MEMORANDUM

TO: Cheng-i Wei
Dean, College of Agriculture and Natural Resources

FROM: Phyllis Peres
Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to establish M.S. and Ph.D. degrees in Environmental Science and Technology (PCC log nos. 06037-06038)

On May 22, 2008, the Maryland Higher Education Commission approved your proposal to establish M.S. and Ph.D. degrees in Environmental Science and Technology. The Board of Regents gave final approval on April 11. Copies of their approval letters and the proposal documents are attached.

The approvals are effective Fall 2008. The College should ensure that the degree programs are fully described in the Graduate Catalog and in all relevant descriptive materials, and that all advisors are informed.

CWR/

Enclosures

cc: Carmen Balthrop, Chair, Senate PCC Committee
Sarah Bauder, Office of Student Financial Aid
Reka Montfort, University Senate
Barbara Hope, Data Administration
Denise Nadsen, Institutional Research & Planning
Anne Turkos, Archives
Linda Yokoi, Office of the Registrar
Mary Ann Ottinger, Graduate School
Frank Coale, Environmental Science and Technology
Martin Rabenhorst, Environmental Science and Technology
THE UNIVERSITY OF MARYLAND, COLLEGE PARK
PROGRAM CURRICULUM PROPOSAL

DIRECTIONS:
- Provide one form with original approval signatures in lines 1-4 for each proposed action. Keep this form to one page in length.
- Early consultation with the Office of the Associate Provost for Academic Planning & Programs is strongly recommended if there are questions or concerns, particularly with new programs.
- Please submit the signed form to Claudia Rector, Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus.
- Please email the rest of the proposal as an MSWord attachment to pcc-submissions@umd.edu.

DATE SUBMITTED: December 6, 2006

COLLEGE/SCHOOL: College of Agriculture and Natural Resources

DEPARTMENT/PROGRAM: Department of Environmental Science and Technology

PROPOSED ACTION (A separate form for each) ADD X DELETE CHANGE

DESCRIPTION (Provide a succinct account of the proposed action. Details should be provided in an attachment. Provide old and new sample programs for curriculum changes.)

Establish Master of Science graduate program, Environmental Science and Technology, which will reside in the newly formed department of Environmental Science and Technology. The proposed Master of Science program will consist of three specialization: 1) Soil and Watershed Sciences; 2) Ecological Technology Design; or 3) Wetland Science.

JUSTIFICATION/REASONS/RESOURCES (Briefly explain the reason for the proposed action. Identify the source of new resources that may be required. Details should be provided in an attachment.)

The reason for this proposed action is the reorganization, consolidation and defining of the current M.S program that is managed by ENST faculty. There are no new resources requested.

APPROVAL SIGNATURES - Please print name, sign and date

1. Department Committee Chair

2. Department Chair

3. College/School PCC Chair

4. Dean

5. Dean of the Graduate School (if required)

6. Chair, Senate PCC

7. Chair of Senate

8. Vice President for Academic Affairs & Provost

PCC LOG NO. 06037

Dr. Andrew Baldwin
Dr. Frank J. Coale
Dr. Mark Varner
Dr. Leon Slaughter

1PAAP 8-05
May 22, 2008

Dr. C. D. Mote, Jr.
President
University of Maryland, College Park
1101 Main Administration Building
College Park MD 20742

Dear Dr. Mote:

The Maryland Higher Education Commission has reviewed a request from the University of Maryland, College Park to offer a new Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degree programs in Environmental Science and Technology. On the recommendation of the Assistant Secretary for Planning and Academic Affairs, Dr. George W. Reid, I am pleased to inform you that the programs have been approved. This decision was based on an analysis of the programs in conjunction with the Maryland Higher Education Commission’s Policies and Procedures for Academic Program Proposals and the Maryland State Plan for Postsecondary Education. The programs demonstrate potential for success, an essential factor in making this decision.

For purposes of providing enrollment and degree data to the Commission, please use the following HEGIS and CIP codes:

<table>
<thead>
<tr>
<th>Program Title</th>
<th>Degree Level</th>
<th>HEGIS</th>
<th>CIP</th>
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</thead>
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<td>0199-00</td>
<td>03.0104</td>
</tr>
<tr>
<td>Environmental Science and Technology</td>
<td>Ph.D.</td>
<td>0199-00</td>
<td>03.0104</td>
</tr>
</tbody>
</table>

Should the programs require any substantial changes in the future, please keep the Commission apprised. I wish you continued success.

Sincerely,

James E. Lyons, Sr.
Secretary of Higher Education

JEL:GWR:jmc

cc: Ms. Theresa W. Hollander, Associate Vice Chancellor for Academic Affairs, USM
    Dr. George W. Reid, Assistant Secretary for Planning and Academic Affairs, MHEC
Dr. C.D. Mote, Jr.
University of Maryland, College Park
1101 Main Administration Building
College Park, MD 20742

Dear Dan:

This is to officially advise you that the Board of Regents, meeting in public session on Friday, April 11, 2008 at the University System of Maryland at Hagerstown, approved the following new academic program proposal for UMCP:

M.S. and Ph.D. in Environmental Science and Technology

The Education Policy Committee, meeting on March 12, 2008, recommended approval.

Sincerely,

William E. Kirwan
Chancellor

cc: Irwin Goldstein
    Janice Doyle
PROPOSAL FOR
NEW INSTRUCTIONAL PROGRAM
UNIVERSITY OF MARYLAND AT COLLEGE PARK, MARYLAND

M.S. GRADUATE PROGRAM IN
ENVIRONMENTAL SCIENCE AND TECHNOLOGY

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

DEAN: CHENG-I WEI

AWARD TO BE OFFERED: M.S. IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY

PROPOSED INITIATION DATE: FALL 2008
I. OVERVIEW and RATIONALE
A. Briefly describe the nature of the proposed program and explain why the institution should offer it. [You may want to refer to student demand, market demand for graduates, institutional strengths, disciplinary trends, synergy with existing programs, and/or institutional strategic priorities.]

The Department of Environmental Science and Technology (ENST) was formed July, 2006, bringing together faculty from two departments in the College of Agriculture and Natural Resources: the soil science faculty from the former Department of Natural Resource Sciences and Landscape Architecture (NRSL), and most of the faculty from the former Department of Biological Resources Engineering (BRE). Simultaneous with the formation of ENST, the soil science option of the NRSC M.S. graduate program was transferred to the new ENST department.

