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)
and TIES (http://www.doe.mtu.edu/news/TIES_program_05.html) 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)
Semesters Offered: On Demand
Pre-Requisite(s): PSY 2000 and (UN 1002 or UN 1003)

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.
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: Fall, Spring - Offered alternate years beginning with the 2001-2002 academic year
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
Lec-Rec-Lab: (3-0-0)
Semesters Offered: Spring - Offered alternate years beginning with the 2007-2008 academic year
Restrictions: May not be enrolled in one of the following Class(es): Freshman
Pre-Requisite(s): UN 2002

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, Sophomore

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.
**Description of available/needed equipment.**

**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


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, AGU 2002. 2005-2009: FIPSE-NAFTA 6 University Consortium in Earth Hazards (EHaz), funded by Dept of Education.


4. Since 1992: Development of Michigan Tech Remote Sensing Institute. Co-organizer and 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.


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 Darveelle, 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.
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

Five Relevant Publications


Five Other Publications


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
Hassanzadeh, 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 (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), Quinn, 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 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

School of Forest Resources and Environmental Science
Michigan Technological University,
1400 Townsend Drive, Houghton, Michigan, 49931, USA
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)

Publications (5 other)


**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), Cobinnah 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
Council of Graduate Schools: Promising Practices Identified by the PhD Completion Project

Promising Practices: Student Selection and Admission

Universities participating in the Ph.D. Completion Project have developed a variety of mechanisms for integrating into the doctoral admissions process a greater attention to the “fit” or “match” between a particular student and a specific program, alongside considerations of traditional measures of student quality. A consistent theme across each of these areas of intervention in selection and admissions is the recruitment, retention and success of underrepresented students.

Recruitment: Offer pre-admission and pre-enrollment campus visits; use early research opportunities as a recruitment tool; improve efforts to recruit underrepresented students.

Transparency: Improve department websites to ensure that each includes additional data, information, and resources necessary for prospective students to make informed decisions; increase transparency in the selection processes and clarify expectations for students in their doctoral programs, including assessment milestones.

Admissions: Develop workshops for admissions committees; select students based on “fit” to program; survey applicants to determine why admissions offers are accepted or declined.

Promising Practices: Mentoring and Advising

Success in achieving a Ph.D. depends upon a close and effective working relationship with one’s advisor and mentor. Mentoring is also an area that can pose unique challenges to universities seeking to implement program-level or university-wide improvements because mentoring is practiced and valued unevenly in doctoral programs. Improvements in mentoring and advising outnumber improvements in any other area of activity and innovation in the Ph.D. Completion Project. Promising practices identified by participating universities in the area of mentoring and advising include:

Resources for students: Provide a comprehensive orientation to prepare students for graduate school; develop/revise graduate student handbooks; clearly articulate program expectations/academic milestones; develop/enhance online mechanisms so students and faculty can track progress and communicate with one another; implement online milestones tracking systems, “dissertation checklists,” electronic portfolios, and annual progress report systems that integrate graduate school records, student input, and evaluative comments from faculty.

Regularity and uniformity of progress review: Implement regular advisor/advisee meetings and progress reports; encourage programs to set up annual student performance review systems.

Early advising: Require each first-year student to have an advisor or advisory structure; conduct regular evaluations of progress; encourage women and minority students to participate in programs that offer mentorship outside the department; create ombud position to support first-year students.

Resources for faculty: Offer workshops for faculty on mentoring; offer mini-grants to help faculty develop initiatives aimed at improving the quality of mentoring; recognize excellence in mentoring through faculty awards.
Other mentors: Train peer mentors and ensure that all new students are assigned a trained peer mentor; provide students with external mentors.

Promising Practices: Financial Support

Students and researchers often cite financial support as being among the most influential factors in Ph.D. completion and attrition but there is evidence showing that not all forms of students support are equally beneficial. Thus, financial support needs to be structured to optimize completion and enhance academic and social integration. Promising practices in the area of financial support and structure include:

Increased student support: Increase stipend levels to be comparable to peers; increase the number of selective university fellowship awards; increase the number of summer research awards in the humanities and social sciences; provide health insurance premium coverage; explore higher stipends and more one-quarter releases from teaching for dissertating students; change graduate assistantship allocation to a “Ph.D. preferred” model, whereby 80% of doctoral students and 20% of master’s students will be funded; address potential IRS tax inequities within graduate student population.

Incentive to departments: Link departmental allocations and performance indicators of student completion.

Promising Practices: Program Environment

The academic “environment” of a Ph.D. program is shaped by department-led and university-wide efforts to create the conditions for high expectations, high performance, and strong student support. Informal opportunities to participate in department events, regular social gatherings, or team sports may also prove to be important components of the graduate student’s socialization to their academic discipline. Promising practices include:

Support networks and support services: Initiate campus-wide efforts to bring students together across disciplines and within the department for academic and social interaction; encourage graduate student organizations in all programs/departments to explore community building activities; promote involvement of graduate students as members of campus-wide or department-wide committees; highlight achievements and accomplishments of graduate students through newsletters, dinners, or other venues; develop a network for support; outreach to and integration of fellows.

Family accommodation policies: Implement a parental accommodation policy and institution-wide policy on family and medical leave for graduate assistants.

Promising Practices: Research Experience

Researchers often note that the degree of social interaction characteristic of the sciences, where an apprenticeship model, research teams, and a laboratory setting prevail, can provide a more supportive environment than the solitary, individual research with often extended periods without advisor feedback that is often characteristic of the humanities. Interventions in this area focus both on pre-program research experiences (prior to starting the doctoral program) and early research experiences.

Pre-program research experiences: Identify top undergraduates and invite them to participate in a research institute late in their sophomore year to prepare and recruit these students to pursue doctoral studies; offer summer pre-doctoral institute for underrepresented students.
Early research experiences: Encourage lab rotations prior to choosing a mentor/research area; provide opportunities and funding for humanities and social sciences students to participate in research in the early stages of their programs and to attend professional meetings; provide students with a catalog of research opportunities and facilitate matching of research interests between advisors and students; streamline course requirements to allow students the opportunity to engage early in research.

Promising Practices: Curricular and Administrative Processes and Procedures

This is a broad category encompassing the more traditional curricular and administrative processes and procedures as well as new initiatives aimed at providing support for writing during the dissertation stage (or early stages) or offering various types of professional development opportunities. These types of workshops and supports inhere in the programmatic/institutional structure and are a fundamental aspect of program quality. Promising practices include the following:

Administrative/curricular processes and procedures: Create/enhance institutional database on students via a web-based system to track student aid; monitor and track all students who leave; introduce a continuous enrollment policy to serve as the impetus for students to stay on track; refine policies and practices for matriculation and track and report on Ph.D. student degree progress; revise program review process to examine quality of each graduate program in terms of quality inputs, outcomes, and operational practice; streamline the sequence of courses.

