NATIONAL SCIENCE FOUNDATION

DIRECTORY

NSF-Supported Undergraduate Faculty Enhancement Projects

Workshops and Short Courses for Undergraduate Faculty
Summer 1998 and Academic Year 1998-99

- ***Learn new experimental techniques***
- ***Adapt and introduce new course content***
- ***Investigate innovative teaching methods***
- ***Synthesize knowledge across disciplines***
- ***Interact with experts in the field***

DIRECTORATE FOR EDUCATION AND HUMAN RESOURCES
DIVISION OF UNDERGRADUATE EDUCATION

NOTICE: If the published application deadline for a workshop has passed, interested faculty should consult the workshop contact person to inquire about remaining openings or future workshop offerings.

Directory of NSF-Supported Undergraduate Faculty Enhancement Projects

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INTRODUCTION

This 1998-99 directory informs faculty of opportunities available for their professional development through projects supported by the NSF Division of Undergraduate Education. Listed are regional and national workshops, short courses, conferences, and learning activities of novel design for faculty members in the sciences, mathematics, engineering, and technology.

Opportunities listed in this *Directory* will enable faculty members to

- learn new experimental techniques and evaluate their suitability for instructional use;
- adapt and introduce new content into courses and laboratories;
- investigate innovative teaching methods;
- synthesize knowledge that cuts across disciplines; and
- interact intensively with experts in the field and colleagues who are active scientists and teachers.

The listings are organized by major discipline. Program dates and application deadlines vary, and some projects may have special selection criteria not included in the *Directory*. **For such information and application forms, interested persons are urged to contact the individual identified in the project listing, not NSF.** NSF staff will not have easy access to this information. In some cases, vacancies develop or lists of alternates are maintained, so it may prove worthwhile to apply even after a stated deadline.

The information presented in this *Directory* is based upon that supplied by the project directors. We hope errors have been kept to a minimum, and we apologize to all for any inadvertent errors or omissions.

UFE WORKSHOPS POSTER

To assist you in spreading the word to your colleagues about Undergraduate Faculty Enhancement workshops, we have included on the following page a poster that we invite you to copy and put on bulletin boards or in mailboxes. There is a blank space on the poster where you may note the number of the room in which a reference copy of this *Directory* is available. You are welcome to copy any part of this *Directory* for dissemination.

FUTURE WORKSHOPS

A number of the workshops listed in this *Directory* will be offered again in the Summer of 1999 or the Academic Year 1999-2000, and a few are expected to run in the Summer of 2000 or the Academic Year 2000-2001.

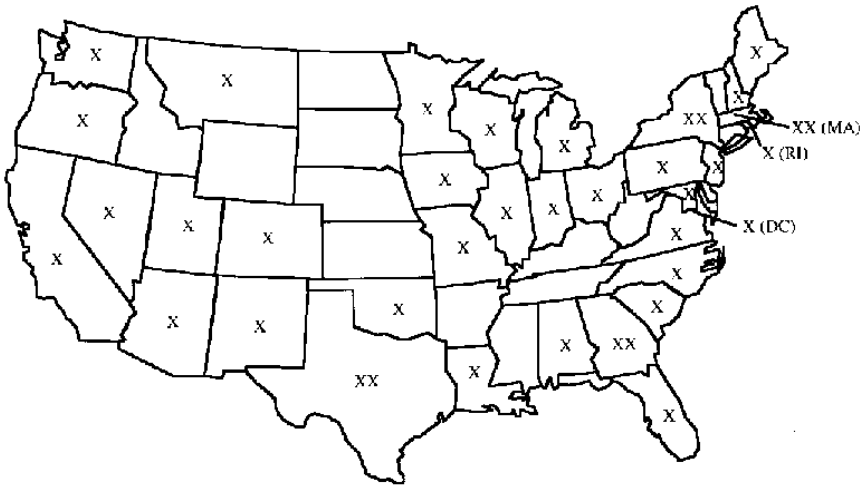
However, the Undergraduate Faculty Enhancement program will no longer operate under the guidelines that have existed in the past. Rather, the integration of faculty professional development is encouraged within projects funded in all programs of the Division of Undergraduate Education. In addition, organizations with the ability to provide multidisciplinary professional development for faculty nationwide are invited to submit proposals to the realized Course, Curriculum and Laboratory Improvement program.

The current *Undergraduate Education Program Announcement and Guidelines*, NSF 98-45, may be obtained by writing the Division of Undergraduate Education, Room 835, NSF, 4201 Wilson Boulevard, Arlington, Virginia 22230, calling 703-306-1666, or sending an e-mail request to undergrad@nsf.gov. The *Program Announcement* and information about other activities in undergraduate education may be obtained by visiting the Division of Undergraduate Education web site at http://www.ehr.nsf.gov/ehr/due/start.htm.

National Science Foundation

Undergraduate Faculty Enhancement

Workshops in 1998-99



- **Investigate innovative teaching methods**
- **Synthesize knowledge across disciplines**
- **Interact with experts in the field**
- **Learn new experimental techniques**
- **Adapt and introduce new course content**

Note the additional opportunities available through the NSF-supported Chautauqua Workshop Program described on page 5 of the Directory.

For information on workshops, please see the Directory of Undergraduate Faculty Enhancement Projects (NSF) available in room _____or visit the Division of Undergraduate Education web site at http://www.ehr.nsf.gov/ehr/due/start.htm.

Women, minorities, and persons with disabilities are encouraged to apply.

PLEASE POST

NATIONAL CHAUTAUQUA WORKSHOP PROGRAM

National Chautauqua Workshop Program **DUE 9554735**

APPLICATION DEADLINE: Six weeks prior to workshop SITE(S): call contact
DATE(S) OF WORKSHOP: call contact

The primary aim of the Chautauqua program, supported by the National Science Foundation, is to enable undergraduate teachers in the sciences to keep current and relevant. The program provides an annual series of workshops in which scholars at the forefront of various sciences and engineering have the opportunity to meet for several days with undergraduate science teachers. These workshops provide an opportunity for invited scholars to communicate new knowledge, concepts, and techniques directly to college teachers in ways that are immediately beneficial to their teaching. Designed to have an impact on the quality of undergraduate programs in two-and four-year institutions, the program is an essential element in attracting and maintaining an adequate supply of graduates in science, mathematics, and engineering.

In 1998, 85 different courses are being offered through the Chautauqua program. Most courses are offered at the field centers or satellite centers listed below. Additional information about the specific courses being offered and space availability can be obtained on the World Wide Web at http://www.engrng.pitt.edu/~chautauq/ or by consulting the contact listed.

Courses offered at

FIELD CENTERS
CAL—The California State University
CBU—Christian Brothers University
DAY—University of Dayton
HAR—Harvard University
NIU—Northern Illinois University
PITT—University of Pittsburgh
SUSB—SUNY at Stony Brook
TUCC—Temple University
TXA —University of Texas at Austin

SATELLITE CENTERS
ATL—Clark Atlanta University
DUKE—Duke University
MAN—American Museum of Natural History
FLOR—Nat. High Magnetic Field Lab, Valencia Community College
MIT—Massachusetts Institute of Tech.
UPR—University of Puerto Rico

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CHEMISTRY

Workshop for Integration of Numerical Methods into the Undergraduate Chemistry Curriculum Using the Mathcad Software **DUE 9653440**

APPLICATION DEADLINE: May 1, 1998
DATE(S) OF WORKSHOP: July 19-23, 1998

SITE(S): University of South Alabama
Mobile, AL

Physical Chemistry is the first course in the chemistry curriculum that uses numerical methods to calculate quantities of physical and chemical interest from measurable data. Because of the rapid progress in personal computers, the undergraduate student now has access to a series of software choices that can perform calculations far beyond those previously available. One of the most popular software packages in general use is Mathcad. Even as this technology is being developed, undergraduate faculty are striving to implement it in classes.

In order to aid undergraduate Physical Chemistry faculty in incorporating numerical methods into the undergraduate curriculum, we are conducting a series of week-long workshops whose goals are to produce fluency in the use of Mathcad as a tool, and to develop and present mathematical methods useful in the Physical Chemistry lecture and laboratory courses. The workshops will be held for six days at the University of South Alabama and will include 18 participants and three instructors. The general itinerary will consist of a combination of lectures, hands-on computer laboratory exercises, and panel discussions concerning the use of numerical methods in Physical Chemistry. Participants will develop a series of templates, each of which will perform a useful numerical technique relevant to the Physical Chemistry course and will be made accessible to the public through our WWW site.

A follow-up discussion group involving all participants will be set up through an e-mail network. This group will prepare a set of templates and exercises that may be published. Workshop participants will discuss their work at the fall American Chemical Society meeting in a symposium, "Numerical Methods in Physical Chemistry Using Mathcad."

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Chemical Applications of Lasers Short Course **DUE 9653392**

APPLICATION DEADLINE: March 15, 1998
DATE(S) OF WORKSHOP: June 13-20, 1998

SITE(S): James Madison University
Harrisonburg, VA

A short course is being offered during the summer of 1998 on laser technology and its applications to solving chemical problems. The offering consists of a seven-day exposure to both the theory and practical applications of lasers to all branches of chemistry. The course includes: (1) lectures on the fundamentals of lasers and related topics including their applications to chemistry, and (2) laboratory experiments done by all participants illustrating the principles presented in the lectures, including the applications. A major feature of these short courses is that the materials presented and experiments done are directly transferable to the participant's home institution. All aspects of the course are appropriate for inclusion in the undergraduate curriculum.

