Proposal for an Interdisciplinary Graduate Certificate: The International Profile Certificate

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1. General Description
This proposal recommends the establishment of a Graduate Certificate called the International Profile. This non-departmental certificate would be available to all degree-seeking as well as nondegree-seeking students enrolled in the Graduate School at Michigan Technological University.

Title of Certificate: **International Profile Certificate**

Catalog Description

The International Profile Certificate recognizes advanced study of any field, but with a substantial international perspective that demonstrates an ability to bridge cultural and language barriers and collaborate effectively.

2. Rationale

Professional work in most fields demands work with diverse groups of people in a wide variety of physical and cultural environments. Educational programs could be expected to include exposure and demonstrated success in working all over the world, and in dealing with all aspects of work on a global basis, because it has a direct link to productivity in workplaces. The degree offerings of a university should reflect accurately the training of students in international contexts.

Michigan Tech has strong and growing international programs. Important examples of these are the Peace Corps associated Masters International Programs in six different academic departments (http://peacecorps.mtu.edu/). In these programs there is two years of volunteer duty in a foreign country and substantial language and cultural training. These programs have changed the focus of their home departments substantially, so that international work is developing even more rapidly than before. International exchange programs for graduate students, such as

EHaz: (http://www.geo.mtu.edu/EHaz/index.htm),

SustR: (http://www.geo.mtu.edu/%7Easmayer/sustr.htm)
have triggered significant international exchanges and multi-university course and degree programs. Both Forest Resources and Environmental Science and Geology have just proposed new joint graduate degree programs through EUAtlantis which will involve substantial mobility of MS students to Europe. The development of the Michigan Tech Chapter of Engineers Without Borders, the Aqua Terra Tech Enterprise and other international Senior Design efforts and the D80 Center are grass roots developments that have affected many different graduate programs. We believe that the International Profile is a necessary and appropriate educational opportunity for postgraduate students that will offer them an attractive supplement to their graduate degrees in this era of rapid paced technological change and with a strong need for international bridging. In addition to language and cultural coursework, students will spend one or more semesters abroad doing research, internships and/or coursework.

The International Profile Certificate is designed to:

(1) encourage students to pursue international research, internship and course opportunities;
(2) deepen students' understanding of world cultures and global issues;
(3) develop a world wide perspective on science, engineering and social issues, such as global change and natural hazards;
(4) encourage a basic proficiency in another language; and
(5) enhance intercultural communication skills

3. Related Programs

Undergraduate minors such as “Study Abroad Minors” or “International Minors” exist at many universities (see University of Minnesota, Auburn). A 12 credit Ph D Minor exists in Global studies at the University of Indiana, and we expect that many such examples are now developing on other campuses. At Michigan Tech graduate minors do not exist, so a certificate seems the best current option.

4. Projected Enrollment

Based on likely faculty participants and current graduate enrollments, we estimate that approximately 20 students may be enrolled at any time. In time we anticipate that this program would become available to students via Distance Learning.

5. Scheduling Plans

This graduate certificate program is primarily a regular (daytime) program.
6. Curriculum Design

A total of 12 credits are required for an International Profile. Students must earn a grade of B or higher in each course to be applied toward the certificate. As an interdisciplinary certificate, a maximum of 6 credits is allowed in courses at the 3000- and 4000- levels.

(A) Foreign Language Requirement
A knowledge equivalent to two years of college coursework in a foreign language is a prerequisite. The student can demonstrate this either by taking such courses at Michigan Tech or another university, by scoring at the third year level or higher on the modern language test administered by the Humanities Department for Spanish, French or German, or by similar scores on modern language tests in other languages.

(B) International and Intercultural Awareness (3 credits minimum)
BA4710
BA4780
CE5993
CE5990, 5991, 5992
EC3100
FW5770
FW5720
GE5001
HU3253
HU3261
HU3262
HU3263
HU3264
HU3502
HU3545
HU3850
HU5050
PSY3070
SS3100
SS3410
SS3610
SS3620
SS3940
SS4210
UN4000
UN5990

(C) Required International Experience (6 credits) Students must have a minimum of six credits of coursework taken in a foreign country while concurrently enrolled as an Michigan Tech graduate student.

(D) Integrated International Studies
UN 5555 Integrated International Studies Seminar (1 credit)
UN 5555 will be proposed as a new course.

**UN5555 Integrated International Studies Seminar** (1 credit, fall, spring). Prerequisite: graduate standing, instructor approval, and a minimum of one semester of graduate study in a foreign country. Seminar discusses the cultural differences of implementing research in a foreign country. Case studies and history of universities in other countries are included.

For convenience, relevant course descriptions are given below:

**BA 4710 - International Management**
Study of managing work in a global context. Assesses impact of culture and the international environment (economic, social, legal, technological) on management, personnel, marketing, accounting, and finance strategies. Examines international business structures from licensing to joint ventures. Develops attitudes and skills leading to increased international effectiveness.

- **Credits**: 3.0
- **Lec-Rec-Lab**: (0-3-0)
- **Semesters Offered**: On Demand
- **Restrictions**: May not be enrolled in one of the following Class(es): Freshman, Sophomore, Junior
- **Pre-Requisite(s)**: BA 3700 and EC 3100(C)

**BA 4780 - International Business Communications**
Studies the importance of intercultural communication competence for effective business relationships. Provides a theoretical and practical foundation for successful business communication by examining the communication processes and contextual units.

- **Credits**: 3.0
- **Lec-Rec-Lab**: (0-3-0)
- **Semesters Offered**: On Demand
- **Restrictions**: May not be enrolled in one of the following Class(es): Freshman, Sophomore
- **Pre-Requisite(s)**: UN 1001 and (UN 1002 or UN 1003) and UN 2001 and UN 2002

**CE 5990 - Civil Engineering Graduate Seminar**
Detailed study and group discussions of current literature and graduate research projects related to the broad field of civil engineering. Topics will be combined to address the student's area of interest, including construction, environmental, geotechnical, structures, transportation, and water resources. External speakers discuss current related issues.

- **Credits**: 1.0
- **Lec-Rec-Lab**: (0-1-0)
- **Semesters Offered**: Fall, Spring
- **Restrictions**: Must be enrolled in one of the following Level(s): Graduate

**CE 5991 - Environmental Engineering Graduate Seminar I**
Presentations and discussion of current literature and research related to the broad field of environmental engineering.

- **Credits**: 1.0
- **Lec-Rec-Lab**: (0-1-0)
- **Semesters Offered**: Fall

**CE 5992 - Environmental Engineering Graduate Seminar II**
Presentations and discussion of current literature and research related to the broad field of environmental engineering.

- **Credits**: 1.0
- **Lec-Rec-Lab**: (0-1-0)
- **Semesters Offered**: Spring
CE 5993 - Field Engineering in the Developing World
Study of applying appropriate and sustainable engineering solutions and technology in the developing world. Concepts of sustainable development are covered. Topics are drawn from several areas of engineering, including water supply/treatment, wastewater treatment, materials, solid waste, construction, and watersheds.
Credits: 2.0
Lec-Rec-Lab: (0-1-2)
Semesters Offered: Spring
Restrictions: Must be enrolled in one of the following Level(s): Graduate

EC 3100 - International Economics
Introduction to international economics, including balance of payments, accounting, foreign exchange markets, international trade theory, barriers to trade, trade and development, regional economic integration, and current U.S. international economic issues.
Credits: 3.0
Lec-Rec-Lab: (3-0-0)
Semesters Offered: Fall, Spring, Summer
Pre-Requisite(s): EC 3001 or (EC 2002 and EC 2003) and UN 2002

FW 5720 - International Forestry Seminar
Seminar for students who have completed FW5730. Synthesizes field work in a theoretical framework. Covers macro aspects of development theory.
Credits: 1.0
Lec-Rec-Lab: (0-1-0)
Semesters Offered: Fall, Spring, Summer
Restrictions: Must be enrolled in one of the following Level(s): Graduate
Pre-Requisite(s): FW 5730

FW 5770 - Rural Community Development Planning and Analysis
Context, analysis, and monitoring of development processes of rural communities in tropical countries.
Credits: 2.0
Lec-Rec-Lab: (2-0-0)
Semesters Offered: Spring
Restrictions: May not be enrolled in one of the following Class(es): Freshman, Sophomore, Junior