Writing assistance for graduate students: Offer a writing assistance program for graduate students at all stages through trained writing coaches or writing consultants (senior-level graduate students trained in writing); offer writing assistance to groups of students from several disciplines so they can appreciate the commonality of writing difficulties.

Support During the Dissertation Phase: Offer a Dissertation Retreat/Dissertation Boot Camp/Dissertation House/Dissertation Writing Institute for students who are stalled in their progress that offers uninterrupted time to focus on the dissertation, writing strategies, receive feedback, and build peer support; establish a Doctoral Student Writing Room, where doctoral students could engage in project development, research and writing and collaborate with others; offer a summer Dissertation Writing Residency Fellowship for students who are not making progress (especially students from underrepresented groups).

Professional Development of Graduate Students: Offer a safe, hospitable space in which graduate students engage in micro-teaching activities, videotape themselves teaching, and engage in the peer review of teaching to develop skills in constructive peer teaching review; offer a University Graduate Certification in College Teaching, requiring workshop experiences in five competency areas as well as a mentored teaching experience; offer a Graduate Teaching Fellowship Program to provide mentored teaching experiences for qualified students who might not normally have such an opportunity in their own discipline; offer enrichment events aimed at preparing students for job applications and interviews or preparing them for careers in other sectors.
Beth Flynn  
HU5001, Proseminar in Rhetoric and Technical Communication  
Walker, 139  
M, 1:05-1:50 p.m.  
Fall, 2009  
Office: 310 Walker  
Office phone: 487-3227  
E-mail: eflynn@mtu.edu  
Office Hours: M, 2-3, T,R 12:30-2:00 and by appointment

**Texts:**

*RTC Handbook, 2009-10.*  

**Supplies:**

You'll need a file folder to hold your portfolio of responses.

**Purpose:**

The course is described in the catalog as follows:

An introduction to the scholarly issues, goals, and methods across the disciplinary areas represented in the Rhetoric and Technical Communication Program.

**Writing Assignments:**

**Response Journal:**

For selected readings indicated on the syllabus, you should submit response statements of at least one double-spaced page.

**Portfolio Analysis**

Please prepare a portfolio analysis (at least a page long) that provides a commentary on responses. What are some strengths of your performance on these assignments? What are some limitations?

**Attendance:**

Attendance is mandatory. Much of the course involves conversation about course readings. If you miss those conversations, you will have missed a good deal of the course content. More than three unexcused absences will affect your grade.

**Grades:**

Your grade will be based on the following:
MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990 (ADA). If you have a disability and need a reasonable accommodation for equal access to education or services at MTU, please call Dr. Gloria Melton, Dean of Students (7-2212). For other concerns about discrimination, you may contact your advisor, department head or chair, or the Affirmative Action Office (7-3310).

It may be necessary to alter the syllabus as the semester proceeds in order to better meet the instructional needs of the class.

Plagiarism—using the ideas or words of others without acknowledging the source—is unethical and a violation of University policy. Plagiarism cases will be handled by the Dean of Students. Some consequences of plagiarism could be failure of a paper or course. The University has subscribed to an anti-plagiarism service that can detect plagiarized material. If you have questions about the proper way to cite the ideas of someone else, please see me.

MTU strives to offer equal opportunity to all of its employees, students, applicants for employment, and applicants for admission without regard to race, religion, color, national origin, age, gender, sexual orientation, height, weight, marital status, disabled veteran status, veteran status, arrest record, or disability. See [http://www.admin.mtu.edu/admin/boc/policy/ch3p7.htm](http://www.admin.mtu.edu/admin/boc/policy/ch3p7.htm). The Affirmative Programs Office (commonly called the Affirmative Action Office, or AA)) facilitates Michigan Tech’s development of an environment that is free from prejudicial discrimination or harassment and that is conducive to learning and individual growth for all campus members and visitors. Contact the Affirmative Programs Office, Room 207, Administration Building, Phone: 906-487-3310, Fax: 906-487-2842; e-mail Sherry Kauppi, Director, for more information.

**Academic Integrity:** [http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html](http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html)

**Affirmative Action:** [http://www.admin.mtu.edu/aaao/](http://www.admin.mtu.edu/aaao/)

**Disability Services:** [http://www.admin.mtu.edu/urel/studianthandbook/student_services.html#disability](http://www.admin.mtu.edu/urel/studianthandbook/student_services.html#disability)


Please turn off cell phones and laptops before class begins.

**Course Schedule:**

Week 1 (August 31)


Week 2 (Sept. 7)

M Labor Day

Week 3 (Sept. 14)


Week 4 (Sept. 21)

M *RTC Faculty*. Response # 3 due.

Week 5 (Sept. 28)
M RTC Faculty. Response # 4 due.

Week 6 (Oct. 5)

M RTC Faculty. Response # 5 due.

Week 7 (Oct. 12)


Week 8 (Oct. 19)

M Semenza, Introduction, Chap. 1. Response # 7 due.

Week 9 (Oct. 26)


Week 10 (Nov. 2)


Week 11 (Nov. 9)


Week 12 (Nov. 16)


Week 13 (Nov. 30)


Week 14 (Dec. 7)

Beth Flynn
HU5001, Proseminar in Rhetoric and Technical Communication
Walker, 139
M, 1:05-1:50 p.m.
Spring, 2010
Office: 310 Walker
Office phone: 487-3227
E-mail: eflynn@mtu.edu
Office Hours: M, 2-3, T,R 12:30-2:00 and by appointment

Texts:


Supplies:

You'll need a file folder to hold your portfolio of responses.

Purpose:

The course is described in the catalog as follows:

An introduction to the scholarly issues, goals, and methods across the disciplinary areas represented in the Rhetoric and Technical Communication Program.

Writing Assignments:

Response Journal:

For selected readings indicated on the syllabus, you should submit response statements of at least one double-spaced page.

Portfolio Analysis

Please prepare a portfolio analysis (at least a page long) that provides a commentary on responses. What are some strengths of your performance on these assignments? What are some limitations?

Student to Student Essay

In an essay of at least 5 pages (approximately 1250 pages), provide information to future RTC graduate students about the program or about ways of succeeding in graduate school. References to Semenza and/or Moore and Miller and the *RTC Handbook* would be helpful. We will aim to collectively produce a document that would supplement the *RTC Handbook*. Submit a proposal (a paragraph or two in length) for your essay week 3.

Attendance:
Attendance is mandatory. Much of the course involves conversation about course readings. If you miss those conversations, you will have missed a good deal of the course content. More than three unexcused absences will affect your grade.

