institute is designed to bring together existing resources to form a cohesive structure that supports the growing shale gas industry within our community. This is an interdisciplinary Institute that takes advantage of resources from throughout the STEM College.

An Institute Director will be selected to administer the operations of the Institute. The Director shall supervise the development of the minor and advise students wishing to complete the minor in Natural

Gas and Water Resources. The Director will develop and nurture collaborations throughout the community and establish an external advisory board to help guide the future direction of the Institute. Through these interactions, the Director will facilitate the development of appropriate research initiatives within the Institute and connect faculty with industrial partners to support these research goals. In addition, the Director will oversee the Institute seminar program, implemented in conjunction with ENST 3750A. The Director will report to the Dean of the STEM College.

To meet the teaching obligations of the proposed minor, one additional part-time faculty may be required. Most of the courses are currently available, although they may not necessarily be taught on a regular basis. Thus, those programs offering courses within the minor may be required to adjust their teaching obligations to address changes in the student enrollment patterns. Designated laboratory courses already exist, and the STEM College has an existing mechanism through its internal Laboratory Enhancement Grant program (funded through STEM College fees) through which faculty can upgrade laboratory equipment to align existing laboratories to meet the objectives of the minor.

One additional faculty is immediately required in the Department of Geological and Environmental Sciences, to meet the current demands of the program. Because of recent resignations in the department, currently two positions are being filled by term faculty. There is a current search underway to convert one of these term positions to tenure-track, and there is an expectation that the other position will be converted within the next three years. These positions will be dedicated to support the research and teaching needs of the Institute.

Research space is at a premium within the STEM College, but existing faculty with active research programs have sufficient space in which to conduct ongoing research. As these research efforts shift to focus on problems more directed to issues of natural gas and water resources, space will be made available in existing laboratories. A proposal is currently being considered to convert MO 0100 and 1070 (currently a two-story high bay space) into two separate laboratories; a teaching lab in MO 1070 and a research lab in MO 0100. If this proposal is approved for support through existing capital funds, these spaces will be made available to support the activities of the Institute.

Likewise the equipment needed to conduct this research is already in-house and operational. Additional equipment needed to support specific research activities will be acquired through external grant activity, or through funds designated by our collaborating partners.

Support for graduate students is available through graduate and teaching assistants already assigned to the departments engaged with the Institute. Those graduate students that join the Institute through their research activities may provide teaching support in selected areas, depending on their background and skills.

We believe that there are great opportunities for revenue enhancement resulting from the creation of the Institute. Students who seek opportunities in the growing gas industry will enroll in our STEM programs and take advantage of the minor, so that they are uniquely prepared for the job market. Companies will invest in our programs because of the quality and preparedness of our graduates, and the opportunities to use our laboratories to their advantage, either for research or analytical support. Advocacy groups and NGO's will seek our support and advice as we help to shape public opinion, thereby increasing the reputation of Youngstown State University.

Because the faculty and space needs are limited, minimal new investment is needed to begin the proposed Institute. The STEM College has committed a faculty line in GES to support this program,

and has requested support from the capital budget for laboratory renovation. Additional funds for the purchase of small equipment and supplies of up to \$2,500 per year will come from STEM College resources. Additional funds for laboratory development will be available at up to \$50,000 per year for laboratory enhancement. The School of Graduate Studies and Research has agreed to finance the seminar program up to a maximum cost of \$2,500 per year.

It is expected that significant further investment will be obtained through industrial partners who recognize the value of the work of the Institute. While the upside potential to YSU is substantial, it will only be possible if we can quickly establish our capabilities. If YSU does not make the investment now, others will reap the benefits.

Work Plan and Proposed Budget

Educational Objectives:

The proposal for the Natural Gas and Water Resources minor will be delivered to the Academic Programs Committee of the Academic Senate early in the calendar year for approval prior to the end of the Spring semester. Students will be admitted to the minor beginning in Fall 2012. Likewise, new courses required for the minor will be in place by Fall 2012, and classes will be scheduled to meet the needs of the program. It is a stretch goal that the first graduates will complete the minor in May 2013.

