Ecology of the Great Lakes

Aboard the EPA’s Research Vessel Lake Guardian
July 5-10, 2004

Applications due: Friday, April 2, 2004
Only 18 spaces available!
Notification of selected participants by: Friday, April 16, 2004

Sponsors
Western Upper Peninsula Center for Science, Mathematics and Environmental Education
Michigan Technological University Departments of Civil & Environmental Engineering, Biological Sciences, and Education
Isle Royale Institute
Wege Foundation

Research Vessel Lake Guardian provided by Great Lakes National Program Office of the U.S. Environmental Protection Agency
A bout the Institute

This Institute is designed to teach educators about the physical, chemical, and biological components of the Great Lakes ecosystem, using Lake Superior as the classroom. Educators in any discipline—science, mathematics, social studies, language arts, creative arts, and technology, as well as, educational outreach staff of math/science centers, state and national parks, universities, cooperative extension programs, and museums, will obtain an excellent foundation for integrating Great Lakes ecology into their curricula or program offerings.

The goal of the 6-day Institute is to enhance the ability and motivation of educators to teach about Great Lakes ecology. Through hands-on data collection and analysis, field trips, lab experiences, presentations, and interactions with research scientists, participants will obtain new knowledge and skills that can be adapted to their work with students. Participants will experience actual Great Lakes research data collection, working alongside scientists, and sometimes collecting 24-hour data, working long days, etc. This is an incredible learning opportunity— not a cruise! Mathematics; life, earth and physical sciences; language arts; and social studies concepts will be woven into the experience.

Participants will gain a sense of environmental stewardship—by better understanding how past human activities have impacted the Lake Superior watershed. Participants will enhance their teaching skills—by sharing ideas and innovative approaches to curriculum development and delivery with other educators, and they will be better able to guide their students’ interest in environmental careers that further the protection of Lake Superior and the Great Lakes. This intensive, interactive, Institute is designed to provide educators with standards-based professional development, and the time to plan, discuss, and reflect on their teaching.

A bout the Lake Guardian

The Research Vessel (R/V) Lake Guardian is fitted with state-of-the-art navigational, laboratory, and mechanical equipment. The facilities support the ship’s primary mission of gathering data concerning the chemical and biological conditions of the Great Lakes, and monitoring the pollutant concentrations in the water, sediment, air, fish, and other flora and fauna. To learn more about the ship, visit the website: http://www.epa.gov/glnpo/monitor.html
Course Credit

Participants have the option of taking the course for 3.0 semester hours of graduate credit from Michigan Technological University at no additional charge. In order to receive credit, participants must satisfy all course requirements. All participants are expected to actively engage in all learning activities during the Institute, including data collection, presentations, and laboratory sessions. Prior to the Institute, participants will receive a reference list and are expected to begin formulating an idea for a new Great Lakes-related teaching unit or program that they will present on the first day of the Institute. During the Institute, participants will keep a field journal. After the Institute, participants will design a teaching unit or education program on a topic of interest related to the Great Lakes that reflects effective teaching strategies and meets Michigan (or national) content standards. Participants should plan to implement their unit (or program) during Fall 2004. The teaching unit is due August 31, 2004.

Professional Education

The credits earned from this Institute can be applied towards an 18 semester-hour planned course of study for teachers working toward their Michigan Professional Certificate. Graduate credits may also be applied towards MTU’s Master of Science in Applied Science Education program. For more information about designing a planned course of study or the Master’s program, contact Dr. Bradley Baltensperger at 906-487-2460 or brad@mtu.edu. Participants interested in pursuing an advanced degree at Michigan Tech in a field other than education, should contact the department of interest (http://www.mtu.edu/) and inquire about the applicability of credits earned in this Institute.