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Harrisonburg, VA 22807
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A Consortium for Molecular Modeling Using Workshops and the World Wide Web **DUE 9653431**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: June 21-26; July 26-31, 1998

SITE(S): Lebanon Valley
Annville, PA

This project will establish a consortium to promote incorporation of molecular modeling into the undergraduate chemistry curriculum. The consortium will be initiated by summer workshops in molecular modeling for college chemistry faculty. The workshops will make use of computer hardware and software purchased in 1995 with the help of funding from the National Science Foundation. College faculty will sign up for a week of study in the theory and application of molecular modeling as it applies to the entire chemistry curriculum. The workshops will emphasize links between laboratory experimentation and modeling on the computer as well as the use of modeling in various lecture courses. After the workshops, participants will communicate through the Molecular Modeling Consortium. The follow-up and dissemination of participants' results will be conducted electronically by use of the Molecular Modeling Home Page (www.molecules.org) which is already in place.

The project will be directed by individuals having 10 years of experience in molecular modeling and 20 years of experience using computers in chemical education. Dissemination of modeling experiments already developed is underway and will continue as other new experiments are refined.

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Undergraduate Faculty Workshops for the Integration of Chemistry and Art into Liberal Arts, Chemistry and Teacher Education Curricula **DUE 9752769**

APPLICATION DEADLINE: April 15, 1998
DATE(S) OF WORKSHOP: June 7-13, 1998

SITE(S): Millersville University
Millersville, PA

To the nonscience major, science, particularly the physical sciences, often seems inaccessible and unappealing. A science course for nonscientists on the chemistry of art focuses on a topic which is limited in scope and which capitalizes on the universal appeal of art. By showing how a knowledge of science can increase appreciation of art, science itself is shown to be accessible and appealing.

The 1998 workshop has two major goals: (1) helping undergraduate chemistry, art, and technology faculty to develop courses for nonscience majors which integrate chemistry and art; and (2) providing faculty with an interdisciplinary learning experience and an opportunity to assess its potential impact on college teaching. During the summer of 1999, two more workshops are planned for a slightly different audience: science, art, technology and education faculty who are actively involved in the education of K-12 pre-service teachers. An additional goal for the workshops in 1999 is to help teachers of teachers integrate topics of chemistry and art into their curricula.

In workshops in 1998, participants will learn through mini-lectures, hands-on laboratory activities, case studies, and museum field trips, how chemistry and art can be used to enhance and broaden nonscience majors' physical science experiences. The workshops are modeled after two chemistry courses which explore the chemistry and materials science of artists' media and ask such questions as how works of art are made, how they deteriorate over time, how they may be restored and conserved, and how they may be authenticated and distinguished from fakes. Both courses rely heavily on laboratory experiences where students investigate topics such as; (1) light and color mixing; (2) metals and the composition of coins; (3) natural and synthetic pigments and dyes; (4) glass, ceramics and polymeric materials; and (5) photochemistry of photography and facing. In addition, these courses explore the scientific investigation of works of art for selected case studies, such as the Sistine Chapel ceiling, the Getty *kouros*, the Bellini/Titan painting *The Feast of the Gods*, van Meegeren's forgeries of Vermeer, and the Shroud of Turin. Workshop participants will also discuss various teaching strategies for getting students actively involved in learning. With guidance, participants will develop curricular materials suitable to their particular courses and teaching needs. Follow-through activities will include a "Chemistry and Art" listserve, as well as the posting of faculty-developed curricular materials and resources on a "Chemistry and Art" web site. Several faculty will be recruited to participate as facilitators and mentors in the subsequent workshops.

The second set of workshops, during the summer of 1999, will bring together teams of undergraduate faculty who regularly participate in the education of pre-service teachers. Team members will come from the same college or university. This workshop will focus on the use of interdisciplinary science (specifically chemistry) and art curricula with pre-service teachers as a model for providing a possible model for the teaching of K-12 science, art, and technology.

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Instrumentation Workshop for Two-Year College Faculty **DUE 9752787**

APPLICATION DEADLINE: Rolling admission
DATE(S) OF WORKSHOPS: June 14-19, 1998

SITE(S):
Western Washington University
Bellingham, WA

July 26-31, 1998

George Mason University
Fairfax, VA

NSF has continued funding for the Summer Instrumentation Workshops cosponsored by 2YC3. FTIR, Molecular Modeling and Chromatography workshops will be held at George Mason University from June14-19, 1998. Environmental Chemistry, PC Interfacing and PC Molecular Modeling will be held at Western Washington University from July 26-31, 1998. Attendance is open to all applicants. Applications will be reviewed and selections made as they are received.

CONTACT: Richard F. Jones

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COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

Parallel Computing for Undergraduate Faculty **DUE 9653364**

APPLICATION DEADLINE: April 6, 1998
DATE(S) OF WORKSHOP: July 6-17, 1998

SITE(S): Colgate University
Hamilton, NY

This project will prepare undergraduate faculty to teach parallel computing. Upon completion of the course, participants will be prepared to add parallel computing to their curricula, either by integrating topics on parallel computing into existing courses or by teaching one or more courses specifically on parallel computing. In addition, participants will be ready to assess the feasibility of establishing a parallel computing laboratory at their own colleges. The course will begin with an intensive two-week session, in the summer of 1998, and will include lectures surveying the broad scope of parallel computing and instruction on the design and implementation of parallel algorithms. About half of the course time will be spent on hands-on development and implementation of parallel programs. During the fall, participants will work on projects, with site visits from the instructors where possible. At the follow-up session, in January or February 1999, participants will present their project results and have an opportunity to discuss the practical aspects of teaching parallel computing to undergraduates.

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A Program to Enhance Faculty Development Through Outreach and Participation in Regional Computer Science Education Conferences **DUE 9653407**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: call contact
SITE(S): call contact

This project is a cooperative effort between the ACM Special Interest Group on Computer Science Education (SIGCSE) and the Consortium for Computing in Small Colleges (CCSC) to provide outreach services to Computer Science faculty. These two organizations share the goals of improving faculty teaching skills, increasing awareness and knowledge of current issues in computer science education, and providing opportunities for faculty to share ideas. The two-year project will offer SIGCSE Technical Symposium workshops at each of the six regional CCSC conferences each year. This will allow more faculty to take advantage of the high-quality workshops from the national Symposium but within the context of a less expensive regional conference. The effectiveness of the project will be ascertained through an evaluation immediately following the workshops, and one six months later.

CONTACT: Margaret Reek
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Teaching Ethics in Computing Courses **DUE 9752792**

APPLICATION DEADLINE: April 30, 1998
DATE(S) OF WORKSHOP: first week in August 1998

SITE(S): University of South Florida
Tampa, FL

A one-week workshop on teaching ethics in computing courses will be held in each of two summers, 1998 and 1999. The point of the workshops is to promote the teaching of ethics in computing courses as intellectually rigorous, socially relevant, and effective learning experiences for students. In addition to teaching basic topics relevant to ethics and computing, each workshop will also include seminars on the use of modern, effective teaching methods.

Workshop attendees will develop model activities and assignments that can be used in teaching ethics and computing, and that they will use and revise in their own teaching. The collection of model activities/assignments from each workshop will be the immediate product of that workshop. Follow-through activities will include an e-mail discussion group for the workshop attendees, external review of the model activities/assignments, and revisions by the participants based on the feedback received.

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4202 E. Fowler Avenue
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Fax: 813-974-5456
E-mail: kwb@csee.usf.edu

Teaching Simulation to Computer Science Majors **DUE 9752706**

APPLICATION DEADLINE: April 1, 1998
DATE(S) OF WORKSHOP: August 2-8, 1998

University of the District of Columbia
Washington, DC

The importance of teaching simulation to computer science majors has become increasingly apparent in recent years, as discussed at a number of professional meetings. For this reason, there is a growing need for well-trained faculty to teach simulation. The purpose of this project is to design, organize and hold a workshop and follow-up meeting that will enhance skills for teaching simulation for undergraduate computer science majors, produce resources and modules for teaching computer simulation, and facilitate and promote interaction among simulation educators. The workshop is an outgrowth of materials developed from an NSF-CCD grant, "Teaching Simulation to Computer Science Majors."

CONTACT: Ruth Silverman
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E-mail: ruth@cfar.umd.edu

Undergraduate Faculty Workshop in Computer Networks **DUE 9752702**

APPLICATION DEADLINE: April 20, 1998
DATE(S) OF WORKSHOP: July 27-August 7, 1998

SITE(S): Michigan State University
East Lansing, MI

This two-week summer workshop focuses on undergraduate faculty enhancement in computer networks. Twenty computer science and engineering faculty from small colleges and universities will be exposed to state-of-the-art developments in computer networks, with emphasis on LANs, WANs, and emerging networking technologies. During a typical day of the workshop, time is equally divided between discussions on network concepts and theory, and laboratory assignments involving various implementations of protocols and network designs. Each participant maintains a complete notebook consisting of lecture notes, quizzes/exams, and laboratory assignments for possible use in future network courses at the home institution. Michigan State University network facilities, including the Computer Science Department's High-speed Networking Research Laboratory, will be available to participants for workshop related activities. As a follow-up to the proposed project, a quarterly newsletter will be available to participants via the Internet. Participants will attend SIGCSE99 and have an opportunity to share experiences. Experts on computer networks will be available to participants throughout the workshop.