Research Objectives:

Early in 2012, a Director will be identified for the program. The first task for the Director is to identify an industrial advisory board to help determine the specific research tasks that align with faculty interests. A meeting of the advisory board will take place in late 2012 to discuss possible opportunities with engaged faculty.

The seminar program will be implemented beginning in Fall 2012, taking advantage of the advice and contacts of the advisory board members.

Specific research targets will be identified by Fall 2012. Internal funds will be allocated through existing University programs to support small scale exploratory research in targeted areas. A specific goal of this program is to complete, in 2013, at least one significant proposal for external funding that meet the objectives of the Institute as defined by the advisory board. By 2014, the Institute shall be externally funded and conducting research activities in areas identified by advisory board members.

Budget requirements

	2012	2013	2014	
Support for Director	\$ 8,125	\$ 8,125	\$ 8,125	3 s.h. reassigned time (est)
Part-time instruction	\$ 3,150	\$ 3,150	\$ 3,150	Assumes doctoral-level, 3 s.h.
Exploratory research	\$ 2,500	\$ 2,500	\$ 2,500	(provided through STEM College)
Seminar program	\$ 2,500	\$ 2,500	\$ 2,500	(provided by Research & Grad Studies)
Cash total (est'd)	\$ 8,150	\$ 8,150	\$ 8,150	

Appendix A:

Faculty Biographical Sketches

ISAM AMIN

Isam E. Amin is an associate professor at Youngstown State University (YSU). He obtained his PhD in hydrogeology from the University of Nevada-Reno, M.S. in hydrogeology from New Mexico Institute of Mining and Technology, and B.Sc. in geology from the University of Khartoum, Sudan. At YSU he teaches hydrogeology, environmental sciences, and introductory geology courses. Before coming to YSU, he taught environmental geochemistry in addition to hydrogeology at California State University-Long Beach and the American University of Beirut, Lebanon. His recent publications are on groundwater contamination and sediment transport in streams. His professional experience also includes three years in the environmental industry, where he worked on remediation of contaminated groundwater.

FELICIA P. ARMSTRONG

Felicia P. Armstrong received her B.S. degree in Biology from the University of Dayton, her M.S. in plant and soil science from Alabama A & M University and her Ph.D. from Oklahoma State University in environmental soil science. Dr. Armstrong joined YSU after working for the Oklahoma Department of Environmental Quality and as an adjunct professor at Rose State College and the University of Central Oklahoma. Dr. Armstrong is the coordinator for the Environmental Science labs and the faculty advisor for the Youngstown Environmental Sustainability Society.

Dr. Armstrong maintains an active research program in conjunction with undergraduate and master theses. Current research includes land use impacts to soil and water quality using chemical analysis and macroinvertebrate diversity, evaluation of urban agricultural soil and reduction of potential toxic contaminants through amendments and the environmental toxicology of contaminated soils. Dr. Armstrong has supervised 10 master's theses at YSU and regularly presents at Soil Science Society and Ecological Society National Meetings. Dr. Armstrong also serves as the Secretary for the ASA/CSSA/SSSA Diversity in Agronomy, Crops, Soils, and Environmental Sciences Committee and in the District 15 Science Day Council. In addition to her service and research activities, Dr. Armstrong teaches a wide variety of Environmental Science courses for majors, non-majors, and graduate students, including Environmental Chemistry, Water Quality Analysis, and Risk Assessment.

MARTIN CALA

Martin Cala, P.E., received his B.S. in biomedical engineering from Duke University and his M.S. and Ph.D. from the University of Binghamton. He served in technical and managerial positions at Universal Instruments Corporation in Binghamton before joining Youngstown State University as a faculty member of the Industrial Engineering Department. Dr. Cala is currently Professor and Coordinator of the Industrial & Systems Engineering program in the College of Science, Technology, Engineering, and Mathematics. His teaching areas are quality productivity and ergonomics, while his research areas are in manufacturing issues and engineering education. He has refereed publications in his technical areas and has presented in the area of engineering education.