Instructors

Lead Faculty: Dr. Marty Auer, Civil and Environmental Engineering, Michigan Tech University

Dr. Auer teaches in the area of environmental engineering, specializing in surface water quality. He works with students at all levels. Dr. Auer's research includes field and laboratory studies and mathematical modeling of water quality in lakes and rivers. Since joining MTU in 1981, he has published more than 55 papers in peer-reviewed journals, and authored/co-authored more than 100 presentations at professional meetings. Dr. Auer's work has appeared in Environmental Science and Technology, Journal of Environmental Engineering, Journal of Great Lakes Research, Journal of Lake and Reservoir Management, and Water Research. He has been conducting research on Lake Superior for the past five years. His current research interest is the role of Diporeia in Great Lakes food chains.

Other MTU faculty and staff leading Institute sessions:

Nancy Auer, Research Professor, Biological Sciences, Michigan Technological University

*Joan Schumaker-Chadde, Coordinator, Western U.P. Center for Science, Mathematics and Env. Education

Mark Gleason, Director, Isle Royale Institute

Judith Perlinger, Assistant Professor, Civil and Environmental Engineering, Michigan Technological University

Noel Urban, Assistant Professor of Civil and Environmental Engineering, Michigan Technological University

* Course coordinator
General Information

Cost

Registration fee for the 6-day Institute is $600, which includes room, meals, field trips, instructional materials, and three graduate credits from Michigan Tech University. (The true cost of the Institute is $3,000 per person, plus $681 for tuition for 3 graduate credits. Generous support from the U.S. Environmental Protection Agency, along with a departmental stipend, reduces total participant cost to only $600 for both Michigan and out-of-state participants). Payment of the full registration fee is due by Tuesday, June 1st. Make checks payable to 'Michigan Technological University.'

Location and Accommodations

Lake Superior and the R/V Lake Guardian will provide the ideal scientific and natural setting for this exciting learning opportunity. Participants will live aboard the R/V Lake Guardian for the entire course. Participants will share a triple room and bath, eat meals in the ship’s galley, and have access to exercise equipment, and the ship’s laboratories. For much of the workshop, we will not be within immediate reach of medical facilities or phones.

Websites

Western UP Center for Science, Mathematics & Environmental Education: http://wupcenter.mtu.edu

Environmental Protection Agency–Great Lakes National Program Office: www.epa.gov/glncp/monitor.html

Isle Royale Natural History Association: www.irnha.org

Michigan Technological University: www.mtu.edu

Tourism information: www.thekeweenaw.com

Comments from 2002 Participants:

I have learned so much. There are many things I will be able to take back to my classroom.

Excellent teaching ideas and research materials for all levels of education.

This whole class earns all 10s. It was a fantastic experience that I’ll never forget.

Excellent, knowledgeable, enthusiastic instructors.

Gained many ideas from working with other teachers.

Transportation

Michigan Tech University in Houghton, MI is served daily by Northwest Airlines from Minneapolis through the Houghton County Memorial Airport in Hancock. The nationwide reservations number for Northwest is 800-225-2525, or visit the Northwest website: www.nwa.com Commercial taxi service is available from the airport to the boat dock at Michigan Tech for a cost of approximately $10 per person. To arrange a taxi, contact Neil’s Taxi Service at 906-482-5515.

How to Apply

Send completed applications by email or postal mail to:

Joan Schumaker-Chadde, Course Coordinator
Western U.P. Center for Science, Math & Environ. Education
105 Dillman Hall
Michigan Technological University
1400 Townsend Dr., Houghton, MI 49931
Tel: 906-487-3341 Fax: 906-487-1620

Application forms are available on the web at:

http://wupcenter.mtu.edu (Teacher Professional Development)
http://www.ed.mtu.edu/pd.html

Application deadline is Friday, April 2. Participant selection is based on applicants’ thoughtful responses to the questions on the application. Participants will be notified by email by Friday, April 16 as to whether they are selected to participate in the Institute. Enrollment is limited to 18 participants.

Questions

For more information regarding the Institute, contact Joan Schumaker-Chadde at 906-487-3341 or ichadde@mtu.edu.