GE 5001 - Intercultural Natural Hazards Communication in Latin America
Credits: 2.0
Lec-Rec-Lab: (0-2-0)
Semesters Offered: Fall
Restrictions: May not be enrolled in one of the following Class(es): Freshman, Sophomore

HU 3261 - Communicating Across Cultures
Comparative study of interpersonal communication across cultures by both foreign and American students, with emphasis on cultural patterns, attitudes, values, and nonverbal behaviors. Instructor selects cultures for study from Third World, Western, or non-Western regions.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: On Demand
Restrictions: May not be enrolled in one of the following Class(es): Freshman
Pre-Requisite(s): UN 1002 or UN 1003
HU 3262 - Topics in Francophone Cultures
An introduction to Francophone cultures (in English) in a comparative perspective. Includes a survey of French history and its influence on modern-day French and Francophone societies through movies, media, and recent technologies, and a critical examination of cross-cultural differences between French and American cultures.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: On Demand
Restrictions: May not be enrolled in one of the following Class(es): Freshman
Pre-Requisite(s): UN 1002 or UN 1003

HU 3263 - Topics in German-Speaking Cultures
An introduction to German-speaking culture (in English) in a comparative perspective. Includes a survey of Central-European history and its influence on modern-day German-speaking societies through movies, media, and recent technologies, and a critical examination of cross-cultural differences between German and North-American cultures.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: On Demand
Restrictions: May not be enrolled in one of the following Class(es): Freshman
Pre-Requisite(s): UN 1002 or UN 1003

HU 3264 - Topics in Spanish-Speaking Cultures
An introduction to Spanish-speaking culture (in English) in a comparative historical perspective. Includes a survey and a critical cross-cultural examination of Latin-American culture and Spanish-speaking societies (European, Caribbean, and North, Central and South American) through literature, music, film, art and other media. Spanish-speaking cultures and North American society.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: Spring
Restrictions: May not be enrolled in one of the following Class(es): Freshman
Pre-Requisite(s): UN 1002 or UN 1003

HU 3502 - World Mythologies
Survey of the major mythological systems of the world with particular attention to those areas of commonality between the various civilizations. Films may provide contextual background.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: Spring - Offered alternate years beginning with the 2001-2002 academic year
Pre-Requisite(s): UN 1002 or UN 1003

HU 3545 - Literature Across Borders
Study of literary genres, themes, and movements, with emphasis on comparing and contrasting perspectives reflected in literatures from Western and non-Western cultures. Topics may focus on historical, social, aesthetic, and cultural factors as they influence these literatures. Films may be used.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: Fall - Offered alternate years beginning with the 2004-2005 academic year
Pre-Requisite(s): UN 1002 or UN 1003

HU 3850 - Cultural Studies
Examines the way that culture communicates values, feelings, beliefs; structures differential relations of power and possibility; creates difference and hierarchy. Considers the struggles over meaning that open up possibilities for diversity and change.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: Spring
Pre-Requisite(s): UN 1002 or UN 1003

HU 5050 - Intercultural Communication
A critical examination of cross-language and cross-cultural equivalences and differences through the study of acculturation, values, traditions, role expectations, perceptions, stereotypes, and gender issues as well as other verbal and nonverbal problems and issues of communication. Emphasizes the dimensions of communication within a comparative cultural context.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)
Semesters Offered: On Demand
Restrictions: Must be enrolled in one of the following Level(s): Graduate

PSY 3070 - Cross-Cultural Psychology
Introduces the student to cross cultural psychology and sociocultural theory as it is applied to psychology. Examines research on cultural specific and universal behaviors. Emphasizes the benefits and challenges of diversity in organizations and diversity skills that promote interpersonal and organizational success.
Credits: 3.0
Lec-Rec-Lab: (0-3-0)

SS 3100 - Developing Societies
An overview of the developing world. Asks "What is development?" in ecological, human, and economic terms. Explores variation among developing societies and elements of internal differentiation, including cultures, regions, classes, and genders. Emphasizes active student exploration of strategies for change, including technology, business, and political transformations.
Credits: 3.0
Lec-Rec-Lab: (3-0-0)
Semesters Offered: Spring - Offered alternate years beginning with the 2000-2001 academic year
Pre-Requisite(s): UN 1002 or UN 1003

SS 3410 - World Resources & Development
Examination of the human geography and resources of various world regions. Emphasizes factors affecting prospects for development, including population dynamics, natural resource endowment, social and cultural systems, and spatial structure of society. Case studies of individual countries supplement general concepts and theories.
Credits: 3.0
Lec-Rec-Lab: (3-0-0)
Semesters Offered: Fall, Summer - Offered alternate years beginning with the 2001-2002 academic year
Pre-Requisite(s): UN 2002

SS 3610 - International Law
Explores the principles, content, and logic of public international law, the law of nations. Students brief cases, prepare longer briefs to defend a side in a moot case, and engage in a moot court.
Credits: 3.0
Lec-Rec-Lab: (3-0-0)
Semesters Offered: Fall, Spring - Offered alternate years beginning with the 2000-2001 academic year
Pre-Requisite(s): UN 2002

SS 3620 - International Environmental Technology Policy
Explores the relationship between markets and government policies in moving national economies and corporations toward "greener" technology choices. Topics may include industrial ecology, regulation, innovation, and pollution prevention. Course employs examples from U.S., Canada, EU, and Japan. When possible, students work on a real-life project for a client.
Credits: 3.0  
Lec-Rec-Lab: (3-0-0)  
Semesters Offered: Fall, Spring - Offered alternate years beginning with the 2001-2002 academic year  
Pre-Requisite(s): UN 2002

SS 3940 - World Affairs  
The study of current issues and themes in world affairs and of significant world tension areas. Detailed examination of central issues in selected recent regional or international conflicts or high profile internal problems in selected countries.  
Credits: 3.0  
Lec-Rec-Lab: (3-0-0)  
Semesters Offered: On Demand  
Pre-Requisite(s): UN 2002

SS 4210 - Global Change in Culture and Society Since 1400  
Explores the increasing interconnectedness of world cultures since 1400. The course examines the social, economic, and political changes that accompanied the rise of world capitalism from multiple theoretical perspectives. Themes include colonialism, agency, resistance, world-systems theory, and globalization.  
Credits: 3.0

UN 4000 - Remote Sensing Seminar  
A seminal series that covers topical issues in remote sensing, ecosystem research, and global change. Required for all students with a minor in remote sensing.  
Credits: 1.0; Repeatable to a Max of 2  
Lec-Rec-Lab: (0-1-0)  
Semesters Offered: Fall, Spring  
Restrictions: May not be enrolled in one of the following Class(es): Freshman  
Pre-Requisite(s): UN 1002

Library and other Learning Resources.  
No additional library or learning resources are required.

6. Computing Access Fees  
No computing access fees are required beyond those normally incurred by enrolled graduate students.

7. Faculty Resumes  
Key faculty for this graduate certificate program include the three proposers, whose short vitae are attached at the end of this proposal: Numerous additional faculty and staff that are important to this program are those associated with the language programs in Humanities department and those who teach classes listed under section 6B (above), especially in HU and SS. This initiative recognizes a strong commitment to international perspectives in all study areas and receives broad support across the Michigan Tech campus. As such the main impact of this certificate may make these international classes more visible to graduate students.
8. Program Costs
There are no additional direct costs associated with establishing this graduate certificate program at this time. Foreign language courses are already in high demand and overbooked. The sustainability of offering UN5555 in the longer term may depend upon additional resources.

9. Space
No additional space is required.

10. Policies Regulations and Rules
All policies, regulations and rules are described in Section 6 and follow University Senate policy for Graduate Certificates. The committee of Peace Corps Masters International programs (including all of the proposers) will assist the Graduate School in the administration of this certificate. The committee may designate appropriate classes to qualify for the certificate in addition to those listed in this proposal. Recommendations for modification of the curricular requirements of this certificate shall be made through the to the Dean of the Graduate School.

