

Sigma Xi Today

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Ethics Conference to Focus on Managers

Sigma Xi and the U.S. Public Health Service's Office of Research Integrity will sponsor a day-long conference titled "Ethical Challenges and Practical Solutions for Managers in Research" on September 10, 1999 at the Hyatt Regency in Albuquerque, New Mexico.

While open to all, the primary audience is expected to be scientific, engineering and medical research managers, as well as researchers themselves.

The conference fee of \$100 includes lunch. Registrations received before the early registration deadline of August 19 will be discounted to \$75.

Many articles on research ethics concentrate on the actions and responsibilities of the individual researcher. Management has the responsibility for creating an environment that is supportive of research integrity.

This conference will focus on the problems faced at the management level of research organizations of instilling and maintaining integrity in research and will be a forum for discussing a new Sigma Xi booklet on research ethics, *The Responsible Researcher: Paths and Pitfalls*.

The new booklet is a companion piece to Sigma Xi's popular *Honor in Science*, a guide to ethical research practices, now in its sixth printing with more than 55,000 copies in circulation. For more than a century Sigma Xi has stressed the importance of integrity to the research process.

The Office of Research Integrity (ORI) oversees and directs the Public Health Service's research integrity effort with the exception of the regulatory research activities of the Food and Drug Administration.

This conference will also include activities related to developing a program for the Sigma Xi forum on ethics to be held in Albuquerque in the fall of 2000.

A talk on "ORI Views on Building a System of Research Integrity" will be given by Larry Rhoades, director of the ORI's Division of Policy and Education.

A "Perspective from a Research Lab" will be given by John Browne, director of Los Alamos National Lab, while Paul Fleury, dean of engineering at the University of New Mexico, will give a "Perspective from Academia."

Joan Woodard, executive vice president and deputy director of Sandia, will provide a "Perspective from a Technology Lab," and Robert R. Rich will give a "Perspective from Medical Research." Rich is executive associate dean of research at the Emory University School of Medicine.

Sigma Xi Center Director John Ahearne will lead a discussion of the new Sigma Xi ethics booklet, titled *The Responsible Researcher: Paths and Pitfalls*. Alan Price, who is acting director of the ORI Division of Research, will provide some "ORI Case Examples," after which conference participants will convene in break-out sessions and later report on their discussions.

For conference program updates and further information, visit <www.sigmaxi.org>. call 800-243-6534 or 919-549-4691 ext. 208, e-mail dwindley@sigmaxi.org or write to:

Sigma Xi
The Scientific Research Society
P.O. Box 13975
Research Triangle Park, NC 27709

Ethics Booklet Now Available

The Responsible Researcher: Paths and Pitfalls, a new companion publication to *Honor in Science*, is now available for \$3 a copy. The 64 page booklet covers a number of ethical issues that have arisen since *Honor in Science* was first published in 1984.

Workshop discussions at Sigma Xi annual meetings and with advisory group members, testing the concepts in a short course at Duke University, literature review, and comments on a preliminary draft led to the material covered in this new booklet. Among the issues discussed are grant pressures on professors and their effects on the mentoring process, academic/industrial conflicts of interest and undergraduates' early exposure to research and associated ethical issues.

While *Honor in Science* was aimed primarily at graduate students, this new booklet is intended for a broader audience, including undergraduates, postdocs, junior faculty, senior faculty, deans and department chairs, government and industry managers, as well as researchers in government, industry and non-governmental organizations. It was produced with a generous grant from the estate of the late Edward F. Obert, a long-time Sigma Xi member and supporter.

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Andrew Wier to Receive Procter Prize Grant-in-Aid of Research

1999 Procter Prize-winning biologist Lynn Margulis has selected Andrew W. Wier to receive the \$5,000 Grant-in-Aid of Research that goes with the prize. This special grant, usually awarded to a young colleague working in the same field, is a unique feature of the annual William Procter Prize for Scientific Achievement, Sigma Xi's highest honor.



Wier is a research associate in Margulis's laboratory at the University of Massachusetts at Amherst. He will be recognized during the banquet at Sigma Xi's annual meeting in Minneapolis in November, at which Margulis will deliver the Procter Prize Address.

Wier is a teaching fellow at the university and will teach marine symbioses with Margulis at the MBL

Boston University Marine program at Woods Hole in December. He is currently looking at Ph. D. programs for the fall of 2000.

Wier received a B.S. in plant pathology and integrated pest management, with a minor in Spanish, from the University of Massachusetts in 1994, and his M.S. in microbiology there in May of 1999. As a graduate teaching assistant, he has taught introductory biology, tropical plant biology and shade tree diseases. Last year, he also taught environmental and general science to sixth- through twelfth-graders at the Smith-Northampton Summer School.

While a research lab technician and research assistant, he conducted a tomato plant disease study at the Massachusetts Cooperative Extension Research Facility in South Deerfield, Massachusetts, and also lead a research team investigating a plant disease affecting red mangroves throughout the Caribbean.