Following the philosophy that underpinned the establishment of the new Department of Environmental Science and Technology, we acknowledge that numerous departments and units on the campus and in the system are engaged in various aspects of the environmental enterprise. As our graduate program grows, it will complement, and thus strengthen, existing efforts in the environmental arena. We will be intentional in our collaboration, cooperation and support of these programs.

As described above, we anticipate collaborations with a great many units on the campus and within the system. In particular, we recognize the valuable contributions of, and expect close collaborations with, programs in the following units with whom we have already had serious conversations: Architecture, Planning, and Preservation; Chemical and Life Sciences (BEES, CONS); Civil and Environmental Engineering; Geography (geospatial analysis, land use and global change); Geology; Marine Environmental and Estuarine Studies; Plant Science and Landscape Architecture. We anticipate and hope that there will be many others.

As a newly organized department, ENST proposes to offer a graduate program leading to the Master of Science degree1 (including thesis and non-thesis options). Candidates for the M.S. degree will work within one of three specializations: 1) Soil and Watershed Sciences; 2) Ecological Technology Design; or 3) Wetland Science. While this proposal creates a new M.S. program for ENST, nearly all of the courses are already established and being taught by current ENST faculty. However, we do propose the creation of two new courses that will contribute to the ENST core (one of which has been taught before), and three new courses to support offerings in the Wetland Science and Ecological Technology Design specializations.

The specialization in Soil and Watershed Sciences is essentially identical to the Soil Science option of the Natural Resource Sciences (NRSC) program that was administered within the former Dept of NRSL and transferred to the ENST Dept. during the recent reorganization. (After the Soil and Watershed Sciences specialization is approved as part of the new ENST Ph.D. graduate program, the Soil Science option of the NRSC Ph.D. graduate program will be phased out.) This graduate program will continue to prepare students to address challenging environmental issues that involve the soil resource at field, landscape and watershed scales. Soils are the most complex and ecologically significant biogeochemical systems on Earth. Soil processes and the soil resource are critical to all terrestrial ecosystems from prairies to the Alaskan tundra, to wetlands, to our

1 We propose that students admitted to the Soils option of the NRSC M.S. program after July 1, 2006 be permitted the opportunity of transferring into the ENST M.S. program, should they wish to do so.
cities, to forests to biofuel farms. Soil Science is at the center of the study of what the National Science Foundation terms the Critical Zone - the confluence of atmosphere, lithosphere, hydrosphere and biosphere near the surface of the Earth. The quality of the Soil Science program and faculty is already recognized nationally and internationally; the program now housed in ENST represents one of the top three Soil Science programs in the northeast USA (along with Cornell University and The Pennsylvania State University).

The specialization in Ecological Technology Design will be a distinct program on a national scale that prepares students to integrate natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability. The science and application of using natural systems, processes and organisms to address environmental issues has evolved during the last few decades to a mature level whereby there are strong employment opportunities for graduates that are educated jointly in ecology and technology. Examples of eco-technological applications include: the restoration of urban and rural streams, the creation of wastewater treatment wetlands, the design of raingardens and bioretention systems for low-impact stormwater management, the design of eco-industrial parks, the life cycle assessment of products for improved environmental performance, the bioremediation and phytoremediation of contaminated land and groundwater, ecological systems for by-product recovery, and filtration of contaminated air with bioreactors. The creation of this new specialty will place the University of Maryland at the frontier among public universities in offering such a forward looking program. Programs similar to this exist at Ohio State Univ., the Univ. of Florida and UC Berkeley. At its core the Ecological Technology Design specialization will build upon the expertise of the faculty from the former Biological Resources Engineering Department, and advance with contributions from faculty from the former NRSL Department and campus faculty outside the ENST Department. [Note: The Ecological Technology Design specialization will be the focus for the ENST faculty formerly of the Biological Resources Engineering Department. These faculty have advised students in the ENBE M.S. graduate program which was transferred to the College of Engineering’s Bioengineering Department upon the 2006 reorganization and will be phased out over the next few years after the ENST M.S. graduate program is approved.]

The specialization in Wetland Science is intended to address the keen awareness among the Environmental community that wetlands represent a critical and understudied component of many larger ecosystems. Wetlands have rapidly gained public attention over the last two decades as they have been brought into the limelight by state and federal regulations and through the attention given such large scale environmental issues as hurricane Katrina. Several faculty recently united within the newly formed Dept. of ENST have for years conducted research and taught courses in Wetland science. This new organization provides a critical mass, greater cooperation and synergism in Wetland Science research and education and a real opportunity to move forward. Currently, universities with well recognized Wetland Science programs include, The University of Florida, Duke University, The Ohio State University and Louisiana State University. Our goal is for the University of Maryland to become recognized as a national and international leader in the area of Wetland Science. What is true of Environmental Science in general, is also true of Wetland Science in particular – namely that there are many faculty in various units on this campus, and on other campuses in the system, that are involved in research and teaching in this area. In naming this as a specialization within the ENST M.S. graduate program we are not intending to claim exclusivity, but rather would vigorously work to raise the levels of collaboration and cooperation among faculty and among all interested units.
B. How big is the program expected to be? From what other programs serving current students, or from what new populations of potential students, onsite or offsite, are you expecting to draw?

The soils specialization of NRSC is currently housed in ENST, with a total of 18 graduate students (and this program has averaged 18 students over the last four years.), with about 60% of these being M.S. students. With the addition of two new specializations, over the next five years we expect this number to double, resulting in a total graduate enrollment of approximately 35 to 40 graduate students with approximately half of these students being enrolled in M.S. programs.

II. CURRICULUM

A. Provide a full catalog description of the proposed program, including educational objectives and any areas of concentration.

The Department of Environmental Science and Technology proposes to offer a program in graduate studies leading to the Master of Science degree (including thesis and non-thesis options). Candidates for the M.S. degree will work within one of three specializations: 1) Soil and Watershed Sciences; 2) Ecological Technology Design; or 3) Wetland Science.

B. List the courses (number, title, semester credit hours) that would constitute the requirements and other components of the proposed program. Provide a catalog description for any courses that will be newly developed or substantially modified for the program.

Requirements for Graduate Programs in ENST

Environmental science and technology is by nature a multidisciplinary enterprise. Therefore, the graduate program requirements have been designed to provide a necessary curricular foundation while preserving maximum flexibility for the student in selecting coursework to support their research and educational objectives.