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Michigan State University
3115 Engineering Building
East Lansing, MI 48824
Phone: 517-353-5152
Fax: 517-432-1061

Developing Multimedia-Based Interactive Laboratory Modules for Computer Science **DUE 9653464**

APPLICATION DEADLINE: May 1, 1998
DATE(S) OF WORKSHOP: July 27-August 6, 1998

SITE(S): Illinois State University
Normal, IL

This project consists of a two-week summer workshop in which participants will design and implement interactive, multimedia laboratory modules for computer science courses. Topics include: (1) design and construction of an interactive multimedia module for a laboratory exercise that includes audio, still images, full motion video, and algorithm animation; (2) use of hardware to capture audio, still images, and full motion video; (3) requirements for implementation and delivery of multimedia-based laboratory exercises in a laboratory setting; (4) presentations and discussions centered on the impact of multimedia and laboratories on learning; (5) development of portable multimedia-based laboratory exercises for the World Wide Web; and (6) software for developing multimedia-based laboratory exercises. Each participant is expected to design and develop the prototype for a working version of a laboratory module using one of several authoring tools presented. Please visit our web site at http://www.cs.llstu.edu/mmedia98.html

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Normal, IL 61761
Phone: 309-438-7671
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Teaching Mathematics, Science and Technology on the Internet: Strategies, Resources and Guidance Workshop **DUE 9752803**

APPLICATION DEADLINE: May 5, 1998
DATE(S) OF WORKSHOP: June 15-18, 1998

SITE(S): Mercy College
Dobbs Ferry, NY

There is evidence that the context for learning is undergoing a metamorphosis, and that distance learning is becoming a viable option for furthering one's higher education. Advances in technology, academic research, pedagogical innovation, the increase in the chronological age, maturity level and personal commitments of the average college student, and geography and demography have led to a substantial alteration in the structure of the learning environment.

The purpose of this workshop is to aid the participants and their institutions to deliver better online courses from the points of view of the institutions, the professors, and the students. By familiarizing the faculty primarily from smaller institutions who might not have the opportunity to readily share research about the issues and concerns of distance learning with others, we will also be providing a network for future research for our participants.

The workshop will include the following with respect to online education: discussions and projects of how to teach mathematics and science courses, and associated generic issues, and a substantial component of lab time, both guided and open. Mercy's successful online educational system, MerLIN, will be used as a working example throughout the duration of the project. Our follow-through activities will include a reconnoitering of the participants to share results of how they integrated the information provided into their courses, a dissemination package consisting of a 60-minute, edited video tape of the workshop, two study papers, and information of where to find resources on the Internet with regard to the virtual university. In addition, we will establish a repository of information regarding the teaching of online courses that will be available on the Internet.

The second year of this workshop series will be taught using distance learning giving participants the added advantage of experiencing this instructional mode from the student's perspective.

CONTACT: Marion Ben-Jacob
Department of Mathematics and Computer Information Science

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Fax: 914-674-7518

Testing Computer Software in the Undergraduate Computer Science Curriculum **DUE 9752710**

APPLICATION DEADLINE: May 15, 1998
DATE(S) OF WORKSHOP: June 15-19, 1998

SITE(S)
Clemson University
Clemson, SC

June 1999

University of Alabama
Tuscaloosa, AL

This workshop is intended to enhance the knowledge of undergraduate faculty in the area of computer software testing, with an emphasis on object-oriented software. The two-week program will be split across two summers with the first session held at Clemson University during the summer of 1998 and the second session to be held on the University of Alabama campus during the summer of 1999. This workshop will bring together 25 faculty members from across the United States who are interested in expanding the role of software testing in the undergraduate computer science courses. This workshop will provide an opportunity for the workshop participants to examine this issue in detail, working in cooperation with the workshop staff. Specifically, we will focus on: 1. A brief review of the fundamental concepts associated with object-oriented development; 2. An in-depth examination of the current state-of-the-art with respect to testing software, including those aspects of object-oriented systems that require special attention; and 3. An examination of how this material can be integrated into the curriculum at each participant's own institution.

The workshop staff includes Dr. Allen Parrish and Dr. David Cordes from the University of Alabama and Dr. John D. McGregor from Clemson University. All three are active in the area of testing object-oriented software. The diverse viewpoints of these three will stimulate discussion and provide for a variety of types of projects during the workshop.

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ENGINEERING AND ENGINEERING TECHNOLOGY

Short Course in Applied Optics for College Teachers **DUE 9653380**

APPLICATION DEADLINE: not applicable
DATE(S) OF WORKSHOP: August 3-14, 1998

SITE(S): Oakland University
Rochester, MI

This course presents 25 undergraduate teaching faculty with the principles and applications of optics in engineering. A mixture of lectures, demonstrations, hands-on laboratory experiments, and projects represents the core of this program. Topics to be covered include Fourier analysis, diffraction theory, interferometry, geometrical optics, fiber optics, holography, photoelasticity, shearography, Moiré methods, optical data processing methods, nondestructive testing, and digital image processing. Participants will work intensively with the latest in optical equipment and related instrumentation. As a follow-up, participants will be assisted in implementing applied optics programs and laboratory experiments at their home institutions.

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E-mail: HOVAINESI@oakland.edu

Measure Up Dimensional Metrology Summer Institute **DUE 9752032**

APPLICATION DEADLINE: April 1, 1998
DATE(S) OF WORKSHOP: June 14-19, 1998

SITE(S): Madison Area Technical College,
Madison, WI

Twenty-five high school and technical education teachers will work with experts to develop teaching modules on metrology, industrial statistics, international measurement and calibration standards (ISO 9001), and physics. These participants will use electronic media to plug into a network of metrology and related experts from companies such as the Ford Motor Company, Brown & Sharpe, and Giddings & Lewis. They will also work on state-of-the art metrology equipment in Madison Area Technical College's laboratory and take home a kit including a caliper, a micrometer, some gage blocks, and a metrology textbook. On a rotating basis, teachers will be able to check out a more comprehensive metrology kit including combination sets, sine bar, scratch plates, micrometers, gage block set, calipers, optical flat and monochromatic light. Finally, teachers can use a metrology listserve to stay in touch with various experts and with each other once they get home.

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Semiconductor Manufacturing Training **DUE 9602349**

DATE(S):	APPLICATION DEADLINE(S):	SITE(S):
January 5-8, 1998	call contact	SMT Laboratory Albuquerque TVI
March 10-14, 1998	Full	SMT Laboratory Albuquerque TVI
May 11-15, 1998	Full	SMT Laboratory Albuquerque TVI
June 23-27, 1998	call contact	SMT Laboratory Albuquerque TVI
August 10-14, 1998	call contact	SMT Laboratory Albuquerque TVI
October 6-10, 1998	call contact	SMT Laboratory Albuquerque TVI

The goal of project Training for Industry Education (TIE) is to improve training in semiconductor manufacturing processes and techniques primarily at the community college level and secondarily at the high school level through faculty training workshops. Over 120 faculty will have the opportunity to work in Albuquerque's Technical Vocational Institute (TVI) Regional Semiconductor Manufacturing Training Lab conducting experiments, using semiconductor equipment, learning semiconductor processes, and practicing skills required of manufacturing technicians. Workshops will promote an exchange of ideas and information on ways to teach this material with limited or no access to a cleanroom.

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Packaging of Microelectronic Devices **DUE 9653375**

APPLICATION DEADLINE: March 15, 1998
DATE(S) OF WORKSHOP: July 6- 10, 1998;
July 20-24, 1998

SITE(S): College of Engineering
San Jose State University
San Jose, CA

Four week-long short courses on Microelectronic Packaging will be offered over a two-year period. Microelectronic packaging, which is the technology of encapsulating semiconductor devices, is an interdisciplinary field requiring knowledge from several traditional engineering and science disciplines. The subject matter of the short course will be of interest to electrical, mechanical, materials, and industrial engineering faculty. Hands-on laboratory exercises that emphasize multidisciplinary package design, long term reliability, and manufacturing operations will be a major component of the course. A field trip to a local Silicon Valley industry will enhance the learning process. Examples of how the short course material can be integrated into existing curricula will be provided. Support will be provided for participants introducing these concepts at their home institutions. This will be monitored on an ongoing basis through questionnaires and e-mail contact. Pertinent information such as problems, solutions, and new laboratory exercises will be compiled and distributed in a periodic newsletter to all participants. San Jose State University's College of Engineering will serve as a depository for this material. All participants will receive a manual on "Laboratory Exercises in Microelectronic Packaging." The manual will also be available to other interested university faculty. An independent evaluator will conduct, compile, and distribute course evaluations by participants.