As professor and coordinator of the Industrial & Systems Engineering program, he plays a key role in maintaining full ABET accreditation. He directs student projects in conjunction with industrial partners in most of his classes and is fully involved in new student recruitment as well as placement of program graduates. He is the IIE Student Chapter faculty advisor and has received the IIE Outstanding Faculty Advisors Award multiple times. He has supervised Master's students' projects and theses with connections to local industry. He has been active in the Fundamentals of Engineering review course and as a reviewer of the Practices and Principles Examination for Industrial Engineering in joint service to IIE and NCEES. He is a member and past chapter officer of both the Institute of Industrial Engineers and the Society of Manufacturing Engineers and is a member of the American Society of Engineering Education.

JEFFREY C. DICK

Jeffrey C. Dick received his B.S. degree in geology, M.S. degree in hydrogeology, and Ph.D. degree in applied geology from Kent State University. After completion of his M.S. degree, Dr. Dick worked as a petroleum geologist for Chevron U.S.A., Inc. As a doctoral student, he studied slope stability problems in weak sedimentary rocks while continuing employment as a petroleum geologist with Locust Energy, Inc. Dr. Dick started as a geology faculty at Youngstown State University in 1991 and currently serves as the Chair of the Department of Geological and Environmental Sciences.

Dr. Dick maintains a robust research agenda focusing on ground and surface water contamination and remediation and subsurface geological characterizations. Current supported projects include a baseline groundwater quality investigation for an Ohio rural municipality within a shale gas drilling area, performance evaluation of storm water catchment filters, design and monitoring of a constructed wetland for treatment of agricultural runoff, and development of a numerical model of subsurface transport of noble gases in fractured geologic media for detection and identification of nuclear explosion testing. Dr. Dick is a well-recognized expert on Utica Shale exploration and development in Ohio and communicates his knowledge of drilling and environmental related concerns to community groups and professional organizations.

CARL G. JOHNSTON

Carl G. Johnston received his B.S. degree in microbiology from University of Manitoba, Winnipeg, Canada, his M.S. degree in Chemical Oceanography from University of Alaska, and his Ph.D. degree in biology from University of Cincinnati. After two years as post-doctoral research associate at Utah State University, he worked as a senior scientist at Mycotech Corporation, Montana. Dr. Johnston worked at Montana Tech as adjunct assistant professor in environmental engineering for four years before becoming a faculty member in the Biology Department at Youngstown State University in 1999. He is currently an associate professor in the Biology Department.

Dr. Johnston maintains active research with graduate and undergraduate students from chemistry and biology. Their projects focus on environmental microbiology, biogeochemistry, and molecular biology. Dr. Johnston has advised 16 graduate and more than 50 undergraduate student research projects. Johnston has 14 peer reviewed publications, 29 peer reviewed abstracts from regional, national, and international scientific meetings, and has given 57 presentations at scientific meetings and seminars. Dr. Johnston is also a founder of ChemBio Solutions, Inc., an environmental consulting company. He recently initiated a general agreement for academic and cultural cooperation between YSU and Universidad Nacional Agraria La Molina (UNALM) in Lima, Peru. Dr. Johnston is supervising, in Peru, bioremediation research projects involving graduate and undergraduate students from UNALM. Dr. Johnston is an active member of the Sierra Club and Global Lake Ecological Observatory Network.

BRIAN LESKIW

Brian D. Leskiw received his B.S. in Chemistry from Niagara University in 1998 and his Ph.D. from The Pennsylvania State University in 2003. Dr. Leskiw joined Youngstown State University as an assistant professor of Chemistry in Fall 2005 after a Post Doctoral appointment at Brookhaven National Laboratory. His research projects were in the area of Physical Chemistry/Chemical Physics and focused on the excited relaxation dynamics of several novel nanoscale materials as well as instrument design and construction. Dr. Leskiw has designed and built a magnetic bottle photoelectron spectrometer and shares patents in the design of an imaging mass spectrometer and a coupled electrostatic ion and electron trap. His current research interests are in the gas phase, where he synthesizes new compounds and investigates the resulting stability through select gas phase reactions.

Dr. Leskiw, currently an associate professor, has over 25 peer-reviewed publications (9 from YSU), has given 10 research presentations (4 from YSU), and has supervised 7 YSU Master's students, including 3 Cushwa/Commercial Shearing Graduate Fellowship Recipients.