11. Accreditation (Not applicable)

12. Internal Status of the Proposal

13. Planned Implementation
This program could begin starting in fall semester, 2009.

Vitae of organizers follows
WILLIAM I ROSE
Professor, Department of Geological Engineering and Sciences
Michigan Technological University
HOUGHTON, MI 49931 USA
906 487 2367; raman@mtu.edu
www.geo.mtu.edu/~raman

PROFESSIONAL PREPARATION:
Ph.D. in Geology, Dartmouth College, 1970;
A.B. in Geography, Geology, Dartmouth College, 1966.

APPOINTMENTS:
9/79-present: Professor of Petrology, Michigan Technological University, Houghton.
6/90- 6/98 Department Chair, (planned new building; hired 8 new faculty); 9/74-9/79: Associate Professor of Petrology, 9/70-9/74; Assistant Professor of Petrology.
1/99-12/99: Visiting Leverhulme Fellow, Dept of Earth Sciences, University Of Bristol, UK.
8/85-6/86: Visiting Scientist, Los Alamos National Laboratory.
1/81-present: Geochemist (W.A.E. basis), USGS, Cascade Volcano Observatory, Vancouver, WA; Alaska Volcano Observatory, Anchorage; VDAP.
8/77-8/78: Senior Visiting Scientist, Upper Atmosphere Group, National Center for Atmospheric Research, Boulder, CO.
8/77-8/78: Visiting Scientist, Branch of Isotope Geology, USGS, Denver, CO.

RELATED PUBLICATIONS


SYNERGISTIC ACTIVITIES
1. Since 1970: Efforts to help build infrastructure within volcanic hazards efforts in developing
countries, funded by NSF International Programs and OFDA/USGS/VDAP grants: Guatemala—
Decade Volcano Workshop 1993; Collaborative hazards work 1999-2004. Ecuador: Cospec
training, 1989; Lahars work, 2002. El Salvador: Synergistic efforts at post war science contacts;
Argentina: Initial visit 2002; field studies 2003. Several field projects in Guatemala and El
Salvador funded by USGS/OFDA. Support for two Central American students via USGS/VDAP
Sensing applied to Hazard Mitigation

2. Since 1980: Educational efforts shared with many other campuses: Video based
educational efforts in Optical Mineralogy, 1982; Volcanic Rock Textures, 1985; and video field
trips: 1987-1993; Volcanic Rocks and their vent areas, Industry Short Courses (field trips and
lectures); 1976-1985; Graduate Student field trip efforts, 1997 (Western Mexico and IAVCEI
meeting); NSF funded International Travel Grant to IAVCEI Bali meeting, and associated
Hawaii and Pinatubo field trips, July 2000; NSF Int Travel Grant for students to attend IAVCEI
meeting in Chile, 2004. Special session exploring graduate volcanology educational efforts,
funded by Dept of Education.

3. Since 1986: Development of volcanic cloud detection algorithms for meteorological satellite
detectors, and communication about the use of these for hazard mitigation—continual outreach
to advanced users from regional Volcanic Ash Aviation Centers; extensive webbased
communications effort; International Volcanic Cloud Remote Sensing Workshops, 2001,

Interim Director of an institute with 35 faculty members from nine different MTU departments,
Development of shared lab facilities, success with equipment funding as a NASA
center of excellence, development of an interdisciplinary minor program in remote sensing;
many interdisciplinary seminar series and several new interdisciplinary classes.

5. 2004: New Peace Corps Masters International Program, Mitigation of Geological Natural

RECENT COLLABORATORS EXTERNAL TO MICHIGAN TECH (2000-2005)
Stephen Self (Open University); Andrew Harris (University of Hawaii); Luke Flynn
(University of Hawaii); Hans Graf (Cambridge Univ); Fred Prata (CSIRO, Australia); Arlin
Krueger (UMBC); Vincent Realmuto (NASA/JPL); Frank Marzano (University "La
Sapienza" of Rome); Costanza Bonadonna (Univ So Florida); Christiane Textor (Max Planck
Inst Meteorology); Alain Bernard (University of Bruxelles);

THESIS ADVISEES AND POSTDOCTORAL SCHOLARS SPONSORED, LAST 5 YEARS
Tianxu Yu, STC/NOAA Washington, DC
Song Guo, Canadian Centre for Remote Sensing, Montreal
Sebastien Darevelle, Los Alamos National Lab
Demetrio Escobar, Volcanologist, SNET, El Salvador
Yingxin Gu, SAIC/USGS EROS Data Center, Sioux Falls, SD
I Matthew Watson, Bristol University UK
Matthew Patrick (current Post Doc) Owen P Mills, Adam Durant, Janelle Byman, Kelly Durst,
John Lyons, Ellen Engberg, Hans Lechner, Adam Blankenbicker, Jemile Erdem, Karinne
Knutsen, Ingrid Fedde (current graduate students)

**GRADUATE STUDENTS SUPERVISED:** 39 M.S. and 14 Ph.D.

**GRADUATE ADVISOR:** Richard E Stoiber, Dartmouth College, deceased.
BLAIR ORR
School of Forest Resources and Environmental Science
Michigan Technological University

Professional Preparation

Appointments
2008 – present: Director of Peace Corps Programs. Michigan Technological University
2006 – present: Professor of Forestry, Michigan Technological University
1998 – 2006: Associate Professor of Forestry. Michigan Technological University
1992 – 2006: Assistant Professor of Forestry. Michigan Technological University
1988 – 1992: Assistant Professor of Forestry, The University of the South
Volunteer.
1978 – 1980: District Forest Officer, Thaba-Tseka District, Thaba-Tseka, Lesotho. Peace
Corps Volunteer.

Five Relevant Publications

Cohen, M.E., J. B. Pickens, J. Cardenas Castillo, and B. Orr 2005. Ecological suitability and


to Entada abyssinica (Steud. ex A. Rich.) cuttings in the Adamawa Lowlands,

Paulete, F.E., B. Orr. Forthcoming. Combining Technical Competence and Stakeholder
Impact in Environmental Education: The Gambia All Schools Nursery Competition.
Applied Environmental Education and Communication.

Five Other Publications


Study of Timber Bridge Construction. Journal of Transportation Engineering
126(3):279-281.

IEEE Potentials 22(2):32-34.


Synergistic Activities

Peace Corps Master’s International Program
EU-US Atlantis Program
TIES – FIPSE and SustR programs in Mexico; Veracruz Study Abroad Program
World Forestry Committee of the Society of American Foresters
International Society of Tropical Foresters

Courses and Workshops:

Trees in Agricultural Systems; Overseas Research; Graduate Tropical Forestry; International Forestry Practicum; International Forestry Seminar; Community Planning and Analysis, Master’s Graduate Seminar; Doctoral Graduate Seminar

Collaborators and Affiliations

Dr. James B. Pickens, Michigan Technological University
Dr. Alex S. Mayer, Michigan Technological University
Dr. Willem Beets, retired
Dr. Karlyn Eckman, University of Minnesota
Dr. James Mihelcic, U. of South Florida
Dr. Kathleen Halvorsen, Michigan Technological University
Dr. Miquel Armando Ramirez, Universidad Veracruzana
Dr. Martin Yemefack, Institute of Agricultural Research for Development, Cameroon
J. Cardenas Castillo, Oruru Technical School, Bolivia
Dr. Thomas Van Dam, Michigan Technological University

Graduate Advisor: Dr. J. Buongiorno, U. of Wisconsin – Madison

Graduate Students (M.S.)

Biographical Sketch
Alex S. Mayer
Department of Civil & Environmental Engineering
Michigan Technological University

Professional Preparation
Brown University, Sc.B. Civil/Environmental Engineering, 1981
University of North Carolina at Chapel Hill, M.S. Environmental Engineering, 1987
University of North Carolina at Chapel Hill, Ph.D. Environmental Engineering, 1992

Appointments

September 2005-present: Director, Michigan Technological University Center for Water & Society
September 2002-present: Professor
September 1998-August 2002: Associate Professor
March 1992-August 1998: Assistant Professor
Department of Geological Engineering and Sciences
Michigan Technological University, Houghton, MI
September 2000-May 2001: Visiting Professor
Department of Civil Engineering and Geosciences
Technological University of Delft, Netherlands
August 1995-November 1995: Visiting Professor
Department of Chemical Engineering
University of Sonora
1981-1985: Civil Engineer
Water Resources Projects Section, Planning Division
East Bay Municipal Utility District, Oakland, CA

Five Relevant Publications

Five Other Publications
Synergistic Activities
AQUA3, ExCIT, SustR, and TIES Programs in Water Resources Management: managed projects, recruited and advised graduate and undergraduate students from Mexico, U.S. and Canada, developed curriculum, developed and led field trips dealing with Mexican water resources issues, working with engineers, economists, sociologists, etc., has led to several collaborative research and education initiatives.