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Industry–Education Conference on Workforce Development for the United States Semiconductor Industry **DUE 9653429**

APPLICATION DEADLINE: June 17, 1998
DATE(S) OF WORKSHOP: August 3-6, 1998

SITE(S): Portland Community College
Portland, OR

Developing a competitive, world-class technical workforce for our nation's semiconductor industry is a big challenge facing our country today. Community colleges and secondary schools are increasing such programs to prepare the needed workforce. This project continues a successful national conference on advanced technological education in semiconductor manufacturing that has serves as a forum for educators and industry people to share best practices, learn about industry needs, and enhance faculty capability through presentations and workshops. For more information see Maricopa Advanced Technological Education Center (MATEC) Home Page, http://matec.org.

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Professor Training Course for Geosynthetics **DUE 9653395**

APPLICATION DEADLINE: February 15, 1998
DATE(S) OF WORKSHOP: August 2-7, 1998

SITE(S): Auburn University,
Auburn, AL

Geosynthetics (polymeric materials used in civil engineering projects) are starting to be used in civil engineering structures, but few graduating civil engineers receive instruction on how to use them. Many of the practicing engineers who use them do so without an adequate background. Because geosynthetics can provide less expensive, more elegant, and more efficient designs, there is a need to improve the education of undergraduate civil engineering students. Geosynthetics are used in roads, landfills, earth slopes, dams, retaining walls, erosion control, drainage structures, and agriculture.

The objectives of the Professor Training Course for Geosynthetics are to: (1) teach Civil Engineering professors about geosynthetics so they can teach their students about geosynthetics; (2) provide class notes for professors to use in incorporating geosynthetic designs in their courses; and (3) provide motivation, samples, informational contacts, and instructional materials to professors to assist them in incorporating geosynthetics instruction into their courses. The courses will be offered once a year to 35 professors unacquainted with geosynthetics. The objectives will be met through an intense week-long series of seminars. Participants will receive instruction from experts from academia and the private sector who are teachers, researchers, and practitioners in geosynthetics.

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Team-Oriented, Project-Based Collaborative Learning Workshop for Engineering Faculty Development **DUE 9752726**

APPLICATION DEADLINE: May 1, 1998
DATE(S) OF WORKSHOP: July 19-24, 1998

SITE(S): University of Notre Dame
Notre Dame, IN

This proposal is for the development of a week-long faculty workshop that is intended to assist mechanical, electrical and computer engineering faculty in the development of project-based, collaborative learning exercises. The goal is to present a workshop in which faculty will participate in a "hands-on" project in order to develop an understanding of how fundamental topics in the engineering curriculum can be applied in engineering practice—to make a distinction between "academic problem solving" and "engineering decision making." The workshop will group faculty in small design-build teams, provide them with a "statement of opportunity," a schedule, computing, fabrication and material resources, and technical support. Each faculty team will define, design, fabricate and demonstrate an autonomous, computer-controlled, electro-mechanical system. The purpose of the project is to provide these faculty with the opportunity to apply their own discipline expertise to team-based decision making in the product development process. This experience can then be used by participating faculty in developing similar experiences for their own curriculum. Part of the workshop will include establishing specific project goals, identifying deliverables, such as written or oral reports and prototypes, appropriating resources and developing effective project schedules. The unique feature of this two-year project is that the faculty will actually be engaged in the team-based product and process development process, so they can carry their own experience back to their classroom, not those from a book or lecture.

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Digital Signal Processing and Applications **DUE 9752735**

APPLICATION DEADLINE: May 11, 1998
DATE(S) OF WORKSHOP: July 20 -24, 1998
July 27-31, 1998

SITE(S): University of
Massachusetts Dartmouth
North Dartmouth, MA
02747

The workshop will combine both the lecture and laboratory components of digital signal processing (DSP), with a special emphasis on the laboratory component, and provide participants with valuable hands-on experiences. The 40 undergraduate faculty participants (20 in each session) will implement a wide range of experiments and mini-projects such as finite and infinite impulse response filters, adaptive filters, and fast Fourier transform using both real-time DSP techniques. Hardware tools include the TMS320C31 Digital signal processing Starter Kit (DSK) with input and output support, signal generator and analyzer, scope, etc. Digital signal processors have found their way into a number of applications such as communications and controls, instrumentation, graphics, speech, and image processing. Participants will learn how software and hardware experiences can motivate their senior students and how to integrate these experiences into courses at their home institutions.

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Teaching Teachers to Teach Engineering **DUE 9752810**

APPLICATION DEADLINE: April 20, 1998
DATE(S) OF WORKSHOP: July 26-31, 1998

SITE(S): United States Military Academy at West Point
West Point, NY

This one-week short course will be offered during the summer at the United States Military Academy, West Point. The goal of the program is to raise the standard of teaching excellence in undergraduate engineering programs nationwide by increasing the number of engineering faculty who have studied and practiced sound, proven teaching methods. The principal objectives of the short course are (1) to provide a diverse group of 24 relatively inexperienced engineering: educators with an opportunity to make substantive improvements in both the effectiveness and efficiency of their teaching; and (2) to provide six additional senior faculty members or administrators to observe the course, for the purpose of establishing similar programs at their own institutions. The course strives to meet the needs of faculty from two-year and four-year teaching and research institutions and to achieve appropriate representation from groups that are typically underrepresented on engineering faculties—women, African Americans, Hispanic Americans, Native Americans, and individuals with disabilities.

In a series of workshops, the short course addresses topics in organization and presentation of classes, establishing objectives, student learning styles, instructional technology, student-teacher relations, promotion and tenure, and success in academia. Working in small groups, participants will prepare and present practice classes and will be critiqued on their performance by the T4E faculty and their fellow participants. Through this experience, participants will build confidence and poise; they will significantly improve their ability to prepare classes efficiently; and they will develop the self-assessment skills necessary for continued long-term improvement after the short course. This highly focused, week-long immersion experience will provide a foundation on which participants can build their own individual teaching styles, consistent with their own personalities and teaching environments. Following the workshop, participants are expected to interact with faculty at their own institutions to promote the cause of teaching excellence.

The course textbook—*Teaching Engineering* by Wankat and Oreovicz—is provided to participants at no cost. The course will be conducted at the historic United States Military Academy, the nation's first school of engineering. More information is available at http://www.dean.usma.edu/cme/outreach/t^4eflyer.htm.

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Vacuum Technology Workshop **DUE 9602373**

APPLICATION DEADLINE: March 13, 1998
DATE(S) OF WORKSHOPS: March 23-25, 1998
June 15-17, 1998

SITE(S): Portland Community College
Beaverton, OR

These three-day workshops will cover basic vacuum principles which include: gas laws; molecular versus viscous flow; and pressure units. Other topics include: vacuum system design; rough and high vacuum pumps/gauges and their operation; leak detection; and the use of residual gas analyzers. The workshop will include laboratory exercises utilizing Varian Mini-Pumping Station-Based Training System, helium leak detectors, gas analyzers, Lametcher, and a gold evaporator.

More information is available at http://matec.org/vacwksp.html

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Electromechanical Devices Workshop **DUE 9602273**

APPLICATION DEADLINE: March 9, 1998
DATE(S) OF WORKSHOP: March 16-18, 1998

SITE(S): Northern New Mexico
Community College
Espanola, NM

This hands-on workshop will provide information and teaching resources for faculty teaching electromechanical devices topics and courses. The workshop will cover electronics, motors (DC, AC, Stepper), controllers for motors, industrial sensors, pneumatics, hydraulics, and programmable logic controllers (PLC's). Laboratory exercises using SEC's motor control lab, TII's pneumatics, hydraulics, and industrial sensors trainers will also be included in the workshop.

More information is available at http://matec.org/sdcal/emd.html

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Semiconductor Manufacturing Process Workshop **DUE 9602373**

APPLICATION DEADLINE: May 20, 1998
DATE(S) OF WORKSHOP: May 27-May 30, 1998

SITE(S): Texas State Technical College
Sweetwater, TX

This workshop is designed to acquaint the participants with the basic fundamentals of semiconductor processing. The uniqueness of this workshop is that the attendees actually process silicon wafers in a laboratory through various key process steps by observing the typical semiconductor industry practices. However, the laboratory is designed to serve as a teaching facility, therefore many pieces of equipment are intentionally manually operated for better understanding by the student. The use of sophisticated equipment and high-class cleanroom characteristics will be taught to the participants.

For more information please see our web site at http://matec.org./sdcal/smpsweetwater.html

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Developing Wireless Communications Systems **DUE 9752731**

APPLICATION DEADLINE: April 15, 1998
DATES OF WORKSHOP: call contact

SITE(S): Polytechnic University of NY
Farmingdale, NY

Technology that can be used for wireless information networks is currently undergoing rapid development. Such networks are taking an expanding role in the world's telecommunication infrastructure, and interest in wireless communications is growing faster than ever. It is important for schools of electrical engineering and computer engineering to prepare their students for careers in this important discipline.

This project offers a short course suitable for electrical engineering undergraduate faculty interested in developing a Wireless Communication Systems Laboratory at their home institution, or including wireless topics in the courses they teach.