SCOTT C. MARTIN

Scott C. Martin, P.E., received his B.S., M.S., and Ph.D. degrees in Civil & Environmental Engineering from Clarkson University. He has served as a faculty member in Civil Engineering at Youngstown State University (YSU) since 1984, and as Chair of the Department of Civil/Environmental & Chemical Engineering since 2000. Dr. Martin has performed numerous research projects related to surface water quality, watershed planning, and restoration of streams and wetlands. He has published 10 articles in peer-reviewed journals and given 22 conference presentations on his research. He has supervised 34 Master's thesis projects. Most of his work has focused on developing solutions to environmental problems in northeast Ohio.

Dr. Martin has been active in developing and implementing programs that promote engineering and science education/careers, including MATHCOUNTS, the Mahoning Valley Miniature Bridge Building Competition, and the Lake-to-River Science Fair. He has served as the Faculty Advisor to the YSU Student Chapter of the American Society of Civil Engineers (ASCE) since 1987. Dr. Martin is a registered Professional Engineer (P.E.) in Ohio. He has served as YSU's representative to the Ohio State Board of Registration, and coordinates an annual review course offered at YSU to help students prepare for the Fundamentals of Engineering exam. Dr. Martin is a member of the American Society for Engineering Education, the Association of Environmental Engineering and Science Professors, and ASCE. He serves on the Board of Trustees of the Mahoning River Consortium.

COLLEEN E. MCLEAN

Colleen E. McLean received her B.S. in geology from Youngstown State University, M.S. in hydrogeochemistry from Kent State University, and Ph.D. in environmental geoscience from Michigan State University, where she also completed a doctoral specialization in environmental science and policy. She joined the Department of Geological and Environmental Sciences at Youngstown State University in 2009. At YSU, Dr. McLean teaches a wide variety of undergraduate and graduate-level courses including Environmental Geochemistry, Foundations of Environmental Studies, and Geology and the Environment.

Dr. McLean's research activities are multidisciplinary, with an emphasis on understanding environmental response and recovery in coupled human and natural systems. Her current research includes using geochemical and biological proxies in lake sediment to reconstruct anthropogenic impacts in lacustrine ecosystems, establishing reference conditions in aquatic ecosystems and integrating paleoecological and social records to evaluate regional sustainable management strategies. Her recent collaborations have involved watershed scale assessments of water quality driven by land-use and land-cover change and investigating the effects of nutrient loading on the biogeochemical cycle of phosphorus and diatom dynamics. This research has resulted in co-authorship on papers in *Lake and Reservoir Management* and *Applied Geochemistry*. Additionally, Dr. McLean is the present Co-Chair of the North American Steering Committee for the Human-Climate-Ecosystem division of the International Geosphere Biosphere Programme.

YOGENDRA PANTA

Yogendra Panta received his Ph.D. in Mechanical Engineering from the University of Nevada and his M.S. in Mechanical Engineering from Youngstown State University. Dr. Panta joined Youngstown State University as an Assistant Professor of Mechanical Engineering in the College of Science, Technology, Engineering, and Mathematics in September 2008, after graduating from the University of Nevada.

Dr. Panta maintains an active research program in microfluidics/lab on chip, magneto-hydrodynamics, and computational fluid dynamics, with recent work on heavy metal ion analysis, including separation, detection, and removal using a magnetically excited minute lab on chip. He has over 15 refereed publications and over 20 technical presentations in the area of fluid dynamics, microfluidics and heavy metal ions/radionuclides metrology. He has supervised four Master's students, and numerous undergraduate students for their capstone design projects. Dr. Panta's lab currently has one PhD student (enrolled at Case Western Reserve University), five graduate and three undergraduate students. He is the editor-in-chief for two international journal papers: *Journal of Computational Simulation & Modeling* and *Journal of Biomedical and Bioengineering*. He is currently serving as a reviewer for several journal papers including Elsevier and ASEE. He is an active member of American Society of Mechanical Engineers (ASME), American Physical Society (APS), American Chemical Society (ACS), and American Society of Engineering Education (ASEE).