**Grades:**

Your grade will be based on the following:

- Portfolio (responses) 50%
- Student to Student essay 50%

**Other:**

MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990 (ADA). If you have a disability and need a reasonable accommodation for equal access to education or services at MTU, please call Dr. Gloria Melton, Dean of Students (7-2212). For other concerns about discrimination, you may contact your advisor, department head or chair, or the Affirmative Action Office (7-3310).

**Academic Integrity:**  
http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html

**Affirmative Action:** [http://www.admin.mtu.edu/ao/](http://www.admin.mtu.edu/ao/)

**Disability Services:**  
[http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability](http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability)

It may be necessary to alter the syllabus as the semester proceeds in order to better meet the instructional needs of the class.

Please turn off cell phones and laptops before class begins.

**Course Schedule:**

Week 1 (Jan. 11)

M *Student to Student, 2008-2009*, Markve, Watrous, pp. 34-44.

Week 2 (Jan. 18)

M Martin Luther King Day

Week 3 (Jan. 25)


Week 4 (Feb. 1)

Week 5 (Feb. 8)


Week 6 (Feb. 15)

M Semenza, Ch. 12, Draft of *Student to Student* essay due.

Week 7 (Feb. 22)

M Final version of *Student to Student* essay due. Reports.

Week 8 (March 1)

M *Student to Student* essay reports.

Week 9 (March 15)

M Booth, Colomb, Williams, xi-xiv. 3-8, Chaps. 1-2, pp. 9-25. Response # 3 due.

Week 10 (March 22)

M Booth, Colomb, Williams, Chaps. 3-4, pp. 35-65. Response # 4 due.

Week 11 (March 29)

M Booth. Colomb, Williams, Chaps. 5-6, pp. 68-100. Response # 5 due.

Week 12 (April 5)

M Booth, Colomb, Williams, Chaps. 7-8, pp. 108-129. Response # 6 due.

Week 13 (April 12)

M Booth, Colomb, Williams, Chaps. 9-10, pp. 130-151. Response # 7 due.

Week 14 (April 19)

February 23, 2010

Colleagues:

The attached documents provide an overview of the training and support provided to Humanities Department Graduate Teaching Instructors (GTIs) in their first year of teaching. This training and support program has been in effect since UN2001 was instituted nearly 10 years ago.

Training Programs

The first document, “GTI Orientation Workshop Schedule, Fall 2009,” is the schedule for the 8-day workshop that precedes the start of fall semester.

The other two documents are syllabi for the fall and spring sessions of HU5931, the two-credit teaching practicum. New GTIs enroll in this course for both semesters during their first year of teaching. The class meets weekly for 75 minutes.

Personnel

Two graduate students—usually Ph.D. students—are hired as program assistants for staggered two-year terms. Casey Rudkin, who will attend your meeting to answer questions, is currently the senior assistant. Rebecca Miner will ascend to the senior position this summer, and I am currently seeking a new junior assistant.

The junior assistant teaches two sections of UN2001 per year and receives one course release for administration. The senior assistant receives two administrative course releases and teaches one section of the course. Assistants receive one summer course release during the summer between their first and second years in the position. Their primary responsibilities are to plan and implement the summer training program and to support and advise GTIs—both new and experienced—as they teach their courses.

If you have any questions or comments about this instructional support program, please don’t hesitate to contact me.

Karla Kitalong           kitalong@mtu.edu           Office phone 487-3254
Associate Professor and Director of Writing, Humanities Department
# GTI Orientation Workshop Schedule

## Fall 2009

### Wednesday, 19 August

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-9:00</td>
<td>Breakfast Gnoshies</td>
</tr>
<tr>
<td>9:00-9:15</td>
<td>Introductions</td>
</tr>
<tr>
<td>9:15-9:30</td>
<td>Welcome from Department Chair Ron Strickland</td>
</tr>
<tr>
<td>9:30-9:45</td>
<td>Teaching Schedules (Sylvia Matthews)</td>
</tr>
<tr>
<td>9:45-10:00</td>
<td>Break</td>
</tr>
<tr>
<td>10:00-11:15</td>
<td>Overview of orientation workshop; overview of UN 2001 (Karla Kitalong)</td>
</tr>
<tr>
<td>11:15--12:00</td>
<td>Course schedules and advising – if you have a laptop with Internet capabilities, bring it (Karla Kitalong, Casey Rudkin, Becky Miner)</td>
</tr>
<tr>
<td>12:00-1:15</td>
<td>Lunch provided in Petersen Library (3rd Floor Walker, go upstairs and to your right past the copy machine– the Petersen is the large glassed-in room facing campus)</td>
</tr>
<tr>
<td>1:15-1:45</td>
<td>Introduction to Humanities Department Coordinator and clerical support staff (Jackie Ellenich, Sue Niemi, Kim Puuri, Marjorie Lindley)</td>
</tr>
<tr>
<td>1:45-5:00</td>
<td>Campus logistics and campus tour: Register for courses, ID cards, office keys, copy machine accounts, parking permits, health insurance, etc. (Casey Rudkin)</td>
</tr>
</tbody>
</table>

### Thursday, 20 August

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-9:00</td>
<td>Breakfast Gnoshies</td>
</tr>
<tr>
<td>9:00-10:15</td>
<td>Designing effective writing assignments (Karla Kitalong)</td>
</tr>
<tr>
<td>10:15-10:30</td>
<td>Break</td>
</tr>
<tr>
<td>10:30-12:00</td>
<td>Roundtable: Designing syllabi (Casey Rudkin, Becky Miner, Roxane Gay)</td>
</tr>
<tr>
<td>12:00-1:15</td>
<td>Lunch on own</td>
</tr>
<tr>
<td>1:15-3:00</td>
<td>Independent work time – syllabus advising (Karla Kitalong, Casey Rudkin, Becky Miner)</td>
</tr>
</tbody>
</table>
**Friday, 21 August**

8:30-9:00  Breakfast Gnoshies

9:00-10:30  Introduction to rhetoric, rhetorical terms, rhetorical writing assignments and rhetorical pedagogy (Casey Rudkin)

10:30-10:45  Break

10:45-12:15  Rhetorical analysis (Becky Miner)

12:15-1:30  Lunch on own

1:30-3:00  Roundtable: Effective writing assignments (Casey Rudkin, Jim Rudkin, Roxane Gay, Rebecca Frost)

3:00-3:15  Break

3:15-4:45  Roundtable: Responding to student writing (Kevin Hodur, Roxane Gay, Rebecca Frost)

5:00  Social time at Keweenaw Brewing Company (KBC - 408 Shelden Ave, Houghton)

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**For Monday:** Review *Everything’s An Argument*, paying special attention to Chapter 1. *Pick a few readings you might like to assign to your students this semester and how you would teach them.*

Also, please read the Murray and Breuch articles in *Cross-Talk in Comp Theory.* (This is the book we’ll use in the practicum; photocopies will be available if you don’t have the book yet.)