Textbook on groundwater contamination: co-edited and co-authored with engineers, geologists, and soil scientists, book accessible to university professors and students and practitioners, funded by Fulbright Scholarship.

Rio Yaqui basin modeling project: principal investigator for effort to develop integrated hydrologic-economic-institutional model, involves working with economists, policy-makers, government agencies.

Michigan Tech Center for Water and Society: Director and co-founder of university-wide effort to integrate research, education and outreach efforts at Michigan Tech, involves engineering, forestry and environmental sciences, biology, chemistry, humanities and social science departments; state and federal agencies, non-governmental organizations, etc.

Watershed management plan for Huron Creek: lead investigator on multi-disciplinary group of faculty and students and community advisory group developing watershed management plan for Huron Creek, a small, highly-impacted creek that empties into Lake Superior. Development of plan has included local K-12 teacher and student involvement in gathering data, producing a community watershed interpretive program, and participation in a watershed advisory committee.

Michigan Environmental Education Curriculum Support (MEECS) program: Developed and authored several modules for middle school environmental curricula made available to all middle school science teachers in Michigan.

Courses, Workshops or Special Courses Taught During the Past Three Years
Undergraduate Courses: Geohydrology, Water & Society, Environmental Engineering Senior Design Project, Geological Engineering Senior Design Project
Graduate Courses: Mathematical Modeling of Earth Systems, Field Engineering for the Developing World
Workshops: Watershed Management Certificate Program (Sonora, Mexico)

Collaborators & Other Affiliations
Asbornsen, H., co-investigator, University of Iowa
Chadde, J., co-investigator, Center for Science, Mathematics and Environmental Outreach; Houghton, MI
Garcia Ruiz, J.L., co-investigator, U. Sonora, Hermosillo, Mexico
Gorman, H., co-investigator, Michigan Technological University, Houghton, Michigan
Hand, D., co-author, Michigan Technological University, Houghton, Michigan
Halvorsen, K., co-investigator, Michigan Technological University, Houghton, Michigan
Hassanizadeh, S.M., co-author, U. Utrecht, Utrecht, The Netherlands
Mihelcic, J., co-investigator, University of South Florida, Houghton, Michigan
Perez Lugo, co-investigator, University of Puerto Rico Mayagüez
Sivapalan, M., co-investigator, University of Illinois
Solomon, B., co-author, Michigan Technological University, Houghton, Michigan
Watkins, D., co-investigator, Michigan Technological University, Houghton, Michigan
Zhang, Q., co-investigator, Michigan Technological University, Houghton, Michigan
Zimmerman, J., co-investigator, Yale University

Graduate Advisor: Miller, C.T., U. North Carolina, Chapel Hill, NC

Recent STEM Graduate Dissertation/Thesis/Project Advisees
Bau, D., Ph.D. Environmental Engineering, 2006
Ballard, M., Ph.D. Environmental Engineering, in progress
Betz, K., M.S. Geological Engineering, 2006
Endres, K., Ph.D. Environmental Engineering, 2004
Fitzgerald, K., M.S. Geological Engineering, in progress
Kersten, L. M.S. Environmental Engineering, 2008
Munoz Hernandez, A., Ph.D. Environmental Engineering, 2009
Ollila Ojeda, M., M.S. Environmental Engineering, 2006
Robles Morua, A., Ph.D. Environmental Engineering, in progress
Rodriguez Ibarra, W., M.S. Environmental Engineering, 2005
Van Grinsen, M., M.S. Geology, in progress
Biographical Sketch for John S. Gierke, Ph.D., P.E.,

a. Professional Preparation
Michigan Technological University Civil Engineering BSCE 1984
Michigan Technological University Civil Engineering MSCE 1986
Michigan Technological University Environmental Engineering Ph.D. 1990

b. Appointments
Associate Professor - September 1996 to Present;
   Michigan Technological University, Houghton, Michigan 49931-1295
Visiting Associate Professor - January 1999 through December 1999
   University of Delaware, Newark, Delaware
Assistant Professor - July 1990 through August 1996
   Michigan Technological University, Houghton, Michigan 49931-1295
Summer Research Faculty Visitor - June 1991 to August 1991
   Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831.

c. Publications
(i) Five Relevant Publications

(ii) Five Other Significant Publications
d. Synergistic Activities

(1) Principal investigator for the Michigan Tech Remote Sensing for Hazard Mitigation and Resource Protection in Pacific Latin America Project, National Science Foundation Partnerships for International Research and Education, where research is conducted on developing, applying, and testing remote sensing in geologic hazards and water resources in Costa Rica, Ecuador, El Salvador, Guatemala, Nicaragua, and Panama; (2) Graduate advisor for M.S. students in Michigan Tech’s Masters International/Peace Corps programs in geohazards and in civil and environmental engineering where students conduct their masters research whilst serving in the U.S. Peace Corps; (3) Collaborating with faculty at the University of Puerto Rico—Mayaguez to involve their undergraduate geology students in remote sensing research in Pacific Latin America; (4) Organized a 1-day workshop on applications of remote sensing for characterizing groundwater aquifers in conjunction with the 9th Congress on Latin American Hydrogeology in Quito, Ecuador, July 7, 2008; (5) Research on hydrology of glacier melting in Alaska and invited for participating in a workshop (proposal pending) on the future impacts of climate change on glaciers and the ecology of the Andes.

e. Collaborators and Other Affiliations

(i) Collaborators and Co-Editors: Falta, Ronald W. (Clemson University), Imhoff, Paul (University of Delaware), McCray, John M. (Colorado School of Mines), Stewart, Bo (Praxis Environmental).

(ii) Graduate Advisor: Neil J. Hutzler, Michigan Technological University

(iii) Thesis Advisor for (last five years denoted in bold): Anderson, Cecilia P. (ERM-West), Bachmann, Nancy-Jeanne (Emmons & Olivier Resources, Inc), Bruning, Jill N. (searching for employment), Carpenter, Michael D. (consulting), Castor, Meaghan G. (consulting), Ebsch, Jeffery (Coleman Engineering), El-Beshry, Manar, Fish, Randy E. (Peace Corps, serving in Tanzania), Fader, Caleb (Peace Corps, serving in Uganda), Fuchs, Valerie J. (Michigan Technological University), Gross, Essa L. (Michigan Technological University), Gu, Yingxin (McGill University), Harrison, Elizabeth (Los Alamos National Laboratory), Hegemann, Robert (Peace Corps, serving in Honduras), Hein, Gretchen L. (Michigan Technological University), Huntzinger, Deborah N. (Post-doc, University of Michigan), Hutchins, Margot J. (Michigan Technological University), Jenson, Jeremy (Peace Corps, serving in Benin), Keating, Gordon (Los Alamos National Laboratory), Kremer, Theodore J. (Malcolm Pirnie, Inc.), Kucharski, Matthew J. (Peace Corps, serving in Philippines), Mackenzie, Heidi L. (Grenkowitz) (Ford Motor Company), Muraski, Jennifer L. (Montgomery Watson), Myre, Elizabeth A. (Engineering development work in Haiti), Quinnman, Joseph (ARCADIS), Ritchie, Beatrice, Rios Sanchez, Miriam (Michigan Technological University), Sanders, Deborah L. (ERM-West), Sawall, R. Hardy (Geotrans), Schmunk, Steven W. (Marquette Intermediate School District), Sherman, Heidi M. (Consulting), Shonsey, Cara W. (Michigan Technological University), Smith, Gwynneth (Peace Corps, serving in Suriname), Stright, Lisa E. (Stanford University), Taege, Deborah A. (AMEC), VanAntwerp, Darby J. (RMT), Vincent, Ashlee K. (Michigan Technological University), Wang, Congli (Consulting), Wojick, Christopher L. (Michigan Technological University).

* Served/serving as co-advisor, **Served as co-advisor, student at different university.

