

## Geoscience Education Division

<http://geosciedu.org/>

Summer 2002

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### A Quick Note from Your Newsletter Editor

I hope you are all having a good summer and are getting ready for the fall. My apologies for the delay in getting out the Geoscience Education Division's newsletter. I had every intention of delivering this during the spring semester, but ended up teaching four courses, supervising 20 interns, and advising 250 majors. Time was at a premium, to say the least.

This newsletter contains all the submissions originally given to me during the spring, unless they have become outdated. Please send any inquiries, suggestions, or future news items to me at [mhafen@chuma1.cas.usf.edu](mailto:mhafen@chuma1.cas.usf.edu). Thanks for your patience!

Mark R. Hafen  
University of South Florida

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### UMW to Pilot "One Class At A Time"

During the fall semester of 2001, The University of Montana-Western in Dillon, Montana received a Department of Education FIPSE (Fund for the Improvement of Post-Secondary Education) grant to pilot a scheduling system where students take "one class at a time" (OCAAT) over the course of a normal 15-week semester. Each class meets for approximately 3 to 4 hours per day, five days a week, for a total of 18 days. Each course is followed by a four-day break before the start of the next class.

The purpose of the scheduling change is to reduce the amount of time students spend in lecture and to allow more focus on experiential (project-based) learning. At present, this type of scheduling is only available through the private university system. Western will be the first public university in the United States to try a system made very successful by The Colorado College in Colorado Springs, CO.

The geology program at UM-Western is part of an interdisciplinary program in Environmental Sciences, and will utilize the scheduling system to teach courses through field-based projects that infuse theory, practice and application to environmental problems. For more information, contact Dr. Steve Mock, FIPSE Project Director, The University of Montana-Western at (406) 683-7050 or [s\\_mock@umwestern.edu](mailto:s_mock@umwestern.edu).

Robert C. Thomas  
The University of Montana-Western

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### Notice of Agency Change

Effective 1/16/02, the California Division of Mines and Geology has become the California Geological Survey. The web address, <http://www.conservation.ca.gov/dmg/>, phone numbers, etc. remain unchanged.

Theodore C. "Ted" Smith  
Department of Conservation, California Geological Survey

## **AGI Supports Initiative to Reinstate Earth Science as a Core Science Course for High School Graduation Credit in Texas**

In 1999 the Texas Legislature passed SB 103 which required that, in order to graduate, every high school student must pass an exit science examination (TEKS) in the 11th grade covering "...at least biology and integrated chemistry and physics." The Texas State Board of Education (SBOE) responded by eliminating Earth Science from the list of courses accepted for core science graduation credit. SB 103 also provided that statewide testing of Earth Science comprehension would be shifted from the eighth grade to the fifth grade. These changes significantly de-emphasized Earth Science in the Texas high school curriculum. Unfortunately, the Texas Earth Science community allowed these changes to occur without objection.

Last fall the American Geological Institute, under the leadership of Marcus Milling and Ed Roy, organized a letter-writing campaign to the chair of the SBOE urging a revision of the core science requirements to reinstate Earth Science for high school graduation credit and a concomitant revision of TEKS. More than fifty individual geoscientists sent letters to SBOE members. Also, please refer to the "Comment" page (p.5) in the September 2001 issue of Geotimes "(No) Earth Science in Texas" written by Roy.

At the urging of David Dunn, Ms. Miller, Chair of the SBOE Committee on Instruction, agreed to hold a public hearing on the issues raised by the letter writers. Marcus Milling, Ed Roy, David Dunn and Stan Pittman constituted a working group to solicit testimony and orchestrate the presentations. On January 10, 2002, the hearing was held in Austin, TX. Thirty witnesses from across the State of Texas testified in favor of reinstating Earth Science as a high school core science course for graduation credit; none opposed the proposal.

Those who testified are firmly convinced that the inclusion of Earth Science in the curriculum of Texas high schools is critical to the intellectual development of our students as well as to the economic growth of the state, the nation, and the world. They represented leaders in their respective fields at the state, national, and, in many cases, international levels. Present were representatives from industries that explore for and/or produce oil and gas, coal, stone, aggregate materials, and minerals. Also present were individuals who represent water resource, environmental, and soil issues as well as those who link Earth and space, including one of America's astronauts. The education community was represented by faculty and administrators from some of the finest higher education institutions in the state, by a number of truly dedicated middle and high school teachers, and by two university geoscience students. In addition, two educators not from the State of Texas presented their views from a national perspective. The common thread that binds those who testified is their passion for seeing that the school children of Texas are properly educated in Earth Science during their K-12 education and particularly in high school.

The list of individuals who testified and their summary statements can be found on the AGI web site at <http://www.agiweb.org/education/texas.html>. Points stressed in the testimony were (1) the National Science Standards recognize Earth Science as a core educational requirement from K-12, in parity with chemistry and physics; (2) the Texas economy is critically dependent on the activities of earth scientists; (3) understanding many societal and environmental issues requires Earth Science input; (4) Earth science provides an improved understanding of other allied sciences in an applied context; and (5) billions of dollars in the Permanent School Fund were generated by the discovery and production of natural resources on state lands by practicing Earth scientists.