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**Monday, 24 August**

8:30-9:00  Breakfast Gnoshies

9:00-10:30  Teaching *Everything’s An Argument* (Becky Miner)

10:30-10:45  Break

10:45-12:00  Introduction to Graduate Director (Beth Flynn) & small-group work with process-oriented writing pedagogy.

12:00-1:15  Lunch on own

1:15-2:45  Generating class discussion (Michael Bowler, Katie Synder-Marr, Mare Mueller, Kevin Hodur)

2:45-3:00  Break

3:00-3:30  Overview of departmental technology resources (Nate Carpenter, Erin Smith)
3:30-4:30 Process-oriented writing pedagogy (Karla Kitalong)

**For Tuesday:** Review *The Non-Designer’s Design Book* (and know the CRAP Principle)

---

**Tuesday, 25 August**

8:30-9:00 Breakfast Gnoshies

9:00-10:15 Introduction to Visual Rhetoric (Karla Kitalong)

10:15-10:30 Break

10:30-11:45 Visual argument (Diane Keranen, Karla Kitalong)

11:45-1:00 Lunch on own

1:00-2:15 Teaching *The Non-Designer’s Design Book* (Jim Rudkin, David Clanaugh)

2:15-2:30 Break

2:30-4:00 Roundtable: Visual approaches to teaching UN 2001 (Diane Keranen, Jim Rudkin, David Clanaugh, Becky Miner)

---

**Wednesday, 26 August (Karla Training Perspectives Instructors)**

9:00-12:00 Mandatory Graduate School Orientation – Responsible Conduct for Research basic training

12:15-1:15 Pizza Social with faculty in Petersen Library

1:15-1:30 Break

1:30-2:45 Working with student disabilities and campus culture from the Outreach Coordinator for Student Disabilities (Christy Oslund)

2:45-3:00 Using the JRVP Library and Michigan Tech Archives & Copper Country Historical Collections for UN 2001 assignments (Casey Rudkin)

3:00-5:00 Syllabus work time

4:30-10:00 Graduate Student Council picnic at Hancock Beach (on M-203 1 mile west of the lift bridge – no dogs allowed – lots of fun!)

---

**For Thursday:** Bring a copy of your syllabus for your meeting with a Writing Center coach.
Thursday, 27 August *(Karla Training Perspectives Instructors)*

8:30-9:00  Breakfast Gnoshies

9:00-10:30  J Robert Van Pelt Library orientation tour (Dave Bezotte, Nora Allred)

10:30-11:00  Break

11:00-12:00  Dealing with grammar and style problems (Marilyn Cooper)

**Thursday, 27 August (continued)**

12:00-1:30  Working lunch (provided): Roundtable: Planning for the first days of class & Michigan Tech student culture (Rehema Clarken, David Clanaugh); briefing on teaching 3120 (Laurence Jose)

1:30-2:30  Introduction to Writing Center (Nancy Grimm, Jill Hodges, Angela Badke)

2:30-2:45  Break

2:45-5:00  Work on syllabi with Writing Center coaches

5:00  Humanities Department picnic at McLain State Park (M-203 halfway between Hancock and Calumet - dogs welcome)

**Friday, 28 August**

8:30-9:00  Breakfast Gnoshies

9:00-10:30  Presentation of syllabi (using poster board & stickie notes)

10:30-10:45  Break

10:45-12:00  Continued presentation and discussion of syllabi

12:00-1:00  Lunch on own

1:00-2:15  Using oral and visual communication to support the written component (Patty Sotirin)

2:15-2:30  Break

2:30-3:45  Strategies for teaching oral communications (Casey Rudkin)

**Saturday, 29 August**

TBA  Quincy Mine Tour with Graduate Student Council
# Course Description and Goals

The primary goals of this class are to encourage you to be thoughtful and reflective teachers and to offer continued support for the teaching of UN 2001. “Support” in this context means

- continued assistance in the day-to-day teaching of UN 2001, including follow-up work on concepts and issues introduced during the August orientation workshop
- exploration of theoretical issues relevant to the teaching of a sophomore-level writing course that also offers students additional instruction in visual and oral communication.

## Texts and Other Required Materials (will be used spring semester, too.)

- Barnett, Timothy. *Teaching Argument in the Composition Course*. (TArg) If you need a copy, see Karla.
- Links and PDFs may be distributed as handouts or via the class Blackboard site.

## Required Projects and Assignments

<table>
<thead>
<tr>
<th>Reflective Journal:</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a handwritten or word-processed journal, explore your thoughts about teaching and about your experiences in the classroom and in the Practicum. This should serve as an example of writing to learn; it is a personal text that will provide you with an “external memory” that can be used to produce your teaching portfolio. Bring this journal with you to class each week for in-class writing, and add to it once or twice a week outside of class.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Portfolio:</th>
<th>40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>On a CD or in a three-ring binder, compile the following documents:</td>
<td></td>
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<tr>
<td>- your syllabus</td>
<td></td>
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<td>- all assignments, both major and minor</td>
<td></td>
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<tr>
<td>- all handouts</td>
<td></td>
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<td>- supplemental readings (if you used any)</td>
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<tr>
<td>- printouts/screen shots of important examples</td>
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<tr>
<td>- selected samples of student writing (more on this later)</td>
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<tr>
<td>- a 2-3 page reflection.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Attendance:</th>
<th>30%</th>
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</thead>
<tbody>
<tr>
<td>I expect you to attend class regularly, just as you would attend a weekly staff meeting, and to alert me in advance if you must be absent.</td>
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</table>

<table>
<thead>
<tr>
<th>Conferences:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Two individual conferences with me (once in Sept. and once in Oct. or Nov.)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Class visits:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>I will visit each person’s class at least once, after the term gets rolling and you are comfortable with your class. As I observe, I will take notes and afterward I will write a letter to you about what I observe. Soon after the observation, you and I will meet to talk about the class session. Our post-observation meeting MAY be combined with a conference, if the scheduling works out.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mentoring:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Take advantage of your GTI Education team. Casey is the Monday person, Karla is the Wednesday person, Becky is the Friday person. We’re all here on Tuesdays and Thursdays.</td>
<td></td>
</tr>
</tbody>
</table>

## University Links

- Standard grading system: [http://www.admin.mtu.edu/catalog/university/academic/#policies](http://www.admin.mtu.edu/catalog/university/academic/#policies)
- Academic Integrity Information: [http://www.sas.it.mtu.edu/usenate/proposal/02/18-02.htm](http://www.sas.it.mtu.edu/usenate/proposal/02/18-02.htm)