1. Requirements for the Master of Science Degree (Thesis Option)
   a. Required Coursework - Students in the M.S. program will be expected to design a focused, coherent program of study that must be approved by the student’s Advisor and Advisory Committee. This program requires a minimum of 30 semester hours beyond the B.S. degree, including six hours of thesis research credit (799). Of the 24 hours required in graduate courses, at least 12 must be earned in the major area. A minimum of 12 credit hours must be earned at the 600 level or above. All students in the M.S. program will be required to complete a core of courses that includes Research Principles and Methodology in Environmental Science and Technology (ENST 6XX) (3 credits), Communication and Professional Development in Environmental Science and Technology (ENST 7XX), one graduate level course in statistics (from among BIOM 601, 602, 603, 621 or equivalent) and two semesters of Graduate Seminar (ENST 798) (2 credits). Additional curriculum requirements are outlined below for each area of specialization. Details concerning course/credit requirements are also summarized in the appended summary table of requirements (Table 3).
   i. Students in the Soil and Watershed Sciences specialization are required to have a minimum of 12 credits of graduate level soil science courses that must be
earned in any four of the following five areas: soil chemistry, soil physics, pedology, soil biology, soil fertility.

ii. Students in the Ecological Technology Design specialization are required to complete six credits of graduate level coursework in ecology and six credits of graduate level coursework in ecological design or related engineering courses.

iii. Students in the Wetland Science specialization are required to complete eighteen (18) credits from a list of approved graduate level courses in Ecology, Soil Science and Hydrology, with a minimum of three credits from each of these three groups.

b. Thesis - In addition to successful completion of all coursework, students must complete and defend a research based thesis focused within their area of specialization.

2. Requirements for the Master of Science Degree (Non-Thesis Option)

a. Required Coursework - Students in the non-thesis M.S. program will be expected to design a focused, coherent program of study that must be approved by the student's Advisor and Advisory Committee. This program requires a minimum of 30 credit hours of course work beyond the B.S. degree. At least 18 credit hours must be at the 600 level or above. All students will be required to complete a core of courses that includes Research Principles and Methodology in Environmental Science and Technology (ENST 6XX) (3 credits), Communication and Professional Development in Environmental Science and Technology (ENST 7XX), one graduate level course in statistics (from among BIOM 601, 602, 603, 621 or equivalent) and two semesters of Graduate Seminar (ENST 798) (2 credits). Of the 30 hours required in graduate courses a minimum of 15 credit hours must be in the major area. Within the areas of specialization, identical course requirements apply for students in both non-thesis and thesis based M.S. program (see 1.a.i-iii above).

b. Scholarly Paper - Non-thesis M.S. students are required to write a scholarly paper in partial fulfillment of the degree requirements, and to present a seminar based on the content of the paper. The subject of the scholarly paper should be selected by the graduate student with the help of the Advisor and subject to approval by the student's Advisory Committee.

c. Comprehensive Final Examination - Non-thesis M.S. students must pass a written comprehensive final examination on their knowledge of the discipline and an oral examination, at least part of which is devoted to the contents of the scholarly paper.

New courses:

ENST 6xa RESEARCH PRINCIPLES AND METHODOLOGY IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY (3 credits)
Fundamentals of research strategies useful and appropriate to Environmental Science and Technology, including a survey of current methodologies available for field and laboratory based projects that researchers are likely to utilize.

ENST 6xb CREATED AND RESTORED WETLANDS (3 credits)
Principles and practices of designing and constructing wastewater treatment wetlands and restoring and creating natural wetlands.

ENST 6xc ECOLOGICAL TECHNOLOGY DESIGN (3 credits)
Principles of design are illustrated with case studies from biologically-based waste treatment systems, ecosystem management and sustainable development.
ENST 6xd ECOSYSTEM SIMULATION MODELING (3 credits)
Fundamentals of conceptualizing, developing, calibrating, validating and simulating
mathematical models of ecosystems.

ENST 7xx COMMUNICATION AND PROFESSIONAL DEVELOPMENT IN
ENVIRONMENTAL SCIENCE AND TECHNOLOGY (2 credits)
Training in communication and professional development to prepare students to succeed
in careers within the fields of environmental science and technology. Topics will include
communication with academic and non-academic audiences, manuscript and technical
writing, multi-disciplinary collaboration, management, professionalism, mentoring,
leadership, ethics, job search, and career opportunities. Course emphasizes practical
training through facilitated discussions and critique practicums.

C. Describe any selective admissions policy or special criteria for students selecting this field of study.

Basic Admissions Requirements for Graduate Studies in ENST

To be admitted to pursue the M.S. degree students must have completed a B.S. Degree in
a related field achieving a cumulative undergraduate GPA of 3.0 or higher and must have
completed a minimum of one semester of Calculus and an additional 16 credits in some
combination of Chemistry, Physics, or Mathematics (beyond Calculus I). They must also
have completed the Graduate Record Examination (GRE).

III. STUDENT LEARNING OUTCOMES AND ASSESSMENT

A. List the program's learning outcomes and explain how they will be measured.

B. Include a general assessment plan for the learning outcomes. (In lieu of a narrative for both IIIA and IIIB,
   you may attach the program's learning outcomes assessment forms.)

Learning Outcomes for the Graduate Program in ENST

Students completing an M.S. Degree in ENST:
1. will read and synthesize pertinent information from the body of published scientific literature
2. will plan, design and conduct research following scientific protocols
3. will collect, analyze and interpret data from a research project
4. will effectively write research findings in a field specific format for a scientific audience
5. will orally communicate a technical summary of the research effort to a scientific audience

Students completing an M.S. Degree (non-thesis) in ENST:
1. will read and synthesize pertinent information from the body of published scientific literature
2. will effectively write a synthesis of a scientific literature review in a field specific format for a scientific
   audience
3. will orally communicate a summary and synthesis of a scientific literature review to a scientific
   audience
Outcomes Assessment Schedule

The following events are included as regular components of the normal graduate student program and provide opportunity for outcome assessment. The approximate timing at which these events occur within a student’s program is also provided.

For M.S. Students
- M.S. Entrance Seminar – within first year
- M.S. Exit Seminar – at the end of the M.S. program
- M.S. Thesis Defense or M.S. Scholarly Paper – at the end of the M.S. program
- M.S. Qualifying Exam (non-thesis only) – at the end of the M.S. program
Graduate Program in ENST Assessment Rubric

Each member of the assembled faculty committee should complete one of these forms for the student in question following the conclusion of the faculty discussion, but before the student returns to the room (if applicable). Do not identify yourself or the student by name on this form. Add your form to the envelope held by the Chair of this committee.