Advisor for 20 M.S. and 2 Ph.D. graduates, co-advisor for 3 M.S. and 2 Ph.D. graduates; currently advising 2 Ph.D. students and 10 M.S. students and co-advising 1 Ph.D. student.
Biographical Sketch: Andrew J. Storer

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Telephone: (906) 487-3470, Email: storer@mtu.edu, Fax: (906) 487-2915

Professional Preparation
St. Anne's College, University of Oxford.  Pure and Applied Biology.  B.A. (Hons) 1986
St. Anne's College, University of Oxford.  M.A. 1993
Department of Zoology, University of Oxford.  Forest Entomology.  D.Phil. 1993

Appointments
2005 – Present  Associate Professor, Forest Insect Ecology, School of Forest Resources and
Environmental Science, Michigan Technological University
2007 – Present  Director, The Honors Institute, Michigan Technological University
2001 –2005  Assistant Professor, Forest Insect Ecology, School of Forest Resources and
Environmental Science, Michigan Technological University
1998 - 2001  Assistant Research Entomologist, Division of Insect Biology, University of California,
Berkeley.
1999 - 2001  Instructor, Department of Landscape Horticulture, Merritt College, Oakland.
1992 - 1997  Postdoctoral Researcher, Division of Insect Biology, University of California,
Berkeley.

Publications (5 most closely related – from work in Africa or other locations outside the US)
Opuni-Frimpong E, DF Karnosky, AJ Storer and JR Cobbinah. 2008. Key roles of leaves, stockplant age,
and auxin concentration in vegetative propagation of two African mahoganies: Khaya anthotheca
Opuni-Frimpong E, DF Karnosky, AJ Storer and JR Cobbinah. 2008. Silvicultural systems for plantation
mahogany in Africa: Influences of canopy shade on tree growth and pest damage. Forest Ecology
and Management 255: 328-333.
of four species of African mahogany to the shoot borer Hypsipyla robusta (Lepidoptera: Pyralidae) in
132: 276-280.
condition of dogwood (Cornus florida) street trees in the 23 wards of Tokyo prefecture. Journal of
the Japanese Institute of Landscape Architecture 70: 527-532.

Publications (5 other)
temporal variation in their contamination with Fusarium circinatum in Monterey pine forest in
macroinvertebrates in North America north of Mexico. Diversity and Distributions 14: 893–904.
Shields JM, CR Webster and AJ Storer. 2008. Short-term community-level response of arthropods to
group selection with seed-tree retention in a northern hardwood forest. Forest Ecology and
Management, 255: 129-139.


**Synergistic Activities**

1) Active research in forest health and educational programs in global technological leadership in Ghana.

2) Director of the Honors Institute at Michigan Technological University. This institute encourages undergraduates to develop research and other professional experience during their undergraduate career.


4) Member of the editorial board of the Journal of Pest Science (Springer). Subject editor for Forest Entomology


**Collaborators and other affiliations**

a) Collaborators and coeditors
Abeney, EA (Forest Research Institute of Ghana), Bonello, Pierluigi (The Ohio State University), Cobinah J.R. (Forest Research Institute of Ghana), Delisle, J. (Natural Resources Canada), Erbilgin, N. (University of Edmonton), Gordon, Thomas R. (University of California, Davis), Hyslop, MD (Michigan Technological University), Jurgensen MF (Michigan Technological University), Karnosky, David (Michigan Technological University), Marshall, J.M. (Michigan Technological University), McNee, William R. (Wisconsin Department of Natural Resources), McPherson, Brice A. (University of California, Berkeley), McCullough, Deborah (Michigan State University), Nagel, Linda M. (Michigan Technological University), Opuni-Frimpong, E. (Forest Research Institute of Ghana), Risch, AC (Swiss Federal Institute for Forest, Snow and Landscape Research), Ritokova,G. (UC Davis), Standiford, Richard B. (University of California, Berkeley), Schutz M (Swiss Federal Institute for Forest, Snow and Landscape Research), Shields JM (Michigan Technological University), Webster, CR (Michigan Technological University), Witter John A. (University of Michigan), Wood, David L. (University of California, Berkeley).

b) Graduate and Postdoctoral Advisors
Graduate: Martin R. Speight, University of Oxford; David Wainhouse, Forest Research, England
Postdoctoral: David L. Wood, UC Berkeley; Thomas R. Gordon, UC Davis

c) Thesis Advisor and Postgraduate Scholar Sponsor
Thesis Advisor to: Tara Bal (Michigan Technological University), Brian L. Beachy (deceased), Jessica A. Beachy (Michigan Technological University), Sarah Brodeur-Campbell (Michigan Technological University), Ryan DeSantis (University of Oklahoma), Michelle Freeman (Michigan Technological University), Elizabeth E. Graham (University of Illinois), Brian P. Henry (Washington DC), Jordan M. Marshall (Michigan Technological University), Emmanuel Opuni-Frimpong (Forest Research Institute of Ghana), Melissa Porter (Michigan Technological University), Bryan K. Roosien (Michigan Technological University), Justin M. Rosemier (Kentucky Wesleyan University).

Total advised: Graduate students: 13, Postdoctoral Scholars: 1
Proposal for a Graduate Student Parental Accommodation Policy

**Purpose:** This proposal describes a policy for accommodating graduate students who have new child care or related responsibilities due to a recent or upcoming birth or placement of a child under four (4) years of age in the home for the purposes of adoption. The proposal includes a mechanism to provide financial assistance to a Department Chair, Graduate Program Director, Center Director, or principal investigator who must hire a temporary replacement for a student being accommodated.

**Eligibility:** This policy applies only to graduate students enrolled fulltime at Michigan Technological University and who are in good academic standing. To be eligible, a student must have completed at least one full-time semester at Michigan Tech. The student being accommodated must be the primary giver for a child or children.

**Note for International Students:** International graduate students who are attending Michigan Tech full-time with a student visa or exchange visitor visa are encouraged to consult with the International Programs and Services office about their plans during the accommodation period to ensure compliance with immigration regulations.

**Part 1: Maternal/Paternal/Adoption Accommodation**

Students must apply for accommodation at least one (1) month in advance of the proposed accommodation period using the Graduate School’s Graduate Student Parental Accommodation Request form. This form must be signed by the student’s advisor, Graduate Program Director, Academic Home Department Chair, Center Director (if applicable), and the Principal Investigator of the research project that would normally be providing the student’s funding during the intended accommodation period.

Exceptions for the one-month advance notice requirement will be allowed only in cases involving a medical emergency. Documentation of a medical emergency must be provided in the form of a letter from a health-care provider to the Dean of the Graduate School.

A student who intends to apply for accommodation must consult in advance with their advisor, Graduate Program Director, Academic Home Department Chair, Center Director (if applicable), and the Principal Investigator of the research project that would normally be providing the student’s funding during the intended accommodation period.

The period of accommodation will extend up to six (6) weeks. Students’ accommodation period may begin prior to either a birth or placement of child of under four (4) years in age in the home for purposes of adoption. In the event of multiple births or placements for adoption the period remains at six (6) weeks total. During this six-week period the graduate student will
continue to be enrolled as a full-time student and continue to pay tuition. If both parents are enrolled as graduate students only one is eligible for accommodation. Graduate students are expected to return full-time to their graduate responsibilities after the six-week period.

Part II: Extension of Time to Degree Limit and other Deadlines

An accommodated student will be given an automatic one-semester extension in her/his time-to-degree limit, deadline for completion of a qualifying exam, and deadline for completion of a proposal defense.

Other deadlines and academic expectations may also be modified as part of the accommodation. Modifications of deadlines should be documented in writing on the student’s Graduate Student Parental Accommodation Request form.

In the event of multiple births or placements for adoption students are eligible for a maximum of a one (1) calendar year extension of deadlines.

Part III: Funding during Parental Accommodation Period and Graduate Student Parental Accommodation Fund

a) Graduate Teaching or Research Assistants

The Graduate School will establish a Graduate Student Parental Accommodation Fund. The purpose of this fund will be to provide funding that can be used to hire a temporary for a graduate student who is being accommodated. Department Chairs, Graduate Program Directors, Center Directors, and Principal Investigators can apply for funding from the Graduate School using the Graduate Student Parental Accommodation Funding Request form.