If you have a disability and need reasonable accommodation for equal access to education or services at MTU, please call Dr. Gloria Melton, Associate Dean of Students at 7-2212. For other concerns about discrimination, you may contact your advisor, department head, or the MTU Affirmative Action Office.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sept. 3</td>
<td>Course introduction/first week &amp; orientation debrief</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sept. 10</td>
<td>Situating composition</td>
<td>Fulkerson articles (2) (Blackboard).</td>
</tr>
<tr>
<td>3</td>
<td>Sept. 17</td>
<td>Composing</td>
<td>Perl (XTalk)</td>
</tr>
<tr>
<td>4</td>
<td>Sept. 24</td>
<td>Foundations of rhetoric</td>
<td>Toulmin &amp; Perelman/Olbrechts-Tyteca (TArg)</td>
</tr>
<tr>
<td>5</td>
<td>Oct. 1</td>
<td>Developing as an academic writer</td>
<td>Bartholomae “Inventing” (XTalk)</td>
</tr>
<tr>
<td>6</td>
<td>Oct. 8</td>
<td>ESL writers/learners</td>
<td>Matsuda (XTalk) &amp; Fan Shen (TArg)</td>
</tr>
<tr>
<td>7</td>
<td>Oct. 15</td>
<td>Research paper</td>
<td>Slattery (TArg)</td>
</tr>
<tr>
<td>8</td>
<td>Oct. 22</td>
<td>Research paper</td>
<td>Berthoff (XTalk)</td>
</tr>
<tr>
<td>9</td>
<td>Oct. 29</td>
<td>Research papers</td>
<td>Rouet et al (TArg)</td>
</tr>
<tr>
<td>10</td>
<td>Nov. 5</td>
<td>Revising</td>
<td>Sommers (XTalk)</td>
</tr>
<tr>
<td>11</td>
<td>Nov. 12</td>
<td>Audience</td>
<td>Ong &amp; Ede/Lunsford (XTalk)</td>
</tr>
<tr>
<td>12</td>
<td>Nov. 19</td>
<td>Planning for next semester; revisiting some concepts</td>
<td>Fahnstock/Secor (TArg); Christensen (linked on Blackboard)</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>Thanksgiving Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Dec. 3</td>
<td>Portfolio drafts/workshop/peer review</td>
<td>KK is out of town, probably</td>
</tr>
<tr>
<td>14</td>
<td>Dec. 10</td>
<td>Portfolio drafts/workshop/peer review</td>
<td></td>
</tr>
<tr>
<td>Exam</td>
<td>Dec. 17</td>
<td>Portfolios due</td>
<td></td>
</tr>
</tbody>
</table>
Course Description and Goals

The primary goals of this class are to encourage you to be thoughtful and reflective teachers and to offer continued support for the teaching of UN 2001. “Support” in this context means

- Continued assistance in the day-to-day teaching of UN 2001, including follow-up work on concepts and issues introduced during the August orientation workshop.
- Exploration of theoretical issues relevant to the teaching of a sophomore-level writing course that also offers students additional instruction in visual and oral communication.

Required Projects and Assignments

**Teaching Portfolio:** We’ll use the class Blackboard site to compile this semester’s portfolio, to help prepare us for the switch to UN 2001 e-portfolios in the fall. Additional info on form and procedures will be forthcoming.

- your syllabus/syllabi
- all assignments, both major and minor
- all handouts
- supplemental readings (if you used any)
- teaching philosophy (see below)

- printouts/screen shots of important examples
- selected samples of student writing
- a portfolio cover statement/brief reflection; if you’re teaching two classes with separate preps, please include notes on the differences
- selected class notes and/or journal entries

**Attendance:** I expect you to attend class regularly, just as you would attend a weekly staff meeting, and to alert me in advance if you must be absent.

**Conferences:** Two individual conferences with me (in February or March and at the end of the semester).

**Class visit:** I will visit each person’s class at least once, probably before mid-February. If there’s a conflict, I’ll ask Becky, Casey, or maybe another faculty member to do the visit.

**Mentoring:** Take advantage of your GTI Education team and help each other.

**Teaching philosophy:** You will write the first draft of a teaching philosophy suitable for use in your (eventual) academic job search. It will be included in your August portfolio, but is important enough to warrant some extra weight.

**Lead a class discussion:** Each week, someone will lead the class discussion focused on the assigned reading.

**University Links**

*Standard grading system:* [http://www.admin.mtu.edu/catalog/university/academic/#policies](http://www.admin.mtu.edu/catalog/university/academic/#policies)

*Academic Integrity Information* [http://www.sas.it.mtu.edu/usenate/propose/02/18-02.htm](http://www.sas.it.mtu.edu/usenate/propose/02/18-02.htm)

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<table>
<thead>
<tr>
<th>Wk</th>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>What to Read</th>
<th>Discussion Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Th</td>
<td>1/13</td>
<td>Course Introduction</td>
<td>Christensen, “Every Student Teaches and Every Teacher Learns.”</td>
<td>KK</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PDF and link available on Blackboard.</td>
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<tr>
<td>4</td>
<td>Th</td>
<td>2/4</td>
<td>No class meeting—Winter Carnival</td>
<td></td>
<td></td>
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<tr>
<td>9</td>
<td>Th</td>
<td>3/11</td>
<td>No Class—Spring Break</td>
<td></td>
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<tr>
<td>10</td>
<td>Th</td>
<td>3/18</td>
<td>Rhetoric in the classroom</td>
<td>Coldiron, A.E.B. “Refutatio as a Prewriting Exercise.” Teaching Argument 318-321.</td>
<td>KK is out of town. Casey and Becky</td>
</tr>
<tr>
<td>11</td>
<td>Th</td>
<td>3/25</td>
<td>Contact Zones</td>
<td>Pratt, Mary Louise. “Arts of the Contact Zone.” PDF is linked on Blackboard.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Th</td>
<td>4/1</td>
<td>Contact Zones</td>
<td>Muksonian-Schutt, Robin. “Starkweather &amp; Smith: Using ‘Contact Zones’ to Teach Writing.” Teaching Argument 339-345.</td>
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<td>Finals Wk. Wed, 4/28 Portfolio due by 4 p.m.; end of semester meeting with Karla.</td>
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</table>
Proposal to Modify and Rename the “Senior Rule” Policy

Proposed Name for Modified Policy: “Integrated Undergraduate/Graduate Degree Programs” or “Undergrad/Grad Programs”

Goals:

- Develop a flexible policy framework that will allow individual departments/programs to offer integrated undergraduate/graduate degree programs that meet the needs of their students, faculty, and academic discipline.
- Attract outstanding Michigan Tech\textit{logical} bachelor’s students into our master’s and doctoral programs.
- Allow exceptional Michigan Tech \textit{bachelor’s} students an early opportunity to become engaged in research \textit{and} graduate level course work.
- Allow students to pay undergraduate tuition for a limited number of credits taken while an undergraduate student, and apply these credits toward a graduate degree.
- Allow students to double count a limited number of credits towards both the \textit{b}\textit{achelor’s} and \textit{m}\textit{aster’s} or \textit{d}\textit{octoral} degrees.