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Check one for each listed criterion

### Criteria for scientific components:

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<tr>
<td>Statement of problem is clear and well-conceptualized.</td>
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<td>There is appropriate use and synthesis of published literature.</td>
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<tr>
<td>Research methods are well-selected and well-executed.</td>
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<td>Conclusions are well-justified.</td>
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Check one for each listed criterion

### Criteria for communication components:

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<tr>
<td>The student observed time limitations, spoke with clarity and sense of organization, and overall gave a compelling oral performance.</td>
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<tr>
<td>The student answered the questions faculty asked.</td>
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<td>The student answered questions in ways that deepened the discussion.</td>
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<tr>
<td>The project is well-written.</td>
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<tr>
<td>The project is publishable.</td>
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Check one for each listed criterion

### Criteria for knowledge components:

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<tbody>
<tr>
<td>Student demonstrates a general knowledge of the field of study</td>
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<tr>
<td>Student demonstrates knowledge in their area of specialization</td>
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<tr>
<td>Student demonstrates knowledge of recent developments</td>
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Comments (optional):
IV. FACULTY AND ORGANIZATION

A. Who will provide academic direction and oversight for the program? [This might be a department, a departmental subgroup, a list of faculty members, or some other defined group.]

The ENST graduate program will be administered entirely within the Department of Environmental Science and Technology by the Departmental Graduate Committee. The Graduate committee will be overseen by the Director of Graduate Studies who will be appointed by the ENST department Chair. The ENST graduate committee will consist of the Director of Graduate Studies and four additional members, who must be associate or full members of the graduate faculty. These committee members will be elected by the ENST faculty and will serve for a period of four years with one committee member rotating off at the end of each year.

The ENST Departmental Graduate Committee will be responsible: 1) to periodically review and to propose to the ENST faculty any needed policy changes related to the Graduate Program; 2) to review and propose action to the graduate school on individuals making application to the ENST graduate program; 3) to evaluate, rank and make recommendations to the ENST chair regarding the merit of graduate applicants for consideration in awarding departmental assistantships.

Members of the ENST faculty who will advise graduate students within various specializations of the ENST graduate program include the following:

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<td>Adams, Lowell</td>
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<td>Baldwin, Andrew</td>
<td>Associate Prof</td>
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<tr>
<td>Becker, Jennifer</td>
<td>Assistant Prof</td>
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<tr>
<td>Coale, Frank</td>
<td>Professor</td>
<td></td>
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<tr>
<td>Felton, Gary</td>
<td>Associate Prof</td>
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<td>Hill, Robert</td>
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<td>James, Bruce</td>
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<td>Kangas, Patrick</td>
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<tr>
<td>McGrath, Joshua</td>
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<tr>
<td>Miller, Ray</td>
<td>Professor</td>
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<tr>
<td>Meisinger, J.J.</td>
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<td>Momen, Bahram</td>
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<tr>
<td>Needelman, Brian</td>
<td>Assistant Prof</td>
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<tr>
<td>Rabenhorst, Marty</td>
<td>Professor</td>
<td>x</td>
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<tr>
<td>Ross, David</td>
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<tr>
<td>Tilley, David</td>
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<td>Weil, Ray</td>
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<td>Weismiller, Richard</td>
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<tr>
<td>Wheaton, Fred</td>
<td>Professor</td>
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</table>

B. If the program is not to be housed and administered within a single academic unit, provide details of its administrative structure. This should include at least the following:

Not Applicable
V. OFF CAMPUS PROGRAMS

Not Applicable

VI. OTHER ISSUES

A. Describe any cooperative arrangements with other institutions or organizations that will be important for the success of this program.

Because many of the faculty within the Department of ENST historically have collaborated with faculty from other departments on the campus and other units in the system, we intend for this to continue. One of the principles that underpinned the establishment of the new Department of Environmental Science and Technology was the acknowledgement that numerous departments and units on the campus and in the system are engaged in particular aspects of environmental studies. Through continued informal cooperation, we intend for the graduate program in ENST to complement, and thus strengthen, environmental work on the campus and in the system.

B. Will the program require or seek accreditation? **NO.** Is it intended to provide certification or licensure for its graduates? **NO.** Are there academic or administrative constraints as a consequence? **NO.**

VII. COMMITMENT TO DIVERSITY

Identify specific actions and strategies that will be utilized to recruit and retain a diverse student body.

(1) Increase communications with undergraduate programs, and solicit applications from students enrolled, at 1890 Land Grant Institutions and historically black colleges, both within and without USM;
(2) Continue faculty involvement with International Programs in Agriculture and Natural Resources (IPAN), which will bring in students from all over the world.

VIII. REQUIRED PHYSICAL RESOURCES

A. Additional library and other information resources required to support the proposed program. You must include a formal evaluation by Library staff. **NONE.**

B. Additional facilities, facility modifications, and equipment that will be required. This is to include faculty and staff office space, laboratories, special classrooms, computers, etc. **NONE.**

C. Impact, if any, on the use of existing facilities and equipment. Examples are laboratories, computer labs, specially equipped classrooms, and access to computer servers. **NONE.**

IX. RESOURCE NEEDS and SOURCES

Describe the resources that are required to offer this program, and the source of these resources. Project this for five years. In particular:

A. List new courses to be taught, and needed additional sections of existing courses. Describe the anticipated advising and administrative loads. Indicate the personnel resources (faculty, staff, and teaching assistants) that will be needed to cover all these responsibilities.
Most of the ENST courses that will be utilized in the ENST graduate program are currently taught by ENST faculty. We are proposing the creation of five new courses (listed under section II.B.) for the graduate programs in ENST. These new courses will be partially supported by existing faculty and will also be partly supported by new faculty lines that have been requested in the ENST undergraduate proposal.

B. List new faculty, staff, and teaching assistants needed for the responsibilities in A, and indicate the source of the resources for hiring them.

There are new faculty lines that are being requested in the ENST undergraduate program proposal. These new faculty will partially support the new graduate courses as will also the current ENST faculty.

C. Some of these teaching, advising, and administrative duties may be covered by existing faculty and staff. Describe your expectations for this, and indicate how the current duties of these individuals will be covered, and the source of any needed resources.

This proposal creates an M.S. program within ENST, with specializations supported by courses that are, for the most part, already being taught through the existing faculty in ENST. Most of the teaching and advising for the new program will be covered by existing ENST faculty as they have been doing for the M.S. programs in NRSC and ENBE prior to the reorganization and subsequent creation of ENST. The new faculty hires described in the ENST undergraduate proposal will also partially support the teaching of the new proposed courses for the graduate program.