Longtime observers of the Texas SBOE hearings commented that they had never seen such a convincing presentation on an issue before, and Committee Chair Miller said she was "...awed by the status of the presenters." In her summary statement Miller concluded that Earth Science was important and that the Texas SBOE needed to determine how to implement the requested changes in the high school curriculum. She indicated that she favored the creation of a task force before the "...sunset of Chapter 19 TAC 74 on March 24th." The task force would be charged to recommend a revision in graduation requirements. Details can be found at the following web address: <http://www.tea.state.tx.us/rules/tac/chapter074/ch074b.html#74.12>.

Additionally, Ed Roy reports that, in the opening session of this week's Texas Science Summit in San Antonio, Jim Nelson, Commissioner of the Texas Education Agency (TEA), pointed out there is a legitimate concern that there will be a fall off of Earth Science under the new State of Texas graduation requirements and stated that more students need to take geology and that new courses such as Earth Science should be developed. At the same meeting, in the closing session, Grace Shore, Chair of the Texas State Board of Education, stated that the Board is

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now working to reinstate Earth Science in the curriculum and stressed lobbying for the Earth Science initiative must continue in order to be successful. I think you can say we have TEA's and SBOE's attention and hopefully their support for our initiative.

The efforts of the Milling-Roy-Dunn-Pittman team will now shift to the composition and charge of the proposed task force. Stay tuned for future news!

Michael J. Smith, Education Director  
American Geological Institute

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## New GSA Councilor/Liaison/Representative

Art Green has replaced Steve Colman, who resigned from Council in March. Art will complete Steve's 2000-2003 term as Division Representative to the GSA Council. Art will also be the Councilor/Division Liaison Representative to the Archaeological Geology and QG&G Divisions.

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## Your 2001-2002 Geoscience Education Division Officers

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Website: <http://geosciedu.org>

# GSA 2002 Annual Meeting October 27-30 Colorado Convention Center, Denver, CO

## Session on Computer-Assisted Instruction

A session of interest to Division members, "Design and Assessment of Computer Based Instructional Materials for the Geosciences" will be held as Topical Session 35 (T35) at the 2002 Annual Geological Society of America Meeting in Denver, Colorado. This session is intended to serve as a forum for presentations about any type of computer-assisted instruction.

Computers can bring richness to classrooms at all educational levels by incorporating video, animations, web-based data, and modeling. Because of this versatility, use of computers as instructional aids has increased markedly in the last 10 years. Despite increased computer usage, little information has yet been made available to the geoscience community about the measured impact of computer use on student learning. The results of studies that quantitatively and qualitatively assess student learning suggest that computer-assisted instruction does not always contribute to increased learning. This session will examine what works and why it works, as well as the converse: what didn't work and why not.

The session will be chaired by Jackie Huntoon (Michigan Technological University) and Gary Novak (California State University). For more information about the session, contact Jackie Huntoon [jeh@mtu.edu](mailto:jeh@mtu.edu), (906) 487-2412.

Jacqueline E. Huntoon  
Michigan Technological University

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## Other GSA Sessions of Interest

T36 *Digital Libraries as Vehicles for Systemic Educational Change*. Sponsored by National Association of Geoscience Teachers. Mary Marlino, DLESE Program Center, Boulder, Colo.; Cathryn Manduca, Carleton College, Northfield, Minn.; Edward Geary, Colorado State University, Fort Collins, CO.

T37 *Educational Issues in Teaching and Research at Two-Year Colleges*. Sponsored by National Association of Geoscience Teachers. Laura A. Guertin, Penn State Delaware County, Media, Penn.; Brittina Argow, SUNY/Westchester Community College, Valhalla, NY.

T38 *Geology in the National Parks: Research, Mapping, Education, and Interpretation*. Bruce A. Heise and James F. Wood, National Park Service, Lakewood, CO.

T39 *Geoscience Research Partnerships as a Strategy for Engaging K-16 Students and Teachers in Inquiry-Based Learning*. Sponsored by National Association of Geoscience Teachers. Paul G. Harnik and Robert M. Ross, Paleontological Research Institution, Ithaca, NY.

T40 *Special Session I in Honor of John C. Butler: Water Where the Grass Is Greener-Emerging Uses of Technology in Geoscience Education*. Sponsored by National Association of Geoscience Teachers. Warren D. Huff, University of Cincinnati, Cincinnati, Ohio; Michelle N. Lamberson, WebCT, Inc., Vancouver, British Columbia, Canada.

T41 *Special Session II in Honor of John C. Butler: Multimedia in Earth Science Education-Creation, Use, and Limitations*. Sponsored by National Association of Geoscience Teachers. James D Myers, University of Wyoming, Laramie, Wyo.; Scott R. Linneman, Western Washington University, Bellingham, WA.