Limitations:

This program will only be available to undergraduate students who will complete a bachelor’s degree at Michigan Tech.\textit{Current graduate students may not retroactively use this policy.}

Current Policy:

The current “Senior Rule” Policy is: (http://www.mtu.edu/registrar/students/registration/policies/senior-rule/)

“While finishing an undergraduate degree, students are allowed to take courses which could apply to a graduate degree. However, a course cannot be applied to both a graduate and an undergraduate degree.

\textit{A Senior Rule form} must be completed and submitted to the Registrar’s Office prior to the end of the 6th week of class for the course semester. Upon submission, the student’s academic record will be changed to show graduate status for the course designated. Once the academic record has been changed to show graduate status for a particular course, it cannot be changed back to count toward an undergraduate degree.

\textit{Senior Rule Guidelines}

- A student so enrolled and carrying 6 credits or more in 5000 or 6000 level courses may carry no more than 16 credits of course work per semester.
- The total number of Senior Rule credits may not exceed one-third of the required non-research course credits.”
Proposed Policy:

**Summary of Changes:** Students will be allowed to use the modified senior rule Integrated Undergraduate/Graduate Degree Programs policy to accumulate up to one-third of the credits (either regular coursework or independent study or special topics or graduate level research courses or a combination) while enrolled as an undergraduate. Changing this provision will allow students to earn a larger number of credits toward a graduate degree while an undergraduate student than is currently allowed under the Senior Rule Policy, and students can also begin earning graduate credits at any time during their undergraduate career (with permission of the course or research credit advisor and the Graduate Program Director for the student’s intended graduate program). Students will also be allowed to double count up to six (6) credits toward both an undergraduate and graduate degree if appropriate and allowed by their intended graduate program. This will allow students and programs more flexibility in tailoring their undergraduate and graduate programs than is currently allowed under the Senior Rule Policy.

Revised Policy Statement:

**Integrated Undergraduate/Graduate Degree Programs Guidelines**

While working toward an undergraduate degree, students are allowed to take coursework or graduate level research courses which may be applied toward a master’s or doctoral graduate degree. Current graduate students may not use this policy retroactively.

Undergraduate students who wish to apply courses towards a graduate degree must submit an Integrated Undergraduate/Graduate Degree Programs Form to the Registrar’s Office by Wednesday of the second week of the semester in which courses intended to be applied to a graduate degree are first taken. Once a student has submitted the form, the courses designated for use toward a graduate degree only cannot be applied toward an undergraduate degree. The courses designated for double counting can be applied toward both an undergraduate and graduate degree.

**Credit Limit**

The total number of graduate credits earned while an undergraduate may not exceed one-third of the credits required for the master’s graduate degree in the student’s intended graduate program. In most situations, this means that a student may accumulate a maximum of ten (10) credits as an undergraduate...
that can later be applied toward the master’s graduate degree. Each master’s program department/school may set a lower maximum allowable credits.

Undergraduate students who intend to move directly into a PhD program may generally be allowed to accumulate a maximum of ten (10) graduate credits while an undergraduate, however each doctoral program department/school may set a lower maximum.

Double Counting of Credits
In most cases, up to six (6) credits of the graduate credits may be applied towards both an undergraduate and graduate (master’s or PhD) degree. However, each graduate program department/school may set a lower maximum.

A course grade of B of better must be achieved by the student to receive graduate level credit.

Departmental Requirements
Use of this policy does not imply or guarantee admission into a graduate program. Undergraduate students must consult with the graduate program director in their intended graduate department as the department will have admission requirements (which may include GPA requirements). Some graduate programs may also and may require undergraduate students to have reached junior-level status and/or have a minimum cumulative/departamental GPA before taking courses which they intend to apply towards a graduate degree.

The graduate program directors will sign an Integrated Undergraduate/Graduate Degree Programs form only after determining that the plan is appropriate for the student and the intended graduate degree program.

Students who take six (6) credits or more in 5000 or 6000 level courses may carry no more than sixteen (16) credits per semester.

Undergraduate students who wish to apply courses towards a graduate degree must submit an Integrated Undergraduate/Graduate Degree Programs form to the Registrar’s Office by Wednesday of the second week of the semester in which the graduate degree courses are taken. Once a student has submitted the form, the courses designated for use toward a graduate degree only cannot be applied toward an undergraduate degree.

Procedure:

Upon submission, the student’s academic record will be changed to show graduate status for the graduate courses that are intended to be double counted. The Registrar’s Office will then send a copy of the form to the Graduate School, and the
Graduate School will keep the form with the student’s records for use when auditing the student’s graduate degree schedule when it is submitted. Students will be allowed to use all courses for which graduate academic status is indicated, as well as the courses listed as being double counted, on their graduate degree schedule. Once the academic record has been changed to show graduate status for a particular course, it cannot be changed back to allow a course to count toward an undergraduate degree.
Proposal to Modify and Rename the “Senior Rule” Policy

Proposed Name for Modified Policy: “Integrated Undergraduate/Graduate Degree Programs” or “Undergrad/Grad Programs”

Goals:

• Develop a flexible policy framework that will allow individual departments/programs to offer integrated undergraduate/graduate degree programs that meet the needs of their students, faculty, and academic discipline.
• Attract outstanding Michigan Tech bachelor’s students into our master’s and doctoral programs.
• Allow exceptional Michigan Tech bachelor’s students an early opportunity to become engaged in research and graduate level course work.
• Allow students to pay undergraduate tuition for a limited number of credits taken while an undergraduate student, and apply these credits toward a graduate degree.
• Allow students to double count a limited number of credits towards both the bachelor’s and master’s or doctoral degrees.

Limitations:
This program will only be available to undergraduate students who will complete a bachelor’s degree at Michigan Tech. Current graduate students may not retroactively use this policy.

Current Policy:
The current “Senior Rule” Policy is:
(http://www.mtu.edu/registrar/students/registration/policies/senior-rule/)

“While finishing an undergraduate degree, students are allowed to take courses which could apply to a graduate degree. However, a course cannot be applied to both a graduate and an undergraduate degree.

A Senior Rule form must be completed and submitted to the Registrar’s Office prior to the end of the 6th week of class for the course semester. Upon submission, the student's academic record will be changed to show graduate status for the course designated. Once the academic record has been changed to show graduate status for a particular course, it cannot be changed back to count toward an undergraduate degree.