NORBERT PIERRE

Dr. Pierre received a B.S. in physics from Howard University and an S.M. in physics from MIT. After MIT he went to work on Wall Street where he enjoyed a career, first as a programmer/analyst and then as a quantitative analyst – a “quant” in Wall Street jargon. Ending his stint on Wall Street he enrolled in and completed the PhD program in Finance at the Baruch College campus of the City University of New York. Dr. Pierre joined the YSU faculty in September 2011. His research interests include Corporate Governance, Social and Economic Networks, Investing, and Quantitative Finance.

IAN J. RENNE

Ian J. Renne, Ph.D., received his B.S. in biology from Syracuse University and his M.S. and Ph.D. from Clemson University in zoology. After serving a four year position as a Postdoctoral Research Associate at the University of Illinois, Dr. Renne joined Youngstown State University as Assistant Professor of Ecology in the Department of Biological Sciences.

In addition to his teaching duties and service to the community, Dr. Renne maintains an active research program in plant community ecology. His primary focus is on elucidating mechanisms that drive plant community structure, including the invisibility of plant communities, so that scientific-based strategies can be implemented to promote native species diversity while minimizing the incidence on non-native species. This approach can be applied to the development of perennial biofuel crops as an ecologically and economically sound alternative to other biofuels. He is also interested in the effects of anthropogenic habitat modification on avian culture, maximizing Eastern Bluebird reproductive success across urban environments and lepidopteron host range shifts as a mechanism of incipient speciation. Dr. Renne has 9 refereed publications and over 40 technical presentations. He has served as an ad hoc

reviewer for USDA and NSF grant proposals as well as 15 journals, including *Journal of Ecology*, *Diversity and Distributions*, *Biological Invasions*, *Oecologia*, *Plant Ecology*, and *Functional Ecology*. He has been a member of the Ecological Society of America since 1996.

BRAD SHELLITO

Bradley A. Shellito is a geographer whose work focuses on the application of geospatial technologies. Dr. Shellito has been a professor at Youngstown State University (YSU) since 2004, and was previously a faculty member at Old Dominion University. He teaches classes in GIS, Remote Sensing, GPS, and 3D Visualization, and his research interests involve using these concepts with a variety of real-world issues. His book, *Introduction to Geospatial Technologies*, is aimed at presenting these same topics to a beginner-level audience and has been adopted at numerous colleges and universities in the US and Canada. He also serves as YSU's PI in OhioView, a statewide geospatial consortium. A native of the Youngstown area, Dr. Shellito received his bachelor's degree from YSU, his Masters from the Ohio State University, and his doctorate from Michigan State University.

JOSEF B. SIMEONSSON

Josef B. Simeonsson received a BS in Chemistry from the University of North Carolina at Chapel Hill and a PhD in Chemistry from the University of Florida. After completing the Ph.D., he was a National Research Council Postdoctoral Research Associate at the Army Ballistics Research Laboratory at Aberdeen Proving Ground, MD, an Assistant Professor of Chemistry at the University of Iowa, and a Postdoctoral Research Associate at the US EPA National Health and Environmental Effects Research Laboratory in Research Triangle Park, NC. Following that, he started Advanced Monitoring Inc., a company that focuses on the development and application of high performance analytical methods. In 2006, he joined the faculty at Youngstown State University, where he is associate professor of Chemistry.

Dr. Simeonsson's research program is focused on the development and application of analytical spectroscopy methods, and especially laser spectroscopy, to chemical analysis problems in industry and the environment. Recent activities have utilized laser induced fluorescence, laser induced breakdown, and Raman scattering spectroscopy methods for measurements of trace compounds, and the characterization of hazardous metals in contaminated sediments by atomic emission spectroscopy. Another new effort is a collaborative project with Polyflow Corporation of Akron, OH, which has developed a novel waste-to-fuels conversion process for producing fuels and value liquids from waste plastics and polymers. The overall goal of this project is to demonstrate the process at a commercial scale and will include detailed chemical characterizations of the product liquids by several analytical methods.

