

2006 Technology-Enhanced Learning (TEL) Grant Program
Identifying Information (Cover Sheet)

Project Title:

Online Course Development for Professionals in the Environmental Health Sciences: The Development of Best Practices

Investigators:

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Proposal to the University of Minnesota's (UMN) Digital Media Center for the 2006 Technology Enhanced Learning (TEL) Grant Program

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Purpose: We will create a fully distance-delivered online course to be adapted from a course in environmental and occupational health policy that is taught in-person. To guide our efforts we will initially conduct a literature review to determine the best method for creating activity for various audiences. The proposed course will use a combination of WebCT and Macromedia Breeze to develop a rich, interactive online learning environment for students who face barriers of travel time and distance. Our plan is consistent with University's Academic Health Center 2005 strategic plan, which has as a goal to "use information technology to transform how we educate..." and the associated objective, "to integrate information technology into the education of our students to make possible anywhere, anytime learning."

We will evaluate the course to create a set of best practices and templates for future online courses within the Division of Environmental Health Sciences. Three Breeze lectures have already been developed for the course. However, limited resources constrain our ability to convert the majority of course lectures into modules or to include interactivity within the current online modules. Our evaluation methods will be adapted from work by Dean Olson in consultation with the Flashlight Project, an effort of the Annenberg/CPB Project and the Teaching Learning and Technology Affiliate of the American Association of Higher Education, to develop and share evaluated procedures (http://www.tltgroup.org/#Flashlight_project). Dean Olson has extensive experience in developing and evaluating online courses (Carlson, Olson, 2001; Olson, Carlson, 2000; Olson, Stedman-Smith, Fredrickson, in press).

These tools will be used to evaluate the online version of the class including a descriptive analysis of technology and the teaching learning process and an assessment of the usability of the modules. The class is taught in-person every spring semester. Given the April 2006-2007 timeline, we will offer the class in-person as usual in 2007, but also offer all enrolled students (43 students in 2006) the choice to take individual modules online, as an alternative to the in-person class, to provide initial descriptive evaluation data. We know there will be an interest as several students have asked for this option.

Themes Addressed by the Project: This project will facilitate students' access to an existing required course for students enrolled in the Division of Environmental Health, "Environmental and Occupational Health Policy" (PubH 6505, 2 credits) delivered face-to-face, by developing an alternative online version. The majority of students taking the class are earning a professional degree, a Masters in Public Health (MPH) focused in environmental health sciences. The students include practicing physicians, nurses, industrial hygiene engineers, injury prevention epidemiologists and other public health professionals. With an online version of the course we will enhance the professional practice of these public health personnel and increase enrollment by enabling access to the course due to distance and special needs. Some of our professional students travel from as far away as Bemidji (4.5 hours in good weather) to participate in class. Additionally, we currently have a severely hearing impaired student in the class. He is one example of a student with special needs who would greatly benefit from online modules with transcripts of the lectures.

The need for technology enhanced learning in environmental health is revealed in a report on Public Health's Infrastructure, wherein the Centers for Disease Control recommends that by 2010 all public health workers achieve specific competencies in their areas of specialty, including occupational and environmental health specialists, which should be accomplished through training of existing professional staff and the addition of new public health professionals, and that it will be necessary to create a national "lifelong

distance-learning system for all frontline public health practitioners." An online course is one strategy to deliver environmental health education to professionals in the community. Moreover we want to take advantage of the interactive abilities of Breeze to promote a better learning environment, as evidence exists that that interactivity can enhance student learning (Muirhead, 2001). However, research is needed to identify the best method for creating activity for various audiences, and usability tests and student feedback are needed to determine the best practices for Breeze.

Another theme we will address is the use of technology to promote communication between students and instructors, among students, and between students and experts at the university and elsewhere. We know that online courses can default to being focused solely on information delivery--the electronic equivalent of the large lecture hall where an expert provides information, but few opportunities for students to make sense of what they have learned. A richer educational environment allows students to interact with the content and each other to promote critical thinking about the topic (Anderson, 2002). While Breeze provides the platform for information delivery, WebCT provides the communication platform. The current face-to-face course uses the bulletin board to allow students to communicate via posts. The use of the bulletin board would expand to increase student-to-student interactions and student to faculty expert interactions, in the fully distance-delivered course.

Emerging Technologies: The project will develop best practices for placing lectures online with Macromedia Breeze. In addition, the recordings will be made available to download as a podcast. This would also allow students different opportunities to listen to the content wherever possible. This TEL grant would provide the resources to develop the best practices and templates for a WebCT and Breeze-delivered course for our Divisions' required courses.

Programmatic Potential: This project focuses on developing a set of best practices and templates to be used in the Division of Environmental Health Sciences. In addition, the finding of the project will be developed as a manuscript for a peer-reviewed journal and submitted for presentation at the annual WebCT Conference and the Annual Conference on Distance Teaching and Learning (<http://www.uwex.edu/disted/conference/>).

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Budget and Timetable

Budget Category	Person	Percent Effort	Fringe	Salary	Total Cost	Justification
Content Expert	Pat McGovern, Faculty, University of Minnesota	5% effort (in kind)	\$1643	\$4,876	\$6,519	Lead instructor; create lecture content; assist in developing interactive exercises; develop evaluation instrument; oversee project;
Content Expert	Debra Olson, Associate Dean, University of Minnesota	2.5% effort (in kind)	\$2663	\$1007	\$3670	Consult on evaluating online modules including use of the Flashlight Project Evaluation procedures and surveys
Total In-Kind Contribution:					\$10,189	
Lead Designer	Krista Johansen, Technical Expert in Web CT, contractor	137 hours	\$0	\$70.00 / hour (Ed. Rate)	\$9590	Designs all online modules and podcasts, conduct literature review on interactivity. See cost breakdown below.
Transcript-ionist	To Be Named, contractor	12 hours	\$0	\$30 / hour	\$360	Provides accessibility for audio portions of the Breeze presentations

Breeze Presentation Cost Breakdown	
Task	Cost
Recording of lecture (2.5 hours / lecture)	\$175 / lecture
Developing Breeze presentation (includes the creation of 3-5 visuals or 1 small interactive exercise)	\$2000 / presentation
Creating transcriptions (estimating 4 hours of transcription time for 1 hour of audio recording) Note: Lectures are 2 hours	\$240 / lecture
Total Cost for 3 Breeze Presentations	\$7245

Timeline for Activities	Timeline
Develop PowerPoint Slides and digital audio recordings for all lectures	Spring Semester 2006
Conduct/write Literature Review on Interactivity	Spring –Summer 2006
Consult with Dean Olson on Flashlight Evaluation Approach and Tools	Summer 2006
Finalize all online modules	Summer-Fall 2006
Pilot test online modules; Summarize findings for oral presentation and written report	Spring 2007