Senior Rule Guidelines

• A student so enrolled and carrying 6 credits or more in 5000 or 6000 level courses may carry no more than 16 credits of course work per semester.
• The total number of Senior Rule credits may not exceed one-third of the required non-research course credits.”
Proposed Policy:

Summary of Changes: Students will be allowed to use the modified senior rule Integrated Undergraduate/Graduate Degree Programs policy to accumulate up to one-third of the credits (either regular coursework or graduate level research courses or a combination) while enrolled as an undergraduate. Students can also begin earning graduate credits at any time during their undergraduate career (with permission of the course or research credit advisor and the graduate program director for the student’s intended graduate program). Students will also be allowed to double count up to six (6) credits toward both an undergraduate and graduate degree if appropriate and allowed by their intended graduate program. This will allow students and programs more flexibility in tailoring their undergraduate and graduate programs than is currently allowed under the Senior Rule Policy.

Revised Policy Statement:

Integrated Undergraduate/Graduate Degree Programs Guidelines
While working toward an undergraduate degree, students are allowed to take coursework or graduate level research courses which may be applied toward a master’s or doctoral degree. Current graduate students may not use this policy retroactively.

Undergraduate students who wish to apply courses towards a graduate degree must submit an Integrated Undergraduate/Graduate Degree Programs Form <<Link to form; include signature line for graduate program director; do not include department chair signature; do not include a 12-month prior to graduation provision; include a place to indicate courses/credits intended for double counting>> to the Registrar’s Office by Wednesday of the second week of the semester in which courses intended to be applied to a graduate degree are first taken. Once a student has submitted the form, the courses designated for use toward a graduate degree only cannot be applied toward an undergraduate degree. The courses designated for double counting can be applied toward both an undergraduate and graduate degree.

Credit Limit
The total number of graduate credits earned while an undergraduate may not exceed one-third of the credits required for a master’s degree in the student’s intended graduate program. In most situations, this means that a student may accumulate a maximum of ten (10) credits as an undergraduate that can later be applied toward a master’s degree. A master’s program may set a lower maximum.

Undergraduate students who intend to move directly into a PhD program will generally be allowed to accumulate a maximum of ten (10) graduate credits while an undergraduate. A doctoral program may set a lower maximum.
**Double Counting of Credits**

In most cases, up to six (6) credits of the graduate credits may be applied towards both an undergraduate and graduate (master’s or PhD) degree. Graduate programs may set a lower maximum. A course grade of B of better must be achieved by the student to receive graduate level credit.

**Departmental Requirements**

Use of this policy does not imply or guarantee admission into a graduate program. Undergraduate students must consult with the graduate program director in their intended graduate department as the department will have admission requirements. Some graduate programs may also require undergraduate students to have reached junior-level status and/or have a minimum cumulative/departmental GPA before taking courses which they intend to apply towards a graduate degree.

Graduate program directors will sign an Integrated Undergraduate/Graduate Degree Programs Form only after determining that the plan is appropriate for the student and the intended graduate degree program.

**Procedure:**

Upon submission, the student's academic record will be changed to show graduate status for the graduate courses that will not be double counted. The Registrar’s Office will then send a copy of the form to the Graduate School, and the Graduate School will keep the form with the student’s records for use when auditing the student’s graduate degree schedule. Students will be allowed to use all courses for which graduate academic status is indicated, as well as the courses listed as double counted, on their graduate degree schedule. Once the academic record has been changed to show graduate status for a particular course, it cannot be changed back to allow a course to count toward an undergraduate degree.
GRADUATE CERTIFICATE IN HYBRID ELECTRIC DRIVE VEHICLE ENGINEERING

College of Engineering, Contact Person: Carl L. Anderson (cander@mtu.edu)

1. General Description

This proposal recommends establishing a “Graduate Certificate in Hybrid Electric Drive Vehicle Engineering” through the College of Engineering. Students completing this Certificate will develop competencies in advanced hybrid electric drive vehicle (HEDV) engineering. Students enrolling in this certificate will have a Bachelor’s degree in Chemical, Electrical, Materials, or Mechanical Engineering, or a degree in a closely related field.

Catalog Description - The Graduate Certificate in Electric Drive Vehicle Engineering program provides the student with advanced knowledge of the design, calibration, and operating characteristics of electric drive and hybrid electric vehicles. It is expected that students beginning this Certificate have a working understanding of: i) thermodynamics equivalent to that gained in MEEM2220, or MY3100, or CM3230, ii) electric circuits equivalent to EE2110, or EE3010, and iii) programming, or simulation tools (e.g. MATLAB).

2. Rationale

The light vehicle industry is facing a shortage of engineering talent needed to retool for the use of electric drives as the primary source of motive power. In recognition of this, the State of Michigan and the US Department of Energy put in place programs to encourage universities to offer programs that help address these education needs.

Michigan Tech has received support from both the DOE and Michigan for this curricular development and is creating several new courses in this area. We propose that Michigan Tech offer certificates to students who complete a set of new and existing courses in this area in order to give them a credential indicating their knowledge in this emerging field.

3. Related Programs

The Graduate Certificate in Electric Drive Vehicle Engineering is related to the proposed Certificate in Hybrid Electric Drive Vehicle Engineering at the undergraduate level. The Graduate Certificate uses twenty five existing courses in the Chemical, Electrical, Materials and Mechanical Engineering degree programs, several of which are being modified to include HEDV content. Seven new courses (some are dual listed between departments) are being developed under a DOE Transportation Electrification grant.

There are similar certificate programs being developed at Wayne State University, Purdue (leading a consortium of Indiana universities), Colorado State University, and MUST.

There are similar courses offered from the University of Michigan, University of Detroit – Mercy, NC State University, and West Virginia University.
4. Projected Enrollment

It is expected that we will have a steady state enrollment of 20-25 students. The graduate enrollments in the first three offerings of MEEM 5990DL, Advanced Propulsion Systems for Hybrid Vehicles, have been 96 in the Spring of 2009 (includes 30 on-campus students), 104 in the Fall of 2009, and 92 students in the Spring of 2010. It is not believed that these enrollments are sustainable for the certificate program, but they do reflect a strong demand for the technology.

5. Scheduling

No change in the regular scheduling of the existing courses is anticipated. The Departments delivering the new courses have agreed to fit them into their regular scheduling plans.