Since 1998, Wier has worked in Margulis's lab on microbial communities—termite hindguts and microbial mats—complementary to the symbiosis theory Margulis helped pioneer. As divemaster of the Connecticut River Diver Research and Education Team for the University of Massachusetts and National Geographic Explorer, he has conducted underwater investigations of waterborne pests in the Connecticut River from South Hadley to Turners Falls, Massachusetts.

His publications have appeared in the *International Journal of Plant Science*, *Sport Diver*, *European Journal of Protistology* and *Science*, and his honors include a Margaret E. and Howard E. Bigelow Scholarship in 1997 and Woods Hole Travel Fellowships in 1994 and 1996. Wier is a member of the American Society for Microbiology, the American Phytopathology Society and the Symbiosis Society.

Renew Sigma Xi Membership Via Electronic Form

As a convenience to members and a cost-saving measure, you can now renew your Sigma Xi membership and pay dues via an electronic form on the Web at <www.sigmaxi.org>.

The form is located on a secure server. Any information provided is kept only in a secured location and is encrypted upon submission. To protect personal information, credit card information is not included on member records.

To complete the form, all that's needed is a member ID number (which becomes the "username" to access the form) and either a credit card number/expiration date or a bank account number, bank address and routing number for a direct debit.



Sigma Xi Presents Awards at International Science Fair

Nearly 1,200 high school students from 47 countries participated in the Intel International Science and Engineering Fair in Philadelphia last spring. Local Sigma Xi chapters provided judges, and the Society provided cash awards of \$900, \$600 and \$300 plus subscriptions to *American Scientist*, for first-, second- and third-place team projects that exemplified the interdisciplinary aspects of scientific and engineering research. Pictured on the first row (left to right) are Sigma Xi Director of Chapter Programs Ann Williams with first-place winners Federico Bacaloni, Oscar Moraga and Juan Corsich, from Junin de los Andes, Neuquen, Argentina. On the second row are second-place winners Jean-Michel Fillion and Marc-Andre Fillion, from North Bay, Ontario, with third-place winners Sri Solichatum and Nailil Hikmah, from Kudus, Jawa Tengah, Indonesia. Zakky Djamiel, a member of the third-place team, was unavailable for the photo.

1999 Sigma Xi Forum November 4-5, 1999 - Hyatt Regency, Minneapolis, MN Reshaping Undergraduate Science and Engineering Education: Tools for Better Learning

In Conjunction with the Sigma Xi Annual Meeting, November 5-7, 1999

FORUM OVERVIEW

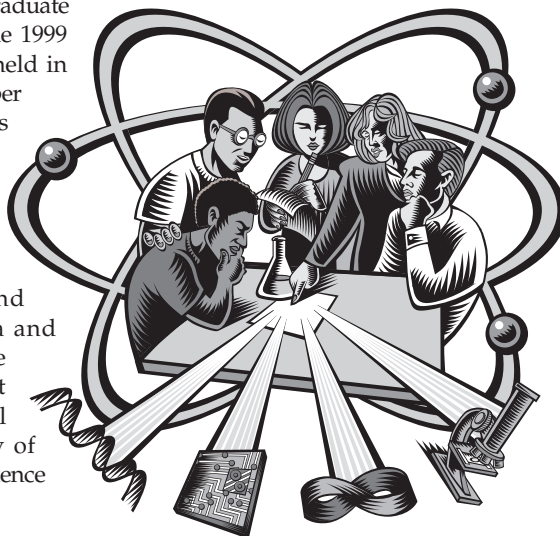
Inquiry-based learning in undergraduate education will be the focus of the 1999 Sigma Xi Forum which will be held in Minneapolis, Minnesota, November 4-5 in conjunction with Sigma Xi's annual meeting. Through a combination of workshops, demonstrations, panel discussions, poster presentations and plenary presentations, this conference will allow educators and administrators from academia and industry to experience innovative science instruction, experiment with state-of-the-art educational products and discuss a variety of models for institutional reform, science curriculum and pedagogy.

Leaders in both science and education have recognized that producing a scientifically literate population will require that, "all students have access to supportive, excellent undergraduate education in science, mathematics, engineering and technology, and all students learn these subjects by direct experience with the methods and processes of inquiry" (Shaping the Future, NSF 96-139). The teaching methods that are effective in providing this education are now established and many excellent examples of best practices are available. The 1999 Sigma Xi forum will both explore and employ these best practices.

Sigma Xi extends appreciation to the Burroughs Wellcome Fund for preliminary support for this conference.