D. Identify the source to pay for the required physical resources identified in Section VIII. above. N/A.

E. List any other required resources and the anticipated source for them. NONE.

F. Provide the information requested in Table 1 and Table 2 (for Academic Affairs to include in the external proposal submitted to USM and MHEC). Tables (which reflect projections for both the M.S. program and the Ph.D. program) are attached.
BUDGET NARRATIVE

The proposals for new M.S. and Ph.D. instructional programs in Environmental Science and Technology (ENST) are inextricably linked with the concurrent proposal for a new ENST undergraduate (B.S.) program. For clarity and ease of presentation, all projected changes in total ENST instructional program resources, exclusive of graduate student tuition, are reflected in the undergraduate program proposal budget. In summary, the undergraduate program proposal budget accounts for four new instructional faculty positions, four new graduate teaching assistant positions, resources for library operations and resources for modest facilities renovation infused over a period of four years. These new program resources represent a reallocation of existing Department, College, and Campus funds. The new faculty, teaching assistant, library support and facilities renovation resources outlined in the undergraduate proposal will be combined with existing resources to deliver both graduate and undergraduate ENST programs.

TABLE 1: RESOURCES
Currently, ENST has 5.69 FTE instructional faculty positions. The Department will allocate internal resources to support 1.5 FTE Administrative Staff support for the proposed graduate programs (M.S. & Ph.D.). Tuition revenue was calculated based on projected student numbers and the following assumptions regarding tuition sources: 40% in-state students, 60% out-of-state students, and 5% annual tuition increase beginning in Year 3. Currently, ENST graduate programs have an enrollment of approximately 15 students. We project that the proposed ENST graduate programs will attract 5 new full-time students per year for a total of 40 graduate students (M.S. & Ph.D.) by Year 5.

TABLE 2: EXPENDITURES
Currently, ENST has 5.69 FTE instructional faculty positions. There are no changes proposed for faculty, administrative or support staff expenditures that are directly attributed to the graduate program proposals.
<table>
<thead>
<tr>
<th>Resource Categories</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2007-08</td>
<td>2008-09</td>
<td>2009-10</td>
<td>2010-11</td>
<td>2011-12</td>
</tr>
<tr>
<td><strong>1. Reallocated Funds (a + b, below)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department, Chair ENST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Instructional Faculty Salary</td>
<td>$462,747</td>
<td>$462,747</td>
<td>$462,747</td>
<td>$462,747</td>
<td>$462,747</td>
</tr>
<tr>
<td>Instructional Faculty, FTEs</td>
<td>5.69</td>
<td>5.69</td>
<td>5.69</td>
<td>5.69</td>
<td>5.69</td>
</tr>
<tr>
<td>b. Administrative Staff Salary</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>Administrative Staff, FTEs</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>2. Tuition / Fee Revenue (f + k, below)</strong></td>
<td>$65,569</td>
<td>$131,138</td>
<td>$206,535</td>
<td>$289,164</td>
<td>$379,505</td>
</tr>
<tr>
<td>c. Additional New Full-Time Students</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>d. Additional Accumulated New Students</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>e. Annual Tuition Rate (assumes 40% in-state, 60% out-of-state, 5% tuition increase annually beginning in year 3)</td>
<td>$10,811</td>
<td>$10,811</td>
<td>$11,351</td>
<td>$11,919</td>
<td>$12,515</td>
</tr>
<tr>
<td>f. Annual Full-Time Revenue (d x e)</td>
<td>$54,055</td>
<td>$108,110</td>
<td>$170,265</td>
<td>$238,380</td>
<td>$312,875</td>
</tr>
<tr>
<td>g. Additional New Part-Time Students</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>h. Additional Accumulated New Part-Time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>i. Part-Time Credit Hour Rate (assumes 90% in-state, 10% out-of-state, 5% tuition increase annually beginning in year 3)</td>
<td>$1,919</td>
<td>$1,919</td>
<td>$2,015</td>
<td>$2,116</td>
<td>$2,221</td>
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<tr>
<td>j. Annual Part-Time Credit Hours</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>k. Total Part-Time Revenue (h x i x j)</td>
<td>$11,514</td>
<td>$23,028</td>
<td>$36,270</td>
<td>$50,784</td>
<td>$66,630</td>
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<tr>
<td><strong>3. Grants, Contracts &amp; Other External Sources</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td><strong>4. Other Sources</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>TOTAL (add 1 + 2 + 3 + 4)</strong></td>
<td>$588,316</td>
<td>$653,885</td>
<td>$729,282</td>
<td>$811,911</td>
<td>$902,252</td>
</tr>
<tr>
<td>Expenditure Categories</td>
<td>Year 1</td>
<td>Year 2</td>
<td>Year 3</td>
<td>Year 4</td>
<td>Year 5</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>2007-08</td>
<td>2008-09</td>
<td>2009-10</td>
<td>2010-11</td>
<td>2011-12</td>
</tr>
<tr>
<td>1. Total Faculty Expenses (b+c, below)</td>
<td>$601,571</td>
<td>$601,571</td>
<td>$601,571</td>
<td>$601,571</td>
<td>$601,571</td>
</tr>
<tr>
<td>a. Instructional Faculty, FTEs</td>
<td>5.69</td>
<td>5.69</td>
<td>5.69</td>
<td>5.69</td>
<td>5.69</td>
</tr>
<tr>
<td>b. Total Faculty Salary</td>
<td>$462,747</td>
<td>$462,747</td>
<td>$462,747</td>
<td>$462,747</td>
<td>$462,747</td>
</tr>
<tr>
<td>c. Total Faculty Benefits</td>
<td>$138,824</td>
<td>$138,824</td>
<td>$138,824</td>
<td>$138,824</td>
<td>$138,824</td>
</tr>
<tr>
<td>2. Total Administrative Staff Expenses (d+e, below)</td>
<td>$78,000</td>
<td>$78,000</td>
<td>$78,000</td>
<td>$78,000</td>
<td>$78,000</td>
</tr>
<tr>
<td>d. Administrative Staff, FTEs</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>e. Total Administrative Staff Salary</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>f. Total Administrative Staff Benefits</td>
<td>$18,000</td>
<td>$18,000</td>
<td>$18,000</td>
<td>$18,000</td>
<td>$18,000</td>
</tr>
<tr>
<td>3. Total Support Staff Expenses (h+i, below)</td>
<td>$120,900</td>
<td>$120,900</td>
<td>$120,900</td>
<td>$120,900</td>
<td>$120,900</td>
</tr>
<tr>
<td>g. Support Staff, FTEs</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>h. Total Support Staff Salary</td>
<td>$93,000</td>
<td>$93,000</td>
<td>$93,000</td>
<td>$93,000</td>
<td>$93,000</td>
</tr>
<tr>
<td>i. Total Support Staff Benefits</td>
<td>$27,900</td>
<td>$27,900</td>
<td>$27,900</td>
<td>$27,900</td>
<td>$27,900</td>
</tr>
<tr>
<td>4. Equipment</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>5. Library</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>6. New or Renovated Space</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>7. Other Expenses</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>TOTAL (add 1+2+3+4+5+6+7)</td>
<td>$800,471</td>
<td>$800,471</td>
<td>$800,471</td>
<td>$800,471</td>
<td>$800,471</td>
</tr>
</tbody>
</table>
Table 3. ENST M.S. Graduate Program - Summary of Requirements