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Introductory Engineering Design, Engineering Design Graphics (EDG), and Technical Graphics Problem Solving **DUE 9752714**

APPLICATION DEADLINE: April 15, 1999
DATE(S) OF WORKSHOP: June 1999

SITE(S): Central Michigan University
Mt. Pleasant, MI

The principal objective of the proposed project is to greatly improve the quality of entry-level design, Engineering Design Graphics (EDG), and Technical Graphics (TG) courses throughout the United States. Faculty members teaching at community colleges, technical institutes, and universities are the target population. Their students will benefit from the content and process developed during the project. The project will initiate greater understanding about the engineering design process that exists in university/college/technical institute level introductory (freshman/sophomore) design, EDG and TG classes. The project will bring together educational and industrial leaders with concerns and responsibilities for introductory design via a national, eight-day workshop.

The workshop participants will develop strategies and curriculum materials suitable for infusing the design process into introductory level courses. Faculty participants will be drawn from community college, technical institute, and university ranks. A monograph containing the workshop outcomes will be developed and disseminated nationally. Twenty-seven faculty participants and a minimum of five consultants will be directly involved in the preparation of 700 monograph copies (150 pages each) which will be disseminated and used by faculty to affect at least 100,000 undergraduate and 1,500 pre-college students.

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Teacher Institute in Materials Science and Technology **DUE 9602360**

APPLICATION DEADLINE: March 25, 1998
DATE(S) OF WORKSHOP: July 5-18, 1998

SITE(S): Kennewick High School
Kennewick, WA

Pacific Northwest National Laboratory, the University of Washington, the U.S. Department of Energy (DOE), along with the National Science Foundation's Advanced Technology Education project on Materials Aspects of Manufacturing Technology, are pleased to announce the 1998 Teacher Institute in Materials Science and Technology (MST). This intensive institute is designed to introduce current and pre-service teachers to the exciting and motivational field of Materials Science and Technology. The Institute will be held July 5-18 at DOE's Pacific Northwest National Laboratory and Kennewick High School.

The institute will begin Sunday evening, July 5, with a welcoming reception and conclude with a final luncheon on Saturday, July 18. The format includes work with materials scientists and engineers from Pacific Northwest National Laboratory, Edmonds Community College and University of Washington, and seminars, field trips and hands-on laboratory time in a local high school MST classroom. Participants will explore the world of metals, ceramics, polymers, and composites. Working with researchers, technicians, and mentor teachers, they will enhance their knowledge of the nature and behavior of materials; conduct experiments; integrate writing and sketching in a journal to record observations; and explore creativity, innovation, and scientific inquiry in the workplace. Participants will leave the Institute with a Materials Science and Technology Teacher handbook developed by Pacific Northwest National Laboratory staff and Northwest teachers. The handbook will help them conduct an MST course in their home classroom and help administrators, principals, and specialists support the implementation of MST. In addition, all participants will receive a document that shows the alignment of MST with the Washington Essential Academic Learning Requirements in science, mathematics, communication, writing, and art.

Participants selected for the MST Institute must commit to:

- Attending as a team if possible; individuals may also be considered;
- Attending and participating in all Institute activities;
- Developing a blueprint for the implementation of MST in their high school and/or middle school and for interactions with local community colleges, as appropriate; and
- Completing evaluations of the Institute.

Application information is available from Karen Wieda, Education Specialist, Pacific Northwest National Laboratory, P.O. Box 999, MS K1-12, Richland, Washington 99352
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A Multidisciplinary Workshop on Novel Process Science and Engineering Principles **DUE 9752789**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: July 26-30, 1998

SITE(S): Rowan University
Glassboro, NJ

Process engineering is critical to virtually all modern products used by society. In addition, process engineering spans many disciplines including chemical, petroleum, biochemical, environmental, food, materials production and manufacturing. Society is requiring these products to be produced in an environmentally benign manner that necessitates the infusion of new and emerging process engineering concepts. Many faculty do not have the experience in novel process engineering required to teach this information to students. For example, many new faculty from engineering, science, mathematics and technology are hired with no industry experience and only have a highly specialized knowledge of one particular field. Faculty should have experience in emerging process engineering technologies such as environmental processing, hazard evaluation, materials engineering, particle processing, bioprocessing, and novel unit operations.

The thrust of this proposal is to conduct two hands-on, industry-integrated workshops that have a major impact on lower level engineering, technology and science instruction as well as having a secondary impact in the preparation of future teachers. One workshop is planned for each summer, in 1998 and 1999, with participants actively recruited from under represented groups in science and engineering. Participants in these workshops will gain experience in process engineering through hands-on laboratories, industry experts, and interactive demonstrations. Through industry involvement, faculty are given an initial networking base for process engineering. Participants are required to use the given methodology to integrate novel processing into their curricula and develop an action plan for their home institution. Active learning methods are employed in the workshop and participants are encouraged to incorporate this experience into their teaching style. This state-of-the-art workshop in process engineering facilitates the integration of engineering practice into the undergraduate curriculum.

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or

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GEOSCIENCES

Satellite Meteorology Education **DUE 9752722**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: June 1-12, 1998

SITE(S): Cooperative Program for Operational Meteorology Education and Training Facility
Boulder, CO

The University Corporation for Atmospheric Research (UCAR) will enhance undergraduate education in satellite meteorology by means of a comprehensive, two-week faculty course for university faculty, to be held at the Cooperative Program for Operational Meteorology, Education and Training (COMET) classroom facilities in Boulder, Colorado. This will help fulfill the need to upgrade satellite meteorology education, which at present receives very limited treatment in undergraduate programs, despite recent advances in meteorological satellite capabilities. As a result of the program, participants will be able to exploit new technologies to improve their knowledge of satellite meteorology through enhanced understanding of remote sensing principles and applications to weather forecasting and research. Participants will engage in a follow-up project to develop online instructional materials which, along with the faculty course materials, will be made widely available via the World-Wide Web.

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Atmospheric Measurements and Instrumentation **DUE 9602351**

APPLICATION DEADLINE: April 15, 1998
DATE(S) OF WORKSHOPS: July 19-25
July 26-August 1, 1998

SITE(S): Colorado Mountain College
Steamboat Springs, CO

This course will provide hands-on instruction in the selection, installation and use of meteorological instruments, with special focus on applications to environmental monitoring. The course will also include a computer-based training module on atmospheric technology, which participants can take back to their classroom. Course fee for this Advanced Technological Education Workshop is $150 and includes food and lodging at Colorado Mountain College and the mountaintop Storm Peak Laboratory. Graduate credit is available.

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Improving Delivery in Geoscience: Techniques and Strategies in Undergraduate Geoscience Teaching for all Students **DUE 9653435**

APPLICATION DEADLINE: March 15, 1998
DATE(S) OF WORKSHOP: July 18-24, 1998

SITE(S): University of South Carolina
Columbia, SC

The American Geological Institute will offer three one-week workshops for teams of undergraduate faculty and K–12 teachers in the geosciences and related academic fields. Undergraduate institutions, including two- and four-year colleges, are invited to assemble teams of three to five members who would like to design or revise an introductory geoscience course. For each conference, participants will be composed of eight to ten teams of three to five faculty. Participants will learn a variety of ways to use alternative teaching strategies, incorporate state-of-the-art instructional technology, and employ a selection of assessment tools. Each participant will revise or design a geoscience course that meets a specific need in their institution and could serve as a model for the design of courses. Some of the teaching strategies to be discussed are the use of enhanced lectures, group collaboration, jig-sawing, think-pair-sharing, and other techniques. The National Association of Geoscience Teachers will sponsor a symposium at the annual meeting of the Geological Society of America, at which the workshops will be discussed and each team will analyze the development, organization, and evaluation of its course. The first workshop was held in July 1997 at the Colorado School of Mines. The second workshop will be held at the University of South Carolina in Columbia, South Carolina in July 1998, with the third workshop at Cypress College in Southern California in 1999.

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Great Lakes Consortium Summer Practicum in Applied Environmental Problem-Solving **DUE 9752783**

APPLICATION DEADLINE: March 16, 1998
DATE(S) OF WORKSHOP: June 7-22, 1998

SITE(S): Lake Ontario at SUNY Oswego

The goals of the Great Lakes Consortium Summer Practicum in Applied Environmental Problem-Solving are to encourage participants to revise or create new multidisciplinary environmental science courses based on applied environmental problem solving; to expose participants to innovative new theoretical and practical techniques being used in the Great Lakes basin; and to introduce faculty to involved scientists. The project theme (environmental impact analysis) ties together the methods necessary for analyzing and solving environmental problems. The project also addresses the gap existing between the availability of up-to-date information about a major national resource (the Great Lakes-St. Lawrence ecosystem) and what is currently taught at the undergraduate level. The practicum will familiarize participants with related developments in environmental analysis; cascading trophic dynamics, particle-size spectrum theory, and endocrine system-disrupting pollutants; and environmental sampling, analytical methods, and mass balance/bioenergetics modeling of toxic chemical dynamics in aquatic ecosystems. Scientists with the Great Lakes Research Consortium who have made significant contributions in these fields are leading each of the practicum's modules. Although the Great Lakes are used as an example, the theories, methods and models learned are applicable anywhere. The three-week practicum in June 1998 combines field and lab experience, classroom instruction and skills development exercises in four course modules: (1) Great Lakes Ecosystem Science/Issues and Lake Ontario Environments; (2) Techniques for Analyzing Toxic Chemicals Commonly Found in the Great Lakes; (3) Ecosystem Modeling with Spreadsheets: Mass Balance/Bioenergetics, and (4) Writing an Environmental Impact Statement (EIS) and Developing Problem-solving Curricula for Undergraduates.