Funding for a student normally supported by a sponsored project will only be available when the external funding agency disallows payment to graduate students who reduce their time commitment or are absent under the circumstances covered by Michigan Tech’s Graduate Student Parental Accommodation Policy.

Funding for a student normally supported as a graduate teaching assistant, using funds provided by the Graduate School will only be available when a department or program has no option to cover teaching needs other than to hire an additional part-time graduate student who will serve as a temporary teaching assistant.

Temporary replacements will be paid an hourly wage equivalent to the hourly wage earned by internally-funded graduate teaching assistants.

Tuition costs will not be reimbursed since the accommodation period is limited to 6 weeks.

b) Graduate Fellowships
Graduate students supported by Michigan Tech fellowships will not experience any change in funding during the Parental Accommodation period. Those students supported by an externally funded fellowship must adhere to rules of that granting agency with regard to absences from research and academic work.

c) Graduate Instructors or Staff Assistants
Graduate Student Instructors or Assistants are subject to the terms of employment covered by their contract with Michigan Tech and should contact the Human Resources office for more information.

d) Graduate Students without Financial Support
Unsupported graduate students are eligible for Parental Accommodation for a six (6) week time period and are eligible to have deadlines extended. Department Chairs, Graduate Program Directors, Center Directors, and Principal Investigators are not eligible to receive funding from the Graduate School during the accommodation period.

Forms needed:\textsuperscript{1}:

\textit{For students:}
1) Graduate Student Parental Accommodation Request – Results in a automatic one-semester extension of the time-to-degree limit and documents other extensions (for exams, coursework, assignments, or research, etc.) in writing.

\textit{For Department Chairs, Graduate Program Directors, Center Directors, and Principal Investigators:}
2) Graduate Student Parental Accommodation Funding Request – Form to request funding from the Graduate School for a temporary replacement hire.

\textsuperscript{1} (see UM forms for ideas linked at the bottom of 
http://rackham.helpserve.com/index.php?_m=knowledgebase&_a=viewarticle&kbarticleid=47)
This proposal is submitted by the Graduate School. The Graduate Certificates Policy is a Senate policy so amendments must be approved by the Senate.

Basis for the Proposal: In the last two years several new certificate programs have been established and others are in the proposal stage. This proposed change to the minimum number of credits is designed to give maximum flexibility to departments/schools wishing to offer certificates while maintaining a university standard. Several other institutions offer certificates at 12 semester credits including: Clarkson University, Georgia Institute of Technology, Lehigh University, Louisiana Tech University, Missouri Technological University (STEM disciplines), New Jersey Institute of Technology (STEM discipline), New Mexico State University, Rensselaer Polytechnic Institute (STEM disciplines), Texas Tech University (STEM disciplines), University of Alaska Fairbanks, and University of Minnesota.

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<th>GRADUATE CERTIFICATES POLICY</th>
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<td>(Proposed Revisions in Yellow)</td>
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<td><strong>GRADUATE CERTIFICATES</strong></td>
<td><strong>PROPOSAL 20-04</strong></td>
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<td>A growing number of students and institutions that offer graduate course work and degrees have recognized the need for coherent sub-degree units of course work, lab work and/or fieldwork in specific areas for which special recognition is warranted. This proposal provides such a framework through the adoption of a Graduate Certificate program. Graduate Certificates will be granted to students who have completed the Graduate Certificate</td>
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requirements established by academic or research units at Michigan Technological University. Graduate Certificates will be noted on official transcripts, and a written certificate will be given to the student upon completion of the requirements. The Graduate School will administer the Certificate Programs and develop procedures regarding faculty oversight, program re-evaluation, scholarship support, and other fiscal and management issues.

Graduate Certificates require a minimum of 12 credit hours. Of these 12 credits, no more than 3 credit hours may normally be 3000 or 4000 level courses, however interdisciplinary and multidisciplinary certificates may have a maximum of 6 credit hours at the 3000 or 4000 level. All other credits must be at the 5000 or higher level, and may include no more than 3 credit hours of research. A minimum grade of B is required in all course work. Graduate Faculty must teach all courses required for a Graduate Certificate, except for the 3 credit hours of allowed 3000 or 4000 level courses. Because Certificates are not degree programs, double counting is allowed in all cases.

Applicants to a Graduate Certificate program must have a Bachelors degree or equivalent. Individual Graduate Certificate programs may have additional admission requirements. The time limit during which a student is expected to complete all of the requirements of a Graduate Certificate may vary, but is not to exceed four years.

**Faculty Endorsement and University Approval of a New Graduate Certificate**

Graduate Certificates may be proposed by individual faculty, groups of faculty, departments, or groups of departments in
any academic or research unit at Michigan Tech. Graduate Certificates may be proposed in disciplines without a pre-existing graduate degree program. A proposed Graduate Certificate curriculum may contain fieldwork, distance learning, and laboratory courses in addition to traditional classroom offerings. Additional admission requirements for a Graduate Certificate program beyond that stated above must be listed in the proposal. Proposals for Graduate Certificate programs will follow the usual procedures for university programs, and be submitted to the Senate by the Provost.

Adopted by Senate: 25 February 2004
Approved by President: 3 March 2004
Graduate Certificate-Seeking Students

Individuals who wish to earn a graduate certificate from Michigan Tech, but who are NOT already seeking an MS or PhD degree, will need to be admitted formally to the Graduate School.

Michigan Tech graduate students (including non-degree-seeking graduate students) who are currently enrolled, and who wish to earn a graduate certificate, should complete an application for the certificate program, for database purposes.

Requirements
To be considered for admission to the Graduate School as a certificate-seeking student, the applicant must be:
* the recipient of a bachelor’s degree or its equivalent from an accredited institution (graduates of a 3-year bachelor's program outside the US see the Master's Path option);
* adequately prepared for advanced study in the chosen field of specialization as demonstrated by the previous program of study and the scholastic record; and
* recommended for admission by the director of the program that is offering the certificate.

All applicants for Admission as a certificate-seeking student must provide to the Graduate School
* Official transcripts of all previous coursework at accredited institutions of higher education
* Two letters of recommendation
* Statement of purpose

Applicants whose native language is not English must supply results of an English proficiency examination. Usually, the Test of English as a Foreign Language (TOEFL) is submitted. Please have official scores sent directly to Michigan Tech by using our school code number: 1464.

The Graduate School does not offer admission on a provisional or conditional basis. Students who wish to take graduate courses prior to full acceptance as students in a certificate program may apply for non-degree graduate status.

Directors of certificate programs will generally not review applications until all materials, including letters of reference, have been received.
Graduate Certificate-Seeking Students

Individuals who wish to earn a graduate certificate from Michigan Tech, but who are NOT already seeking an MS or PhD degree, will need to be admitted formally to the Graduate School and be assigned to the academic department of the program director.

Michigan Tech graduate students (including non-degree-seeking graduate students) who are currently enrolled, and who wish to earn a graduate certificate, should complete an application for the certificate program, for database purposes.

Requirements
To be considered for admission to the Graduate School as a certificate-seeking student, the applicant must be:

* the recipient of a bachelor's degree or its equivalent from an accredited institution (graduates of a 3-year bachelor's program outside the US see the Master's Path option);
* adequately prepared for advanced study in the chosen field of specialization as demonstrated by the previous program of study, the scholastic record, and/or appropriate professional experience; and
* recommended for admission by the director of the program that is offering the certificate.
* individual programs may specify additional admission requirements.

All applicants for Admission as a certificate-seeking student must provide to the Graduate School
* Official transcripts of all previous coursework at accredited institutions of higher education
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Applicants whose native language is not English must supply results of an English proficiency examination. Usually, the Test of English as a Foreign Language (TOEFL) is submitted. Please have official scores sent directly to Michigan Tech by using our school code number: 1464.

The Graduate School does not offer admission on a provisional or conditional basis. Students who wish to take graduate courses prior to full acceptance as students in a certificate program may apply for non-degree graduate status. At least 9 credits of the 3000-level or higher certificate-required courses must be taken at Michigan Tech. A maximum of 6 credits earned as a non-degree-seeking student may be applied to the course requirements for the certificate.