<table>
<thead>
<tr>
<th>Area of Specialization</th>
<th>Soil and Watershed Sciences</th>
<th>Ecological Technology Design</th>
<th>Wetland Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S. Dept Admission</td>
<td>B.S. in related field; Undergraduate cumulative GPA of 3.0; GRE; Basic Science Requirement (a minimum of one semester of Calculus and 16 credits in Chemistry, Physics or Mathematics beyond Calculus I).</td>
<td>ENST 6XX - Research Principles and Methodology in Environmental Science and Technology (3 credits)</td>
<td>ENST 6XX - Research Principles and Methodology in Environmental Science and Technology (3 credits)</td>
</tr>
<tr>
<td>Grad School Requirements</td>
<td>30 semester hours beyond the B.S. degree, including six hours of thesis research credit (799). Of the 24 hours required in graduate courses, at least 12 must be earned in a major area. A minimum of 12 credit hours must be earned at the 600 level or above.</td>
<td>ENST 7XX - Communication and Professional Development in Environmental Science and Technology (2 credits)</td>
<td>ENST 7XX - Communication and Professional Development in Environmental Science and Technology (2 credits)</td>
</tr>
<tr>
<td>ENST Core Requirements</td>
<td>ENST 798 Graduate Seminar (2 semesters – 2 credits)</td>
<td>ENST 798 Graduate Seminar (2 semesters – 2 credits)</td>
<td>ENST 798 Graduate Seminar (2 semesters – 2 credits)</td>
</tr>
<tr>
<td>Specialization Requirements</td>
<td>Twelve credits of graduate level soil science courses. The 12 credits must be earned in any four of the following five areas: soil chemistry, soil physics, soil pedology, soil biology, soil fertility. All courses to be approved by the advisory committee.</td>
<td>Six credits of graduate level courses in ecology and six credits of graduate level courses in ecological design or related engineering courses. All courses to be approved by the advisory committee.</td>
<td>Eighteen (18) credits from a list of approved graduate level courses in Ecology, Soil Science and Hydrology, with a minimum of 3 credits from each of these three groups. All courses to be approved by the advisory committee.</td>
</tr>
</tbody>
</table>

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2 Approved Statistics Courses:
- BIOM 601 Biostatistics I (4)
- BIOM 602 Biostatistics II (4)
- BIOM 603 Biostatistics III (4)
- BIOM 621 Applied Multivariate Statistics (3)
- GEOG606 Quantitative Spatial Analysis (3)

3 Approved Courses for Wetland Science Specialization

Ecoogy
- ENST 650 Wetland Ecology (3)
- ENST 460 Wildlife Management (3)
- BSCI 460 Plant Ecology (3)
- PLSC 400 Environmental Plant Physiology
- MEES 645 Ecology and Management of Wetland and Submersed Aquatic Vegetation Systems (3)

Soils
- ENST 430** Wetlands Soils (3)
- ENST 421 Soil Chemistry (4)
- ENST 721 Advanced Soil Chemistry (3)
- ENST 414 Soil Morphology, Genesis, and Classification (4)

Hydrology
- ENST 417 Soil Hydrology and Physics (3)
- ENCE 431 Hydrologic Engineering (3)
- ENCE 432 Ground Water Hydrology (3)
- ENCE 630 Environmental and Water Resource Systems I (3)
- GEOL 451 Groundwater Geology (3)
- GEOL 452 Watershed and Wetland Hydrology (3)
- GEOL 652 Advanced Watershed and Wetland Hydrology (3)

**As part of the continued reorganization of the ENST department, these courses are being reorganized and will also be offered at the 600 level
<table>
<thead>
<tr>
<th>committee</th>
</tr>
</thead>
</table>
Table 4. Courses presently offered for graduate level credit by faculty in the Dept. of ENST