6. Curriculum Design

Required Courses (9 credits): NEW courses in Boldface

EE/MEEM 5295  Adv. Propulsion Systems for Electric Drive Vehicles (3)

Any two of the following:

EE/MEEM 4295  Intro. to Propulsion Systems for Electric Drive Vehicles (3)
EE 4227  Power Electronics (3)
MY/CM 5760  Vehicle Battery Cells and Systems (3)
EE 5221  Advanced Electrical Machines (3)
MEEM 5450  Vehicle Dynamics (3)

Electives Courses (6 credits):

EE/MEEM 4295  Intro. to Propulsion Systems for Electric Drive Vehicles (3)
EE 4227  Power Electronics (3)
MY/CM 5760  Vehicle Battery Cells and Systems (3)
EE 5221  Advanced Electrical Machines (3)
MEEM 5450  Vehicle Dynamics (3)
EE/MEEM 4296  Intro. to Propulsion Systems for Electric Drive Vehicles Laboratory (1)
EE/MEEM 5296  Adv. Propulsion Systems for Electric Drive Vehicles Laboratory (1)
EE/MEEM 4750/5750  Distributed Embedded Control Systems (3)
EE 5200  Advanced Methods in Power Systems (3)
EE 3120  Electric Energy Systems, not EE and not CPE, (3)
EE 4221  Power System Analysis 1 (3)
EE 4222  Power System Analysis 2 (3)
EE 5223  Power System Protection (3)
EE 5230  Power System Operations (3)
EE 5290  Selected Topics in Power Systems (3)
MEEM 4220  IC Engines 1 (3)
MEEM 5250  IC Engines 2 (3)
MEEM 5670  Experimental Design in Engineering (3)
MEEM 5680  Optimization (3)
MEEM 5700  Dynamic Measurement and Signal Analysis (3)
MEEM 5715  Linear Systems (3)
MEEM 4260/5220  Fuel Cell Technology (3)
MY 4165  Corrosion and Environmental Effects (3)
MY 5100  Thermodynamics and Kinetics I (3)
MY 5110  Thermodynamics and Kinetics II (3)
MY 5410  Materials for Energy Applications (3)
CM/Ent 3974  Fuel Cell Fundamentals (1)
CM/Ent 3977  Fundamentals of Hydrogen as an Energy Carrier (1)
CM/Ent 3978  Hydrogen Measurements Laboratory (1)

Total of 15 credits are required for the certificate. Up to 6 credits of 3000 and 4000 level courses are allowed.

7. New Course descriptions

EE/MEEM 4295 Introduction to Propulsion Systems for Hybrid Electric Drive Vehicles - Hybrid electric drive vehicle analysis will be developed and applied to examine the operation, integration, and design of powertrain components. Model based simulation and design is applied to determine vehicle performance measures in comparison to vehicle technical specifications. Power flows, losses, energy usage, and drive quality are examined over drive-cycles via application of these tools.

EE/MEEM 4296 Introduction to Propulsion Systems for Hybrid Electric Drive Vehicles Laboratory - Hybrid electric drive vehicles and their powertrain components will be examined from the aspects of safety, testing and analysis, energy conversion, losses, and energy storage, and vehicle technical specifications and vehicle development process. The lab will culminate with vehicle testing to perform power flow and energy analysis during a drive-cycle.

EE/MEEM 5295 Advanced Propulsion Systems for Hybrid Electric Drive Vehicles - Hybrid electric drive vehicles (HEDV) will be studied and simulated using advanced powertrain component analysis and modeling. An in-depth analysis and study of power flows, losses and energy usage are examined for isolated powertrain components and HEDV configurations. Simulation tools will be developed and applied to specify powertrain and vehicle components and to develop control and calibration for a constrained optimization to vehicle technical specifications.

EE/MEEM 5296 Advanced Propulsion Systems for Hybrid Electric Drive Vehicles Laboratory - Hybrid electric drive vehicles (HEDV) and their components will be examined in a series of laboratories. This includes quantification of power flows and losses in components, calibration of component models based upon experimental data, measurement and quantification of drive quality, failure Mode & Effects Analysis, calibration practices and trade-offs. A HEDV model will be tuned and validated through analysis and fitting to vehicle test data.

MEEM 4450/5450 Vehicle Dynamics - This course will develop the necessary models to predict performance and handling and compare analytical results to selected measured data from hybrid vehicle test data. Topics to be covered include: acceleration and braking performance, hybrid electric powertrain architecture, drivetrain performance, vehicle handling, suspension modeling, tire models, steering and steering control, 2DOF dynamics model, and multi-body dynamics. This will culminate in a design
project which will require the design of a hybrid vehicle to meet a given vehicle technical specification. Credit may not be received for both MEEM4450 and MEEM5450.

MY/CM 5760 Vehicle Battery Cells and Systems - The behavior and application of batteries will be examined by introducing concepts from thermodynamics, materials science, transport processes and equivalent circuits. The non-ideal power source behavior of rechargeable batteries in applications will be treated using electrolyte: electrode transport and electrode materials chemistry.

EE/MEEM 4750/5750 Distributed Embedded Control Systems - This course will develop an understanding for the design and application of embedded control systems. Topics to be covered include: embedded system architecture, model-based embedded system design, real-time control, communication protocols, signal processing, and human machine interface. Embedded applications in advanced hybrid electric vehicles will also be introduced.

8. Library and other Learning Resources

Students in this program will need only the Library resources presently available to all enrolled students.

9. Computing Access Fee

On campus Students will be charged the appropriate department computer access fees. Online students will not be charged computer access fees. Online students will be charged online learning fees.

10. Faculty Resumes

Jeff Naber   http://www.me.mtu.edu/meem/facultybio/naber.html
Jeff Allen   http://www.me.mtu.edu/meem/facultybio/allen.html
Bo Chen     http://www.me.mtu.edu/meem/facultybio/b_chen.html
Wayne Weaver, http://www.ece.mtu.edu/pages/faculty/Weaver.html
Leonard Bohmann http://www.ece.mtu.edu/pages/faculty/Bohmann.html
John Beard    http://www.me.mtu.edu/meem/facultybio/beard.html
Bruce Mork    http://www.ece.mtu.edu/faculty/bamork.html
Jason Keith   http://www.chem.mtu.edu/chem_eng/faculty/jmkeith.htm
Steve Hackney http://www.mse.mtu.edu/faculty/hackney.html

11. Equipment

A mobile laboratory needed for the introductory and advanced propulsion systems courses is being fabricated using funds from a DOE grant. An existing portable chassis dynamometer will also be used. Some upgrades to the chassis dynamometer will be required, with the funding from those upgrades.
coming from the same DOE grant as the mobile laboratory. AVL, a partner in the DOE grant will be providing an additional $750,000 in support for the mobile laboratory.

12. Program Costs

The new courses developed or modified for this certificate are funded from a DOE grant. The remaining courses are presently being taught on a regular basis.

Funding for ETS to support the development of the new online courses is available from a DOE grant.

13. Space

The mobile laboratory including the portable chassis dynamometer, and the hybrid electric vehicles will be housed at KRC.


Credits earned for this certificate may also be applied toward a single graduate degree at Michigan Technological University.

15. Accreditation Requirements

None

XVI. Internal Status of the proposal.

Approved by the College of Engineering

XVII. Planned Implementation Date

Fall 2010