For Registration Information

Visit: www.sigmaxi.org
E-mail: forum@sigmaxi.org
Phone: 800-243-6534 or 919-549-4691
Mail: Sigma Xi, The Scientific Research Society
P.O. Box 13975
Research Triangle Park, NC 27709



SPEAKERS AND PRESENTERS

A complete list of confirmed speakers and workshop presenters is posted on the Sigma Xi Web site and includes:

- **Rita Colwell**, Director, National Science Foundation
- **Bruce Alberts**, President, U.S. National Academy of Sciences
- **The Honorable Rush Holt (D-NJ)**, 1999 McGovern Lecturer
- **Jeanne Narum**, Director, Project Kaleidoscope
- **Elaine Hoagland**, Director, Council on Undergraduate Research
- **Mel George**, former President, St. Olaf College and chair, Shaping the Future advisory committee
- **Sidney Ribeau**, President, Bowling Green State University
- **Norman Fortenberry**, Director, NSF Undergraduate Education Division
- **Robert Beichner**, North Carolina State University
- **Karl Smith**, University of Minnesota
- **Rich Phillips**, Harvey Mudd College
- **Lee Meserve**, Bowling Green State University
- **Shelby Boardman**, Carleton College
- **John Blondin**, North Carolina State University
- **Beth Ambos**, California State University, Long Beach
- **Raymond Fornes**, North Carolina State University
- **Jim Hays**, Columbia University
- **Allen Gaines**, National Science Foundation
- **Myles Boylan**, National Science Foundation
- **Gene Brown**, Massachusetts Institute of Technology
- **John Askill & Clarence Josefson**, Millikin University
- **Michael Zeilik**, University of New Mexico
- **Gloria Rogers**, Rose Hulman Institute, Texas A&M
- **Larry Winship**, Hampshire College

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TOPICS

Plenary lectures will introduce three major topical components: best practices, creating an environment for inquiry-based learning, and tools for better learning. Concurrent sessions, demonstrations and discussion groups will explore these topics:

Inquiry in Large Classes

This session will explore pedagogy and techniques for creating a student-centered learning environment in a large classroom setting, particularly in introductory courses.

Project Based Learning

Invention and innovation are powerful learning tools that have been used successfully by the presenters in this session.

Inquiry in Small Classes

This session will explore the applications of student-centered inquiry-based learning in a small classroom setting.

Research Experiences

Various programs highlighted in this session offer research experiences for undergraduate students through classroom activities, summer programs, internships and extra-curricular opportunities.

Effecting the Cultural Change Needed to Implement Inquiry-Based Learning

This session will address the challenges of impacting attitudes among faculty and administration, locating the resources and designing the facilities needed to implement inquiry-based learning institution-wide.

Building Inquiry Into the Curriculum

How do you teach inquiry? This session will address methods and techniques for integrating inquiry-based learning into the whole curriculum.

Developing Partnerships

This session will explore how partnerships between academia and industry, between academic institutions, and between disciplines within an institution can create a strong foundation for an environment of inquiry-based learning.

Creating a Research-Rich Environment

Through examples from their own institutions, presenters will describe how they helped to create an environment that supports inquiry-based learning both at a departmental and institutional level.

Accessing Databases for Inquiry-based Learning

Large numerical and spatial databases offer opportunity for stimulating independent research in a variety of classroom environments.

Digital Libraries and Resources on the Internet

This session will explore opportunities for remote access to equipment, long distance collaboration and distance learning that support inquiry-based learning via the Internet.

Shaping the Future: The Next Generation

The NSF has been implementing the next generation of undergraduate education reform as a result of the "Shaping the Future" program.

Tools for Assessing Inquiry-based Learning

Participants in this discussion will share their experiences in assessing student learning in an inquiry-based environment.

FORMAT

As much as is possible, the program itself will employ the principles of active learning. The format will include:

- Short workshops
- Facilitated roundtable discussions
- Demonstrations of tools and best practices
- Invited and contributed presentations and posters
- Plenary presentations and panel discussions

CONTRIBUTED PRESENTATIONS AND DEMONSTRATIONS

The program will contain over 50 contributed presentations. Discussion groups, demonstrations, poster papers and workshops will address the topics listed above and will provide participants with hands-on experiences, curriculum materials and sources of information. See the Sigma Xi Web site for a complete listing of presentations and abstracts.

WEB RESOURCES

In conjunction with the planning for this conference, Sigma Xi has built an Undergraduate Education Resource Web page. Individuals with suggested links may submit them to forum@sigmaxi.org.

ANNUAL MEETING

The Sigma Xi annual meeting will begin on November 5 following the forum and will end on November 7. During the annual meeting, there will be several workshops to address Sigma Xi's role in undergraduate education reform and possible chapter activities that can support the dissemination of information about best practices and tools for better learning. Additional workshops will address issues relating to diversity, chapter programs and outreach programs.

Individuals who register for the forum may attend the annual meeting at no additional cost; however, individuals wishing to attend the annual meeting only may pay the lower annual meeting registration fee but may not attend forum sessions. Please contact the Sigma Xi office or visit the Sigma Xi Web site to receive registration information and a complete program for the annual meeting.