T42 *Undergraduate Research in the Geosciences: Faculty and Student Perspectives*. Sponsored by Council of Undergraduate Research: Geoscience Division. Edward C. Hansen, Hope College, Holland, Mich.; Karen H. Fryer, Ohio Wesleyan University, Delaware, OH.

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T43 *Urbanizing Geoscience Education*. Sponsored by Center for the Advancement of Science and Technology Education, Middle Tennessee State University. Mark J. Abolins, Middle Tennessee State University, Murfreesboro, TN.

T44 *New Heights in Geoscience Information: Access and Technology*. Sponsored by Geoscience Information Society. Lisa G. Dunn and Joanne V. Lerud, Colorado School of Mines, Golden, CO.

T92 *Effective Communication and/or Partnership Among Geoscientists, the Public, and Policy Makers: Case Studies*. Sponsored by National Association of Geoscience Teachers; GSA Geology and Public Policy Committee, Critical Issues Caucus. Paul H. Reitan, SUNY at Buffalo, Buffalo, N.Y.; Christine Turner, U.S. Geological Survey, Denver, CO.

T96 *Workforce and Education: Exploring the Industry-Academia Connection Toward Developing a Capable and Sufficient Science and Technology Labor Pool*. Sponsored by GSA Geology and Public Policy Committee, GSA Professional Development Committee. Marilyn J. Suiter and Richard M. Taber, National Science Foundation, Arlington, VA.

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## NAGT Outstanding Teaching Assistant Award

The National Association of Geoscience Teachers (NAGT) is looking for nominations for their Outstanding Undergraduate and Graduate Teaching Assistant award. NAGT awards 30 free one-year memberships and subscriptions to the *Journal of Geoscience Education* (15 undergrad and 15 grad awards). Candidates should be nominated by the department chair or faculty member coordinating teaching assistants. Nominations must include:

- student name and address
- class year
- course(s) in which student assists
- basis for selection

Mail nominations to:

NAGT  
P.O. Box 5433  
Bellingham, WA 98227-5448

In the past, NAGT has not received sufficient nominations to make all 30 awards. This would be an excellent item for recipients' resumes/CV's.

Steve Good  
West Chester University

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## Lamont-Doherty Sponsors EARTH2CLASS

"EARTH2CLASS" (E2C) is a partnership linking classroom teachers with research scientists at the Lamont-Doherty Earth Observatory of Columbia University. Monthly workshops at the Palisades, NY campus provide the teachers with glimpses into cutting-edge research on a variety of topics included in K-12 curricula. In addition, they learn background information about the topics, hands-on activities, and new ways to utilize innovative educational technologies to enhance their programs.

Supporting the live workshops is the E2C web site, <http://www.earth2class.org>. Included are on-line versions of the presentations given by the research scientists and the E2C team, particularly Dr. Michael J. Passow, who provides the background information and curriculum applications, and Dr. Cristiana Assumpcao, who shares the educational technology applications. <http://www.earth2class.org> also provides a wide variety of resources, mentoring, and distance-learning materials.

In addition to support from the Lamont-Doherty Earth Observatory, E2C has been sponsored by the Science Teachers Association of New York State/Westchester Section, National Association of Geoscience Teachers/Eastern Section, and New Jersey Earth Science Teachers Association. Graduate education credits have been arranged through Teachers College, Columbia University and with St. Thomas Aquinas College, Sparkill, NY.

Michael J. Passow  
Teachers College, Columbia University

## Using Data in the Classroom Discussion

The National STEM Digital Library has initiated an interdisciplinary discussion of how and why we use data in our courses. Geoscientists are particularly passionate about the value of engaging students with data, either in the field, through experiment, or using the growing number of on-line resources. This discussion offers an opportunity to share what we are currently doing, the impact it has on our students, and our dreams for how such activities could be supported by on-line data access and tools in the future. Join the discussion at: <http://usingdata.comm.nsdlib.org>

Cathy Manduca, Carleton College  
David Mogk, Montana State University

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## Pardee Symposium at Fall GSA

We are pleased to announce a Pardee Symposium, "Towards a Better Understanding of the Complicated Earth: Insights from Geologic Research, Education, and Cognitive Science" will be held at the fall GSA Annual Meeting in Denver. Geoscientists integrate visual, theoretical, experimental and model data in complicated ways to understand the Earth. This session will address how we can increase our ability to learn about the Earth by better understanding the learning process. The symposium, co-sponsored by NAGT, will bring together the expertise of leading geoscientists, geosciences educators and cognitive psychologists in three invited panels to explore the central topics:

- 1) *How do we learn from maps or image compilations?*
- 2) *How do we glean new understanding from visualizations of the Earth's interior?*
- 3) *How do we apply what we learn from theoretical or physical models to the complex Earth system in its natural state?*

The symposium should be of interest to educators and researchers alike, as we explore a variety of approaches to observing, interpreting and understanding the complex Earth system.

Cathy Manduca, Carleton College  
Dave Mogk, Montana State University

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