Directors of certificate programs will generally not review applications until all materials, including letters of reference, have been received.
Outstanding Graduate Student Teaching Award

Each academic school and department can recommend at most 40% of its gradating graduate students who are eligible for the award to receive this award each academic semester. Degree candidates carrying the title of instructor or lecturer are not eligible for the award.

To be eligible for nomination, a graduate student must have had sole responsibility for instruction in a lecture or laboratory courses or section at any level for at least two semesters within the last two years.

The nominee should have exhibited exceptional ability and growth as a teacher and should have received excellent evaluations from students. The teaching abilities of the nominee should also be respected by faculty in the nominee's department. The names of the nominees for this award should be forwarded to the Dean of the Graduate School at least 9 weeks prior to fall or spring commencement.

These awards will be presented at the Graduate Student Council award ceremony which is held in the spring. Certificates will be mailed to students who have already left campus. If possible, the students receiving the awards will be identified by name in the commencement programs.
How Do You Get a More Complete Picture of an Applicant’s Potential for Success in Graduate School?

Test scores, undergraduate grades and letters of recommendation tell only part of the story. What if you had a tool that provided reliable, standardized information about the personal attributes that influence an applicant’s success in graduate school?

Now you do. The ETS® Personal Potential Index (ETS® PPI) is a web-based evaluation system designed to provide a more complete picture of an applicant’s potential for success in graduate or professional school beyond grades, test scores and recommendation letters. Multiple evaluators the applicant has selected (up to five per evaluation report) rate the applicant on six personal dimensions that have been identified as critical for success in graduate and professional school. ETS creates an ETS PPI Evaluation Report that incorporates the evaluations and comments from all the evaluators, and sends the report to schools and programs the applicant designates.

Sign up for a free 1-hour webinar to learn how the ETS PPI can benefit your graduate program or academic institution.

Six Attributes for Success

The ETS PPI offers reliable information on six personal dimensions of applicants that graduate and business school deans and faculty have identified as essential for successful graduate study. These include:

- Knowledge and Creativity
- Communication Skills
- Teamwork
- Resilience
- Planning and Organization
- Ethics and Integrity

Faculty and other evaluators rate applicants on each of these dimensions by responding to 24 statements. They also provide an overall rating.
"While we have objective information on the prior performance in undergraduate school and scores from the GRE, we lack standardized information on other important traits, such as persistence, determination and creative potential — all important factors in completing a graduate degree. The development of the ETS Personal Potential Index serves as an important step in providing admission decision makers with more background information about critical characteristics of the applicant." Scott A. Bass, Provost, American University

Read what others are saying about ETS PPI.

Created through Extensive Research

The ETS PPI grew out of the groundbreaking work of ETS researchers in the measurement of personal attributes and their role in academic performance.

In hundreds of interviews, graduate and business school deans and faculty members frequently cited such personal attributes as resilience and communication skills as important for graduate-level success — even more frequently than mastery of the discipline. Interviewees also expressed concern about the persistent problem of graduate school attrition and time-to-degree, which they believed might be accounted for by personal attributes.

In addition for the past two years, ETS PPI has been pilot-tested internally at ETS as well as through Project 1000, a program designed to increase the number of underrepresented students pursuing graduate study.

Learn more about the research behind ETS PPI (PDF).

ETS is committed to ongoing validity research for ETS PPI. Find out how you can participate in the ETS PPI validity study.
Why Use PPI?

**For Graduate and Professional Schools**

Why Use the ETS® Personal Potential Index (ETS® PPI)?

The ETS® Personal Potential Index (ETS® PPI) offers key benefits for graduate programs.

ETS PPI helps graduate programs:

- identify applicants who are more likely to succeed by providing standardized information on critical personal attributes that complements traditional information, such as test scores, undergraduate grades and letters of recommendation
- create more diverse and successful graduate programs

Read what graduate schools are saying about ETS PPI:

"I expect the ETS Personal Potential Index to help level the playing field for students who... have not done particularly well on standardized tests.... Having the ETS PPI evaluation as an option helps to show a broader picture of the applicant— that they're more than a GRE score."

Michael J. Sullivan, Director Hispanic Research Center, Program Director Project 1000, Arizona State University

"Graduate schools recognize that very talented students do not always post the highest test scores when they complete the baccalaureate degrees. The graduate community needs to continue to reduce barriers to graduate education to allow more underrepresented scholars to join the ranks of the professoriate. To the extent that the ETS PPI evaluation will broaden opportunities for students, it is something that I strongly support." Michael L. Jeffries, Associate Dean of Students and Director, McNair Scholars & Minority Student Affairs, University of Illinois at Urbana-Champaign

"What's needed is a clear and defined picture of the full range of personal attributes that are valued as predictors of success in graduate school. Because it brings a degree of objectivity to a rather subjective process, ETS PPI provides an important snapshot that rounds out the candidate's application.... And with graduate education becoming increasingly important, I expect the ETS PPI evaluation to assist in identifying..."
those students most likely to succeed." Liora Schmelkin, Senior Vice Provost for Academic Affairs and Dean of Graduate Studies, Hofstra University

To learn how your institution can use ETS PPI Evaluation Reports, sign up for a free 1-hour webinar.

Learn more about getting started with ETS PPI.
Getting Started with the ETS® Personal Potential Index (ETS® PPI)

It is easy for you to get started with the ETS® PPI.

- First, familiarize yourself with the ETS PPI and decide whether to require or recommend that applicants submit an ETS PPI Evaluation Report (PDF) as part of the application process.
- Next, determine how you will use the ETS PPI Evaluation Reports in the admissions process. Please consult the Guidelines for the Use of the ETS® PPI in Admissions (PDF).
- Finally, communicate your decision and let prospective applicants know that the ETS PPI Evaluation Report is required or recommended for admission.

If an institution or program currently receives GRE® scores, there is no further action needed in order to receive ETS PPI Evaluation Reports (PDF).

Otherwise, if you wish to receive ETS PPI Evaluation Reports, you can apply for a recipient code online.

To learn how your institution can use ETS PPI Evaluation Reports, sign up for a free webinar.

Get answers to frequently asked questions about the ETS PPI.
Frequently Asked Questions about the ETS® Personal Potential Index (ETS® PPI)

How should the ETS® PPI Evaluation Report be used?

The information on the ETS® PPI Evaluation Report should be considered along with a graduate applicant's undergraduate grades, test scores, recommendation letters and other information that is submitted as part of the graduate application. Each report contains information to assist graduate programs in interpreting the report. Learn more about using the ETS PPI in admissions decisions.

How does the ETS PPI Evaluation Report relate to the letter of recommendation?

The ETS PPI Evaluation Report and the letter of recommendation have important but distinct roles to play in the graduate admissions process. Unlike a letter of recommendation, the ETS PPI Evaluation Report provides standardized and quantifiable information, making it possible to compare candidates within a given year and from year to year — as well as from institution to institution. The ratings on the ETS PPI Evaluation Report are based on evaluators' responses to a common set of structured questions. And, the report incorporates ratings from a number of evaluators, rather than just one, adding to the reliability of the report.

How are applicants rated in the ETS PPI?

The evaluation consists of 24 questions (four for each of the six dimensions) plus an overall evaluation. Evaluators use a 5-point Likert scale to rate the applicant relative to other students from the same department or program who have gone on to graduate study. The scale points are "Below Average," "Average," "Above Average," "Outstanding (Top 5%)," and "Truly Exceptional (Top 1%)." Evaluators may also provide comments for each of the six dimensions and for the overall rating.

ETS converts the ratings to numerical equivalents and computes means for each evaluator for each dimension, as well as for all evaluators across each dimension and for the "overall evaluation" category. The ETS PPI
Evaluation Report (PDF) provides graphical representations of the data and includes any comments provided by the evaluators.

**How are the mean ratings calculated?**

The mean rating for each evaluator for a particular dimension averages the evaluator's ratings for all of the statements within that dimension. The mean rating for each dimension averages all of the evaluators' mean ratings for that dimension. The mean rating for "Overall Evaluation" averages all of the evaluators' ratings for the overall evaluation.

**What evidence do you have that these attributes are the right ones?**

ETS PPI reflects nearly a decade of research (PDF) by ETS and university researchers on personality theory and measurement of personal attributes, and on feedback from hundreds of graduate and business school deans and faculty members. In addition, ETS is committed to ongoing validity research exploring the relationship between these attributes and graduate school success.