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Number</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENST</td>
<td>405**</td>
<td>Energy and Environment</td>
<td>3</td>
<td>Tilley</td>
</tr>
<tr>
<td>ENST</td>
<td>411**</td>
<td>Principles of Soil Fertility</td>
<td>3</td>
<td>Weil</td>
</tr>
<tr>
<td>ENST</td>
<td>413**</td>
<td>Soil and Water Conservation</td>
<td>3</td>
<td>Hill</td>
</tr>
<tr>
<td>ENST</td>
<td>414</td>
<td>Soil Morphology, Genesis and Classification</td>
<td>4</td>
<td>Needelman</td>
</tr>
<tr>
<td>ENST</td>
<td>415**</td>
<td>GIS Application in Soil Science</td>
<td>3</td>
<td>Needelman</td>
</tr>
<tr>
<td>ENST</td>
<td>417</td>
<td>Soil Hydrology and Physics</td>
<td>3</td>
<td>Hill</td>
</tr>
<tr>
<td>ENST</td>
<td>420</td>
<td>Soil Physical Properties Laboratory</td>
<td>1</td>
<td>Hill</td>
</tr>
<tr>
<td>ENST</td>
<td>421</td>
<td>Soil Chemistry</td>
<td>4</td>
<td>James</td>
</tr>
<tr>
<td>ENST</td>
<td>422</td>
<td>Soil Microbiology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENST</td>
<td>423**</td>
<td>Soil-Water Pollution</td>
<td>3</td>
<td>Steinhilber</td>
</tr>
<tr>
<td>ENST</td>
<td>424</td>
<td>Field Study in Soil Morphology</td>
<td>4</td>
<td>Rabenhorst</td>
</tr>
<tr>
<td>ENST</td>
<td>425**</td>
<td>Terrestrial Bioremediation</td>
<td>3</td>
<td></td>
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<tr>
<td>ENST</td>
<td>430**</td>
<td>Wetland Soils</td>
<td>3</td>
<td>Rabenhorst</td>
</tr>
<tr>
<td>ENST</td>
<td>440**</td>
<td>Crops, Soils, and Civilization</td>
<td>3</td>
<td>James</td>
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<tr>
<td>ENST</td>
<td>441**</td>
<td>Sustainable Agriculture</td>
<td>3</td>
<td>Weil</td>
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<tr>
<td>ENST</td>
<td>442**</td>
<td>Remote Sensing of Agriculture and Natural Resources</td>
<td>3</td>
<td>Weismiller</td>
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<tr>
<td>ENST</td>
<td>444</td>
<td>Restoration Ecology</td>
<td>3</td>
<td></td>
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<tr>
<td>ENST</td>
<td>450**</td>
<td>Wetland Ecology</td>
<td>3</td>
<td>Baldwin</td>
</tr>
<tr>
<td>ENST</td>
<td>451</td>
<td>Water Quality: Field and Lab Analysis Methods</td>
<td>3</td>
<td>Baldwin</td>
</tr>
<tr>
<td>ENST</td>
<td>460</td>
<td>Principles of Wildlife Management</td>
<td>3</td>
<td>Adams</td>
</tr>
<tr>
<td>ENST</td>
<td>461</td>
<td>Urban Wildlife Management</td>
<td>3</td>
<td>Adams</td>
</tr>
<tr>
<td>ENST</td>
<td>462</td>
<td>Field Techniques in Wildlife Management</td>
<td>2</td>
<td>Adams</td>
</tr>
<tr>
<td>ENST</td>
<td>470</td>
<td>Natural Resources Management</td>
<td>4</td>
<td>Kangas</td>
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<tr>
<td>ENST</td>
<td>479</td>
<td>Tropical Ecology and Resource Management</td>
<td>3</td>
<td>Kangas</td>
</tr>
<tr>
<td>ENST</td>
<td>489</td>
<td>Field Experience</td>
<td>variable</td>
<td>Various</td>
</tr>
<tr>
<td>ENST</td>
<td>499</td>
<td>Special Topics in Natural Resource Sciences</td>
<td>variable</td>
<td>Various</td>
</tr>
<tr>
<td>ENST</td>
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<td>Research Methods</td>
<td>variable</td>
<td>Various</td>
</tr>
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<td>ENST</td>
<td>689</td>
<td>Special Topics</td>
<td>variable</td>
<td>Various</td>
</tr>
<tr>
<td>ENST</td>
<td>689E</td>
<td>Soil Biochemistry and Microbial Ecology</td>
<td>3</td>
<td>James</td>
</tr>
<tr>
<td>ENST</td>
<td>689P</td>
<td>Scientific Communication and Profession Development</td>
<td>3</td>
<td>Needelman</td>
</tr>
<tr>
<td>ENST</td>
<td>711</td>
<td>Advanced Plant-Soil Relationships</td>
<td>2</td>
<td>Weil</td>
</tr>
<tr>
<td>ENST</td>
<td>722</td>
<td>Advanced Soil Chemistry</td>
<td>3</td>
<td>James</td>
</tr>
<tr>
<td>ENST</td>
<td>761</td>
<td>Methods in Pedological Investigations</td>
<td>4</td>
<td>Rabenhorst</td>
</tr>
<tr>
<td>ENST</td>
<td>789</td>
<td>Advances in Research</td>
<td>variable</td>
<td>Various</td>
</tr>
<tr>
<td>ENST</td>
<td>798</td>
<td>Graduate Seminar</td>
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<td>Various</td>
</tr>
<tr>
<td>ENST</td>
<td>821</td>
<td>Advanced Methods of Soil Investigation</td>
<td>3</td>
<td>James</td>
</tr>
<tr>
<td>ENST</td>
<td>831</td>
<td>Soil Mineralogy</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENST</td>
<td>832</td>
<td>Advanced Soil Physics</td>
<td>3</td>
<td>Hill</td>
</tr>
<tr>
<td>ENBE</td>
<td>462</td>
<td>Nonpoint Source Pollution Assessment Techniques</td>
<td>3</td>
<td>Felton</td>
</tr>
<tr>
<td>MEES</td>
<td>650</td>
<td>Wetland Ecology</td>
<td>3</td>
<td>Baldwin</td>
</tr>
<tr>
<td>MEES</td>
<td>698Z</td>
<td>Special Topics in MEES: Energy and Environment</td>
<td>3</td>
<td>Tilley</td>
</tr>
</tbody>
</table>

**As part of the continued reorganization of the ENST department, these courses are being reorganized and will be offered at the 600 level

---

4 This course is in the process of being changed to ENST605.
January 19, 2007

MEMORANDUM

TO: Frank J. Coale, Professor and Chair
   Department of Environmental Science and Technology

FROM: William Kenworthy, Acting Chair
       Department of Plant Science and Landscape Architecture
   and
   Jack Sullivan, Associate Professor and Coordinator
       Landscape Architecture Program

RE: Support for Environmental Science and Technology

We are writing to express our support for the Department of Environmental Science and Technology Program/Curriculum Proposal. We appreciate the recent communication we have had regarding the proposed ENST concentrations and courses. We are especially grateful to have had clarification from your faculty in regard to the Ecological Technology and Design concentration, the content of this course of study, and the opportunities for future collaboration with the Department and the Landscape Architecture Program.

We look forward to working with you, the faculty, and the students in ENST. Our mutual interests and complementary programs will establish the University of Maryland as a national leader in environmental education, research, and application.

William Kenworthy

Jack Sullivan
January 14, 2007

Dr. Frank Coale
Environmental Science and Technology
College of Agriculture
University of Maryland

Dr. Coale,

I am pleased to offer a letter of support for your proposed graduate program in environmental science and technology. Although the Marine, Estuarine, Environmental Sciences program will overlap a bit with your proposed program, as Director, I think the programs can be highly complimentary. We have long hoped to augment our involvement with the College of Agriculture but some Agriculture policies have been less than helpful in that regard. Your astute commitment to make sure that both ENST and MEES students advised by ENST faculty have equal opportunity for graduate support is a great step in the right direction to foster collaboration rather than competition.