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The Earth and Space Science Technological Education Project (ESSTEP) **DUE 9602408**

APPLICATION DEADLINE: March 1, 1998
DATE(S) OF WORKSHOP: July 6-18, 1998

SITE(S):
Cypress, CA

July 27-August 8, 1998 Boulder, CO

ESSTEP workshops promote and disseminate exemplary educational applications of technologies such as geographical information systems, image processing, global positioning systems, multimedia, and the Internet for classroom use in grades 8-14. This program is intended for earth, physical, and life science faculty as well as mathematics, technology, and geography. ESSTEP increases faculty knowledge and use of these new technologies while providing support for classroom infusion. ESSTEP's approach to teaching and learning is inquiry-based and modeled after the recommendations of the National Science Education Standards.

More information is available at http://www.geosociety.org/educate/teach.htm

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National Association of Geoscience Teachers Workshops for Early Career Faculty in the Geosciences: Teaching, Research, and Managing Your Career **DUE 9752794**

APPLICATION DEADLINE: to be determined
DATE(S) OF WORKSHOP: to be determined

SITE(S): to be determined

A four-to-five day workshop will include plenary sessions, mini-workshops, and break-out groups on the following topics: the basics of teaching, active learning strategies, integrating research and research-like experiences into all geoscience classes, supervision of undergraduate research, grading and assessment, and life as a new faculty member. Examples of syllabi, assignments, and activities for introductory and upper-level geoscience courses will be distributed, and participants and presenters will meet to share ideas and strategies for teaching those courses. Workshop is open to an intended audience of faculty members in their first four years of full-time teaching. Instructors include Heather Macdonald (College of William and Mary), Barbara J. Tewksbury (Hamilton College), and Randall M. Richardson (University of Arizona).

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INTERDISCIPLINARY

Partnerships: Interdisciplinary Workshops and Materials **DUE 9752757**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: July 26-1 August, 1998

SITE(S): Dartmouth College
Hanover, NH

The current interest in interdisciplinary studies recognizes the value of tearing down some of the walls between disciplines in order to address the problems students face in making connections between disciplines, recognizing commonalities and distinctions in ways of thinking and knowing, and transferring what they learn in one context to another. The greatest impediments which prevent faculty from teaching in an interdisciplinary context are not knowing what to do and not feeling comfortable teaching out of field.

The Mathematical Association of America (MAA), with NSF support, will sponsor four intensive six-day workshops over two summers, in 1998 and 1999. Participants will include over 150 faculty in teams of two to four, representing mathematics and one or more partner disciplines. Each of the four workshops focuses on interdisciplinary curriculum materials combining mathematics and partner disciplines. For example, the theme of one workshop may be Mathematics and the Life Sciences and another may be Mathematics, the Humanities, and the Arts. A participating institution will send a team of faculty representing at least two of the disciplines being studied. Each team member will study and work in all of the interdisciplinary materials presented that have been developed at one or more of the Mathematical Sciences and Their Applications Throughout the Curriculum (MSATC) projects sponsored by the National Science Foundation. The team will study and work cooperatively, sharing expertise, and developing or adapting materials to be used in courses at their home institution the following academic year. Each workshop will be led by an interdisciplinary team of faculty from at least one of the MSATC projects. Teams will be chosen based upon a commitment to teach interdisciplinary materials at their home institutions. Their intention to use such materials in courses for the preparation of K-12 teachers is especially desirable. A balance will be sought to reflect diverse institutions and the populations they serve.

For more information please see our web site at http://www.maa.org

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Reciprocal Science Success: Visions and Strategies **DUE 9653423**

APPLICATION DEADLINE: March 12-15, 1998
DATE(S) OF WORKSHOP: April 22-26, 1998

SITE(S): Towson University
Towson, MD

All college and university science faculty, not just the "thin chalk line" of science educators, should be prepared to make science more inclusive and engaging; all science education faculty should maintain a strong science background and a high level of research enthusiasm. The purpose of this two-year project is to facilitate reciprocal science success for college/ university science faculty who have taught less than five years and science education faculty who have taught five or more years, in order to improve preparation of future teachers, especially for urban environments. In all, 24 participant pairs will attend four-day workshops, plan and implement collaboration for at least one full semester at their home institution, and assisted by project staff, conduct an outreach activity on their own campus. Participants will have on-site urban science experiences at the elementary, secondary, and collegiate level and instruction in strategies to engage minorities in active learning, the use of AAAS science standards, and assessment techniques. Teams will construct rubrics and performance assessments to evaluate their own home-based collaboration and outreach projects with particular attention to ways that science education faculty can become more connected to local science research activities to improve science education for future teachers.

Collaboratively, science and science education faculty will design strategies to enhance the active participation of minorities in science and teacher preparation on home campuses.

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An NSF Innovation Channel to Enhance the Faculty Forum **DUE 9752746**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: November 1997- June 1998

SITE(S): North America and
Asia Pacific

This workshop is designed for university and community college science, mathematics, engineering, and technology (SMET) faculty and is open to applicants by registration. Between 10-12,000 participants are expected. Noted faculty will present best practices for SMET educational pedagogy via satellite broadcast to practitioners viewing telecasts at sites throughout North America and the Asia Pacific. More information is available at http://www.ntu.edu

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Best Practices in Environmental Technology Education **DUE 9454638**

APPLICATION DEADLINE: February 14, 1998
DATE(S) OF WORKSHOP: May 13-15, 1998

SITE(S): Airport Marriott
St. Louis, MO

The intent of this focused workshop is to produce a report for the National Science Foundation and Practices in Environmental Technology Education (PETE) members. There will be 10 concurrent sessions; each facilitated by a North Central PETE Steering Committee Member. The 10 sessions will cover the following topics: Curriculum; Labor Market Access; Advisory Committees; Instructor Qualifications; Professional Development; Teaching Styles and Methods; Measuring Student Achievement; College Transfer and Articulation Agreements; Job Placement/Advancement and Student Recruitment; and Program Evaluation/Continual Quality Improvement.

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Digital Image Processing for Teachers **DUE 9454651**

APPLICATION DEADLINE: February 6, 1998
DATE(S) OF WORKSHOP: February 21, 1998

Technical Science Academy at the Amarillo
Center for Advanced Learning
Amarillo, TX 79106

Participating in Image Processing for Teachers will provide Technical Sciences Academy teachers, as well as others in Amarillo, the opportunity to learn this exciting new use of technology. Teaching students to manipulate and analyze actual scientific data allows them the thrill of actual research by using this revolutionary technique.

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New England Science Faculty Enhancement Collaborative **DUE X**

APPLICATION DEADLINE: February 15, 1998
DATE(S) OF WORKSHOP: June 7-11, 1998

SITE(S): Hampshire College
Amherst, MA

There is a need for programs that assist professors in incorporating student-active approaches into their classrooms. To address this, Hampshire College is offering a program of workshops at four sites that target professors. The objectives of the program are to: (1) effectively reach large numbers of faculty through the "train the trainers" model; (2) give workshop leaders effective training and tools for leading regional workshop programs; (3) introduce workshop participants to effective student-active approaches and the learning theories underlying them; (4) help workshop participants incorporate student-active approach(es) of their choosing into a course; (5) link faculty experienced with student-active teaching (mentors) with inexperienced faculty; (6) bring together a diverse group of faculty from different disciplines and types of institutions, with special emphasis on underrepresented groups in science; and (7) use consortia as an effective means to identify workshop leaders and participants.

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Interdisciplinary Summer Institutes on Puget Sound **DUE 9653466**

APPLICATION DEADLINE: April 15, 1998
DATE(S) OF WORKSHOP: June 21-27, 1998

SITE(S): Evergreen State College
Olympia, WA

The goals of the project are to: (1) improve the technical knowledge of faculty from two- and four-year colleges in Washington State relative to the cultural history, environmental issues, and the ecology of Puget Sound; (2) provide the opportunity to learn about new interdisciplinary curricular designs; and (3) learn and try out new field techniques and new pedagogical approaches. Three six- or seven-day interdisciplinary summer institutes will be offered over the two-year period of the project, which will support a total of 75 faculty participants. Follow-up activities include a small seed grant program, follow-up sessions, an end-of-project symposium on Puget Sound, and communication among participants via the Internet and a newsletter. Various end-products include a slide set, an annotated bibliography, and a resource guide. The Summer Institutes, which are the core of the project design, are miniature versions of some of the most successful interdisciplinary programs in Washington. They provide a "high challenge" curriculum and are based on pedagogical principles that are recommended by an increasingly convergent literature on improving education in the sciences.

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Materials Science and Technology **DUE 9752721**

APPLICATION DEADLINE: April 15, 1998
DATE(S) OF WORKSHOP: June 21-26, 1998

SITE(S): University of Florida
Gainesville, FL

Materials science and technology impacts a number of industries. The fields of microelectronics, transportation, energy storage, power production, biomedical devices, and environmental science and technology are typical examples. Physics and chemistry form the basis for these technologies, and they are applied in a number of engineering disciplines. The expertise needed to impart the knowledge and expose the students to available opportunities in materials science and technology is not commonly available in two- and four-year colleges. In addition, high school students are often completely unaware of the field, its importance, and the opportunities that exist for future employment and contributions. Workshops which introduce advanced materials science and technology to teachers at four-year colleges, community colleges, and high schools, with special emphasis on minority institutions, will be offered.