**How does a graduate program know whether the evaluators are who they say they are?**

As is the case with letters of recommendation, the possibility of evaluator misrepresentation exists with the ETS PPI. ETS is taking several steps to reduce this likelihood, however. For example, evaluators must e-sign a statement confirming their identity and acknowledging that they have been informed of the potential penalties for misrepresentation. In addition, the ETS PPI Evaluation Report includes contact information for each evaluator, allowing graduate schools to investigate if they have questions or concerns. However, ETS does not verify the identity of evaluators and does not make any assurances regarding evaluators' identities.

**As a faculty member, I already write letters of recommendation for my students. Why should I complete an ETS PPI evaluation?**

ETS PPI is convenient and easy to use. An evaluator needs to complete only one evaluation for an applicant — regardless of how many applications the student makes. We estimate that it will take the average evaluator less than 15 minutes to complete an evaluation, which consists of 24 statements (four for each of the six dimensions) plus an overall evaluation. If they choose, evaluators may also provide additional comments. In other words, in less than 15 minutes, a faculty member can help students provide a more complete picture of their potential for success in graduate school.

**If an evaluator does not speak English, can he or she complete an ETS PPI evaluation for an applicant?**

Yes. ETS plans to translate ETS PPI statements into other languages so that evaluators who do not speak English can understand the statements on which they must rate the applicant. PDFs of ETS PPI statements in Mandarin and Spanish are available on the ETS PPI website.

**Won't everyone get the top rating since these are graduate school applicants?**
Frequently Asked Questions about the ETS® Personal Potential Index (ETS® PPI)

Pilot data indicate that this is not the case. For the past two years, ETS PPI has been piloted through Project 1000, an initiative based at Arizona State University that is designed to increase the number of underrepresented students in graduate school. In addition, ETS PPI has been used within ETS for internship selection. Data from both of these efforts indicate that evaluators' ratings cover the range of available responses.

**How can I receive ETS PPI Evaluation Reports as part of my admissions process?**

All institutions and programs that currently receive GRE® scores are automatically eligible to receive ETS PPI Evaluation Reports. Other programs and institutions can apply for a recipient code online.

Still have questions? Join us for a free 1-hour webinar on the ETS PPI to get in-depth answers to your questions.

For more information about how ETS PPI can help your graduate program, contact ETS today.
The ETS® Personal Potential Index (ETS® PPI) — How it Works

Convenient and easy to use web-based evaluation system

ETS® PPI Steps at a Glance for Applicants

1. Log in to your ETS PPI account, to begin the process or track evaluations.

2. Provide contact information for the evaluators you would like to complete an ETS PPI evaluation.

3. ETS sends an e-mail to each evaluator inviting them to access the ETS PPI system and complete your evaluation.

4. Each evaluator logs in to the ETS PPI system to rate you on 6 personal attributes and provide an overall evaluation. Evaluators also may provide optional comments for each attribute as well as for the overall rating.

5. You are notified when each of your evaluations is completed. Once all of your evaluations to be included have been completed, you can log in to the ETS PPI system and select the institutions that you wish to receive your ETS PPI Evaluation Report and the evaluations that are to be included in each report. Up to five evaluations can be included in each report.

6. ETS creates an evaluation report, and sends it to the institutions you have designated.

Availability and Fees

- Anyone applying to graduate or professional school can use the ETS PPI system and submit ETS PPI Evaluation Reports.

- If you registered for the GRE® General Test on or after May 1, 2009, you will be able to send up to 4 ETS PPI Evaluation Reports at no extra charge, as part of your test fee. Additional reports can be sent for $20 each.

- If you took the GRE General Test before May 1, 2009, or are not planning to take the GRE General Test, you can send evaluation reports for $20 each.

Learn more about getting started with ETS PPI.
Seeking STEM Graduate Students for
NSF EESE: Ethics Education 2.0

Michigan Tech was recently awarded an NSF EESE (Ethics and Education in Science and Engineering) grant to deliver ethics education to STEM graduate students. Our focus will be intellectual property (IP): patents and copyright and we will use Web 2.0 technologies (Blackboard, blogs and wikis) for delivery.

We are soliciting your assistance in recruiting STEM graduate students to this ethics education program. Starting in Spring 2010, we will run a semester-long non-credit course for graduate students. Each semester, we need to recruit 20-30 students from across STEM disciplines. In the fall, we will target new students, and in the spring, students who have completed at least one semester of graduate coursework. Students who complete each Ethics Education IP course successfully (2 problems per semester) will receive a certificate of completion of training on the IP components of Responsible Conduct of Research. We will run the course for 5 semesters at Michigan Tech (through Spring 2012) as well as 2 semesters at University of Texas-Pan American (2011-2).

Students will be divided into several teams and will solve two problems each semester, one on patents and one on copyright, posed by experts (David Orozco, SBE; Jim Baker, TED; and Nora Allred, copyright librarian). However, instead of an in-class lecture and discussion format, the course will be primarily online. Students will access a library of information placed on a Blackboard website to learn about IP and copyright; discuss the problem in their team using a blog; develop a team solution by writing a “wiki” entry together (like Wikipedia entries); and meet face-to-face for a final discussion of the problem solution with the experts. The questions posed will be different each semester, so a student could take the course multiple times to improve their understanding of IP. The course will be offered on a pass-fail basis; to pass the course, a student must demonstrate understanding of the issues as well as participate in the online discussion and solution.

The Web 2.0 technologies offer two benefits compared to traditional classroom or programmed online instruction such as CITI training: (1) they are asynchronous, which will enable graduate students, particularly those with English as a second language and demanding schedules, to participate in a relaxed and reflective manner, and (2) they support an active, collaborative learning process to develop understanding of complex ethical concepts.

A goal of the project is to develop a new way for the Office of Research Integrity and Compliance to improve responsible conduct of research (RCR) training. The infrastructure developed for this project—content library, exemplar problems, blogs and wikis—can be expanded to cover a full range of RCR issues. Moreover, there is potential to scale the infrastructure for asynchronous ethics education to multi-university consortia with a distributed network of content experts creating a community of practice in ethics education facilitated by university libraries.

Please encourage your graduate students to participate in this project, and encourage your graduate faculty to promote this as an opportunity to learn about two aspects of ethics that are critical to successful research. Interested students and faculty should contact either Christa Walck (cwalck@mtu.edu) or Debra Charlesworth (ddc@mtu.edu) for more information. We would like to have students signed up for this course by December 7, and hold a training session during first week of spring semester.
Seeking Science, Technology, Engineering and Math Graduate Students!


If you answered “no” or “I’m not sure”...

you could get into trouble!

We have a solution for you.

During Spring Semester 2010, Michigan Tech will launch a non-credit course in Intellectual Property for STEM graduate students, funded by the National Science Foundation. We are looking for 20-30 students who have completed one semester of graduate coursework at Michigan Tech to sign up by December 7.

This course will introduce you to core concepts in intellectual property, and deal with such concepts as rigors of scientific publishing, copyright and appropriate attributions, fair use, falsification of data, plagiarism, treatment of data (acquisition, management, sharing, and ownership), allocation of credit, publication practices and responsible authorship, ethical standards (legal, institutional, and discipline-based) and societal expectations.

This course will take place almost entirely on-line, and be conducted as a problem-solving activity. Instead of going to a lecture or having in-class discussion, you will

- Solve two problems per semester – one on patents, and one on copyright
- Seek out information in an online library developed by experts at Michigan Tech
- Discuss the problems with team members at your convenience using a Wordpress Blog
- Write a solution with your team using a “wiki” (think Wikipedia!)
- Compare solutions in a face-to-face meeting (with food) with a Michigan Tech expert

Upon successful completion of the course, you will receive a certificate of training in IP for Responsible Conduct of Research, which can be included in your resume.

What are the benefits of participating? It will give you a competitive edge with employers, allow you to learn more about using blogs and wikis, introduce you to new students across campus – and prevent you from making serious mistakes in your graduate and professional career.

If you are interested in participating in this project by taking this course, or want more information, please contact

- Christa Walck cwalck@mtu.edu or
- Debra Charlesworth ddc@mtu.edu