Although I see little overlap with the proposed concentration in Ecological Design and Technology, there will likely be significant overlap with both Soil and Watershed Sciences and Wetland Science. We need to work to bring our respective groups together. Our watershed sciences faculty, including Claire Welty’s group in the Center for Urban Environmental Research and Education (CUERE) at UMBC, will be highly relevant to your concentration. In addition, our wetland scientists, including faculty from the Horn Point Lab and College Park, will be interested in your Wetland Sciences concentration. It may behoove us to set up a seminar series in your department to have these faculty members come and speak to your faculty and students.

Please let me know if there is any thing I can do to help as you develop your graduate programs.

Sincerely,

Kennedy T. Paynter
Director
October 18, 2007

Dr. Frank J. Coale
Professor & Department Chair
Department of Environmental Science & Technology
1109 H. J. Patterson Hall
University of Maryland
College Park, MD 20742 USA

Dear Frank:

Thank you for sharing the proposals for the new programs at the undergraduate and graduate levels in your department. We are glad to hear about the new programs and look forward to our collaboration and cooperation with them.

We clearly see a need for a number of your graduate initiatives. We also share the views of Dr. Paynter of MEES that there are substantial reasons for your program and MEES to collaborate and cooperate and that this will strengthen both programs. We certainly encourage these efforts, and see them as in the best interests of our colleges, graduate programs, and graduate students.

We also look forward to cooperation in undergraduate education. Our goal will be to ensure that the students added to our courses from your programs have places in our courses, but this may mean, as I discuss below, working through the University Planning Cycle to garner additional resources.

We do want to point out that while your newly proposed majors provide interesting new options to students, they do have some overlap with the ENSP-Biodiversity and Conservation and with the BSCI-Behavior, Ecology and Evolution concentration. It is worth noting that BOTH of these existing programs are small, so it is possible that your newly created programs may divide the existing population of students interested in these areas broadly. Thus, your new programs present the potential of creating three to four programs of very small enrollment as a result.

Your proposed new undergraduate programs have a significant number of course requirements and options in the College of Chemical and Life Sciences. All of your students will be required to take BSCI 105, 106, CHEM 131/132, and CHEM 231/232. Yet, all of these courses are currently under high enrollment pressure. The
Environmental Health concentration also requires BSCI 207, BSCI 223, and CHEM 241/242. The majority of these courses are lab courses. As a consequence, the projection of 30 new students/year from your program will have an impact on these high demand courses. Clearly, we will have to use the campus planning cycle process to try to add resources to accommodate these new demands.

Most upper level CLFS courses proposed for these majors are listed in large groups of electives. While some of these classes have enrollment capacity, others are filled currently by students in existing academic programs. Again, we will have to seek new resources for these courses if your programs reach the size you anticipate.

We certainly support your initiatives and we look forward to working with you to ensure that the students continue to have full access to our courses, while also ensuring that the additional students you bring in will also have sufficient access to meet their curricular requirements.

Sincerely,

Norma Allewell
Professor and Dean
29 October 2007

Dear Frank,

I am writing in support of your newly restructured graduate programs in Environmental Science and Technology. At this time I do not see any great overlap or competition between our two graduate programs and view your initiative as very complementary to graduate training in the broad area of ecology at UMD. As director of the interdisciplinary graduate program in Behavior, Ecology, Evolution and Systematics (BEES) in the College of Chemical and Life Sciences, I hope that our two programs have opportunities to interact together on campus in the future. I wish you much success in this initiative.

Sincerely,

Dr. Michele R. Dudash
Director, BEES Graduate Program
Department of Biology
University of Maryland
College Park, MD 20742
Office of the Dean

October 4, 2007

Frank J. Coale, Chair
Department of Environmental Science & Technology
1109 H. J. Patterson Hall
University of Maryland
College Park, MD 20742

Dear Frank:

I have reviewed the proposals for the new undergraduate and graduate programs in Environmental Science and Technology (ENST) and I thank you and members of the ENST faculty for meeting with me to discuss the proposals. As you know, faculty representatives from the School of Architecture, Planning and Preservation (ARCH) participated in our initial meeting and in subsequent collaborative discussions with ENST faculty. In summary, I believe that the proposed ESNT programs offer exciting opportunities for future collaboration with our own environmentally based proposal for a design and planning oriented undergraduate curriculum (to be titled ENDP) and I support the establishment of them all.

Working together, we can provide students with a broader exposure to environmental issues than either program could accomplish separately. For example, our existing ARCH course in Sustainability provides an immediate opportunity to commence collaboration by including ENST faculty as guest-lecturers on specific technological topics (e.g., ecosystem restoration or storm water management). Similarly, a proposed course, Ecological Design, may be cross-listed and/or co-taught by ARCH and ENST. This would provide students with exposure to both ARCH Environmental Design and ENST Ecological Design concepts and offerings. Many future collaborations exist for curricular connections between the programs.

Last, but not least, is concern over the use of the word “Design” in one of the proposed ENST areas of concentration. The word “Design” is an important aspect of our curriculum that we take very seriously. There are even current national trends to establish “Schools of Design” to supplant the more wordy string of disciplinary terms (like our own title). I realize that the label for an area of concentration within a major does not define the ENST program, but we must take care in the use of this term. I also understand that you have already changed the proposed name of this concentration once during this review process and you are willing to change it again to accommodate our needs. With the change of the name of your proposed concentration to Ecological Technology Design, we can offer our support for your proposed programs.

I look forward to continued conversations and future collaborations.

Best regards,

Garth Rockcastle, FAIA
Professor and Dean
3 November 2007

Dr. Frank J. Coale
Professor & Department Chair
Department of Environmental Science & Technology
1109 H. J. Patterson Hall
University of Maryland
College Park, MD 20742 USA

Dear Frank,

I’m pleased to provide this letter of support for the proposed ENST graduate programs on behalf of the CONS (Sustainable Development and Conservation Biology) program. It is possible that the new ENST Ph.D. program would be of interest to some of the 15% of CONS graduates who go on to Ph.D. programs, and because the CONS students have broad interests and a lot of room for elective courses in their programs, some of the new ENST courses might also be of interest to them. We would also welcome ENST students in our CONS seminar (offered every semester), and there’s the potential to offer this as a joint seminar (as we have previously with GEOG) if the topic for the semester is appropriate.

Sincerely,

Dr. David W. Inouye, Professor and Director
Sustainable Development and Conservation Biology
Department of Biology
University of Maryland
College Park, MD 20742
301-405-6946