The workshops will result in the incorporation of materials science in their curricula. It is expected that this incorporation of materials science into the physics, chemistry, and engineering curricula will enable the students to understand the fundamental principles of materials science. It will also introduce them to the exciting higher educational opportunities and professional careers available to them. This project also includes a plan for assessing the factors in the workshops that most affect the learning process, and then modifying the recruitment process and the workshops themselves to make them more effective. The results of the assessment process and a description of the workshops will be disseminated to other institutions in order to further expand the reach of this program.

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Annual NE/SE PETE Instructors Conference **DUE 9720701**

APPLICATION DEADLINE: March 6, 1998
DATE(S) OF WORKSHOP: March 26-28, 1998

SITE(S): Holiday Inn at Universal Studios
Orlando, FL

This workshop will include 23 speakers. They will cover the following topics: Environmental Curriculum Development, Environmental Training for Certification, Tips/Demonstrations to Enhance Environmental Training, Implementing Pollution Prevention Curriculum, What Is an Environmental Technician?, Environmental Software and Hands-On Field Exercises, Green Campus Initiatives, Marketing Environmental Programs, Sustainability, EPA Resources, Student Ladders and International Opportunities. More information is available at http://nvcc.nvc.cc.ca.us/natl-pete

CONTACT: William T. Engel

or

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Technology Partnership for Computer Networking Training **DUE 9752060**

APPLICATION DEADLINE: March 6, 1998
DATE(S) OF WORKSHOP: June 8-June 19, 1998

SITE(S): MS Gulf Coast;
Itawamba CC;
MS Delta CC;
Copia Lincoln CC;
Jones County Jr. CC

The purpose of this educational training program in network technology for two-year college and middle/high school computer technology faculty is to enable the implementation of a computer network management curriculum for the two-year college technical students, a related curriculum for secondary students, and enable the utilization of computer networks as an instructional tool. The four-week workshops will involve Novell 4.11, Windows NT, and instructional uses of the World Wide Web. There are five two-year college sites and details for the training at each site can be received by contacting the project coordinator. More information is available at http://www.jcjc.cc.ms.us

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Science, Gender, and Community: A Faculty Enhancement Model **DUE 9653437**

APPLICATION DEADLINE: December 15, 1997
DATE(S) OF WORKSHOP: June 13-17, 1998 (and annual)
SITE(S): University of Wisconsin-Oshkosh

This workshop draws on the experience and expertise of participants currently involved in the University of Wisconsin System's Women and Science Program and seeks to expand the program's objectives and disseminate its successful innovations to the national level. The overarching goal of the program is to promote systemic change in the way that science and science education are regarded and carried out within the UW System. Within this framework, the ultimate goal is to attract and retain qualified female students in science, mathematics, and engineering by improving the quality of undergraduate science education for women and men through faculty development activities.

This workshop will bring together junior and senior faculty from universities around the country and engage them in collaborative active learning experiences. Using gender-friendly approaches, participants will develop and implement course materials and other products that address the content, pedagogy, and climate in undergraduate science courses. Four components will be established: (1) an Institute that allows faculty from a variety of higher education institutions to work with one another in modifying their science curricula; (2) follow-up activities to the Institute, including electronic discussion groups; (3) the development of products, such as course syllabi and lab materials, which integrate the new gender-friendly scholarship into disciplinary and interdisciplinary models; and (4) a national consulting service that will provide expert advice to institutions that are in the process of reassessing the pedagogy, process, and/or content of their science courses. The intent is that by the third year of the project the programs will be fully self-supporting.

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Shodor Computational Science Institute **DUE 9752815**

APPLICATION DEADLINE: April 10, 1998
TITLES AND DATE(S) OF WORKSHOPS:

SITE(S):

Introduction to Computational Science Education: Running and Modifying Models for Exploration and Discovery, June 7-18, 1998 (Optional work period June 19-20.)	The Shodor Computational Science Institute Durham, NC
Advanced Topics and Project Development in Computational Science, June 18-26, 1998	The Shodor Computational Science Institute Durham, NC

The Shodor Computational Science Institute (SCSI) is a series of workshops, seminars, and support activities to introduce the authentic use of numerical models across the undergraduate curriculum. The SCSI project will enable teams of mathematics, science, and computer science faculty at small to medium size colleges to work together to enhance their professional standing through the use of technology and the wider use of mathematical modeling and the tools of computational science within a truly interdisciplinary approach. This focus on modeling will enable these faculty to learn how to do computational science and how to teach computational science in engaging and enriching interactive environments incorporating the same tools, techniques, and technologies which characterize the modern practice of science and engineering. During a series of workshops and follow-on activities, participants progress from finding and assessing models, to running other people's models, to modifying these models, to ultimately writing their own. At each stage, the faculty grow to understand the importance of challenging the model and its numerical implementations, asking themselves and their students, "How do we know if it is right?" The project includes campus visits, a series of interdisciplinary summer workshops which cover the principles and practices of computational science at the introductory, intermediate, and advanced levels, and seminars and modeling-based activities back at the home institutions. Continuous support and follow-up, materials development, access to HPCC and visualization resources, and evaluation are coordinated and enabled by using collaborative tools and electronic networks. More information is available at http://www.shodor.org.

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1998 Instructor Resource Conference **DUE 9714425**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: April 1-4, 1998

SITE(S): The Saint Francis Hotel
Santa Fe, NM

South Central and Northwestern Practices in Environmental Technology Education (PETE) will host a joint 1998 Instructor Resource Conference, April 1-4 in the historical and colorful city of Santa Fe, New Mexico. This conference is targeted at secondary- and post-secondary faculty as well as government representatives from the EPA and Small Business Administration. The 1998 conference will feature a series of half-day workshops in which faculty write lesson plans, detail how material will be integrated into their programs, plan recruiting strategies, or write a continuing/contract education program development guide. A partial list of sessions includes water sampling techniques, performing pollution prevention audits, best practices in recruiting and retention, textbook authoring, and how to design an effective continuing education program.

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Pollution Prevention in Paradise (P3): East Meets West **DUE 9714425**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: August 6-8, 1998

SITE(S): Honolulu, HI

The workshop will consist of general sessions with keynote speakers and breakout sessions with specific topics. Participating faculty from community colleges and high schools will experience hands-on experience and will leave with useful instructional material. There will also be field trips associated with the workshop.

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Using Remote Sensing, Image Processing and Geographic Information Systems in Faculty Enhancement and Curriculum Development **DUE 9752778**

APPLICATION DEADLINE: July 10, 1998

DATE(S) OF WORKSHOPS:	SITE(S)
August 10-14, 1998	Foothill College Los Altos Hills, CA
August 10-14, 1998	Prince George's Community College Largo, MD
August 10-14, 1998	Brevard Community College Palm Bay Campus, FL
August 19-21, 1998	College of the Mainland Texas City, TX

With the Community Colleges for Innovative Technology Transfer, Inc. (CCITT), eight regional summer workshops will be held during two consecutive years for faculty from community colleges and senior institutions. The workshops are providing faculty with training in four technologies: remote sensing/image processing (RS/IP) in the summer of 1998 and geographic information systems/geographic positioning systems (GIS/GPS) in the summer of 1999. The project is serving approximately 120 individual faculty over the course of the project.

The project's objectives are to:

- Train undergraduate faculty in the use of RS/IP and GIS/GPS using curriculum models developed by CCITT.
- Develop additional curriculum modules integrating the four technologies into each participant's instructional area.
- Instruct faculty in the use of the Internet and its resources in developing curriculum using the four technologies.
- Develop an awareness of leading edge ideas and applications that are reshaping the disciplines through these technologies.
- Adapt and disseminate the curriculum modules developed by the undergraduate faculty participants on the national, regional, and local level.
- Increase the level of communication and cooperation among participants while developing curricula at their home institutions.

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Interactive Television Instructor Workshop **DUE 9714435**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: dates vary; usually given twice a year

SITE(S): call contact

The workshop is based upon the premise that faculty members are experienced and competent teachers. Attendees will build on that experience and learn how to use the new visual medium of two-way interactive television to develop a close relationship with students who may be hundreds of miles away. The workshop also focuses on curriculum design as it relates to converting existing courses now taught in a traditional classroom environment to a distance education environment. Workshops are conducted by connecting two institutions together via video conferencing.

For monthly schedules and information, please visit the Southwest Center for Advanced Technological Education (SCATE) Web site at http://www.scat.ttu.edu.