HANS TRITICO

Dr. Tritico is a water resources engineering professor at Youngstown State University in the Civil/Environmental and Chemical Engineering Department. His research is in the area of sustainable hydraulics with emphasis on stream restoration and fish passage design. Dr. Tritico's research lab, FiSHWorks, has performed research for the National Science Foundation and the US Department of Transportation, among others. At the undergraduate level he teaches fluid mechanics and hydraulic design, and co-teaches the capstone design course. His graduate-level courses include sediment transport, water policy, and advanced hydrology. He was named a National Academy of Engineering Frontiers of Engineering Education Fellow in 2011 for his innovations linking the engineering classroom to the community. He holds a joint Ph.D. from the University of Michigan in both Civil Engineering and Aquatic Ecology.

Appendix B:

Proposed Curriculum for Minor in Natural Gas and Water Resources

The minor is directed toward students interested in pursuing careers in professions and technical fields directly related to natural gas or the petroleum industry in general. Completion of the minor requires a minimum of twenty semester hours of coursework.

MINIMUM REQUIREMENTS:

- completion of MATH 1513 (or equivalent)
- completion of CHEM 1515/L and CHEM 1516/L (or equivalent)

CORE COURSES: (8 s.h.)

GEOL 26xx: Introduction to Natural Gas and Water Resources. 3 s.h.

ENST 2600/2600L: Foundations of Environmental Studies and Lab. 4 s.h.

STEM 26xx: Natural Gas and Water Resources Seminar 1 s.h.

ELECTIVE COURSES: (12 s.h. minimum)

A minimum of twelve semester hours of elective courses are required. A minimum of three semester hours of elective courses must be selected from course group A and course group B. At least nine semester hours of the elective courses must be upper-division level (3700 or above).

A. WATER RESOURCES AND ENVIRONMENTAL MANAGEMENT

BIOL 4801/4801L: Environmental Microbiology. 4 s.h.

BIOL 5888: Environmental Biotechnology. 4 s.h.

CCET 3724: Hydraulics and Land Development. 3 s.h.

CCET 4824: Environmental Technology. 3 s.h.

CEEN 3736: Fundamentals of Environmental Engineering. 3 s.h.

CHEM 2604/2604L: Quantitative Analysis with Lab. 5 s.h.

CHEM 3719/3719L: Organic Chemistry 1 with lab. 4 s.h.

CHEM 4860: Regulatory Aspects of Industrial Chemistry. 1 s.h.

CHEM 5804/5804L: Chemical Instrumentation. 4 s.h.

ENST 3700/3700L: Environmental Chemistry with lab. 4 s.h.

ENST/CEEN 3751/3751L: Water Quality Analysis with lab. 3 s.h.

ENST 3781: Environmental Sampling Methods. 3 s.h.

ENST 5860: Environmental Regulations. 3 s.h. or

ALTH 5816: Environmental Regulations. 3 s.h. (Web-based)

GEOG 3735: Water in the Earth System. 3 s.h.

GEOL 4804: Groundwater. 3 s.h.

GEOL 5817: Environmental Geochemistry. 3 s.h.

B. NATURAL GAS PRODUCTION

ACCT 4860F: Oil and Gas Accounting. 3 s.h.

ALTH 4808: Environmental Health Concerns. 3 s.h. (Web-based)

CEEN 3716/3716L: Fluid Mechanics and lab. 4 s.h. or
MECH 3720/3720L: Fluid Dynamics and Lab. 4 s.h. or
MET 3714/3714L: Fluid Mechanics and Lab. 3 s.h.
CHEN 2688: Energy Assessment. 3 s.h.
GEOG 5810: Geographic Information Science 1. 3 s.h.
GEOG 3709: Subsurface Investigations. 3 s.h.
GEOG 48xx: Geophysical Well Log Interpretation. 3 s.h.
ISEN 3736/3736L: Methods Engineering. 3 s.h.

C. NATURAL GAS AND WATER RESOURCES APPLICATIONS

STEM 4890: STEM Internship. 1 – 4 s.h.

* **STEM 4xxx:** Senior Thesis. 3 s.h.

* Equivalent course may be taken within CSTEM department degree programs