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SCATE Distance Learning Coordinator

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E-mail: dayoung@nmia.com

Case Studies in Science Workshop **DUE 9752799**

APPLICATION DEADLINE: April 24, 1998
DATE(S) OF WORKSHOP: June 1-5, 1998

SITE(S): State University of New York
at Buffalo
Buffalo, NY

This project works to develop case study teaching in the sciences. Although case study instruction is standard practice in business, law, and medicine, it is not common in science. Yet, the use of case studies holds great promise as a pedagogical technique for teaching science to undergraduates because it humanizes science and illustrates scientific methodology and values. This project involves faculty in a five-day workshop instructing them how to teach with cases, how to develop cases, and how to access a large body of existing case studies. Undergraduate students work with the program critiquing faculty instruction and the case study method. Developed case studies will be placed and maintained on a WWW site which, in turn, also serves as a national clearinghouse and repository for cases.

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Project Kaleidoscope **DUE 9752771**

APPLICATION DEADLINE: March 1, 1998
DATE(S) OF WORKSHOPS:

SITE(S):

Enhancing Learning Centered Environments: The Biology Department of the Future May 22 - 24, 1998	William Jewell College Liberty, MO
Planning Facilities for Undergraduate Science and Mathematics June 5 - 7, 1998	Grinnell College Grinnell, IA
Neuroscience: Blueprints for Reform June 12 - 14, 1998	Oberlin College Oberlin, OH
Interdisciplinary Programs: Connecting Within and Beyond the Sciences July 10 - 12, 1998	Montana State University Bozeman, MT
Women in Science: An Under-utilized Resource October 30 - November 1, 1998	DePauw University Greencastle, IN
Special Opportunities and Challenges: Science and Mathematics at the Urban and Commuter Institution November 6 - 8, 1998	California State University-Fullerton Fullerton, CA

Project Kaleidoscope (PKAL) is continuing its series of faculty enhancement workshops, addressing issues of interest and concern to faculty seeking to strengthen the environment for learning for undergraduate students in science, mathematics, engineering, and technology. During a three-year period, 1998 - 2000, PKAL will sponsor 25 workshops that provide faculty and their administrative colleagues opportunity to learn from the work of experienced change agents, persons who have demonstrated success in revitalizing individual classes and courses and specific labs, as well as making needed changes at the departmental, divisional, and institutional level. Workshop participants have the opportunity to:

- engage in discussions and hands-on activities relating to new pedagogical approaches (including those that use instructional technologies) that are demonstrably successful in attracting students to, and encouraging them to persist in, the study of these fields;
- explore new ideas and approaches from the perspective of potential adaptation in their own setting;
- become informed about the process of developing, implementing and evaluating reforms; and
- connect to others who share a commitment to transforming the undergraduate SME&T environment for learning.

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Teaching Computer-Intensive Resampling Techniques **DUE 9752705**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: June 1998, 1999

SITE(S): call contact

Probability and statistics are vital tools in a wide variety of fields and professions, from astronomy to zoology, and its teaching can be improved substantially with resampling. Next to calculus, statistics is probably the most taught course on college campuses. It also may be one of the least successful —students strain to remember or use formulae that distract them from the key tasks of problem formulation and data analysis. Computer-intensive resampling (an innovative technique now widely accepted among statisticians but not yet widely taught) allows students to determine sampling distributions and solve problems empirically with simulations based on sample data, rather than memorizing formulae.

This project will provide workshops to assist instructors in teaching introductory statistics using a resampling approach. Resampling is the repeated drawing of simulated samples, often from the given data, to observe the behavior of some statistic or estimate of interest. Bootstrap, Monte Carlo, and resampling counterparts to permutation (randomization) methods also are included. sometimes the term "computer-intensive methods" is used to refer to these methods generally.

There will be an initial series of meetings with instructors who already teach resampling in order to learn the issues that arise during resampling education. Next, workshops for interested statistics instructors will be held. Participants will be provided with the materials they need to return to their institutions and teach resampling. Follow-up questionnaires will be sent to participants to asses their experiences. A web site will offer some of the same materials. Two follow-up workshops will be held with participants to discuss their experiences in teaching resampling methods an "innovate, assess, adjust" cycle.

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The Art and Science of Model Building: A Workshop for College Mathematics Teachers **DUE 9752723**

APPLICATION DEADLINE: April 15, 1998
DATE(S) OF WORKSHOP: July 27-August 8, 1998
August 2-7, 1999

SITE(S): University of Montana
Missoula, MT

This workshop is designed to introduce college mathematics teachers to the art and science of model-building, and to help them gain the skill and confidence needed to introduce modeling activities in their own undergraduate teaching.

The specific theme of the workshop is "Mathematical Modeling of Environmental and Natural Resource Conflicts," a topic chosen for its intrinsic importance, rich mathematical content, and strong appeal to students. Involvement in an applied mathematical modeling project can help students understand the central role that mathematics plays in modern science, and demonstrate to them the value of further mathematical study.

The formal workshop will occur over two summers. During the intervening academic year each participant will teach an undergraduate modeling course or undertake a project at his or her home institution while keeping in contact with workshop colleagues via the Internet.

The first summer program will include two intensive weeks of formal study and field trips to learn about "real-world" environmental disputes in the Northern Rockies. The second summer workshop will be devoted to discussions of completed project and seminars on modeling issues. Younger faculty are especially encouraged to apply.

More information is available at http://www.math.umt.edu/projects/modeling workshop

CONTACT: Secretary
Mathematics Modeling Workshop

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Building Bridges: Enhancing Teaching and Research Across Institutions **DUE 9653388**

APPLICATION DEADLINE: call contact SITE(S): Ft. Lauderdale, FL
DATE(S) OF WORKSHOP: July 15, 1998

This project's vision is to create self-supporting networks among Minority Institution (MI) faculty and between MI faculty and faculty at research-intensive institutions by bringing together current and near-term faculty from these institutions to learn from and instruct each other. Senior faculty will provide guidance to new faculty. Those trained in the latest research techniques will teach those less practiced or whose specialties are no longer current. Particular emphasis is placed on involving current doctoral students interested in pursuing faculty careers. In all cases, those willing to invest the time and energy to expand their skills will have the opportunity to network with others of similar interests.

During the next three years, 90 faculty and senior graduate students selected from among applicants at MI's and research intensive institutions will participate in an intensive three-day workshop. This workshop will emphasize a review of best pedagogic practices, strategies for initiating or revitalizing a research program, and instruction on effective mentoring practices for undergraduate students.

This project builds on existing collaborations which the GEM Consortium has with faculty at a variety of institutions. This project promises to leverage the resources and expertise of new and senior faculty at a variety of institutions to build collaborative networks to improve teaching, research, and mentoring.

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Current Topics in Science & Mathematics for Montana Tribal College Faculty **DUE 9752761**

APPLICATION DEADLINE: May 29, 1998
DATE(S) OF WORKSHOP: August 10-21, 1998

SITE(S): Montana State University
Bozeman, MT

A collaboration of all seven of Montana's tribal colleges (TCs), in partnership with the University of Montana (UM) and Montana State University (MSU), proposes to carry out a tribal college faculty enhancement program consisting of summer workshops and TC faculty terms-in-residence (TIR), where TC faculty will spend a term or academic year in residence at either UM or MSU. The main objective of the workshops is to explore new teaching methodologies in areas such as math-science integration, inquiry-based learning, practical/experiential learning, integration of research and coursework, and incorporation of new technologies. The TIR will provide additional opportunities for professional development. During a TIR, individual TC faculty members may take courses that will enable them to expand and enrich course offerings or lead to an advanced degree, conduct research with university colleagues, co-teach courses with university colleagues, and participate in educational reform efforts. An important additional benefit to the TIR is that tribal college faculty, through collaborations with university faculty, will provide leadership in developing strategies that are more conducive to the education of Native Americans in the university system. Participation in the workshops will be open to 20 TC math-science faculty as well as four university faculty per year. Workshops will take place during the summers of 1998 and 1999. Participation in the terms-in-residence program will be selective and based on the quality of sub-proposals submitted to the steering committee. The development and reinforcement of collaboration between TC and university faculty will be of long-term benefit to higher education across Montana. In particular, tribal college faculty will enrich their knowledge while simultaneously enriching the university system with methods that have proven to be successful in the education of Native Americans in science and math.

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Interdisciplinary Mathematics and Science Projects at Two-and Four-Year Schools: A New York State Coalition **DUE 9653446**

APPLICATION DEADLINE: March 1, 1998 SITE(S): Albany, NY
DATE(S) OF WORKSHOP: April 17-19, 1998

Mathematics faculty in New York State have formed the New York State Coalition (NYSC) to integrate the teaching and learning of mathematics and its applications in science and quantitative subjects. Building upon the success of the work accomplished through its previous Undergraduate Faculty Enhancement projects, *Integration of Workshop Approaches in Calculus* and *Precalculus and Modern Curricula in Ordinary Differential Equations and Linear Algebra*, the NYSC will now learn about developing and implementing courses and modules that make connections between mathematics and its applications in science.

This project will enable the NYSC to accomplish the following:

- modify the modern curricula (new courses and materials that integrate mathematics, science, and quantitative disciplines) for local implementation. Six national consortium projects are currently developing these curricula;
- demonstrate how faculty in mathematics and in other disciplines can cooperate to develop interdisciplinary courses and instructional materials suitable for implementation at two- and four-year schools;
- continue to attract and retain students from underrepresented groups in mathematics and science courses; and
- spur interdisciplinary innovations at participating institutions.

These efforts will help to:

- increase faculty knowledge of the content and pedagogy related to teaching and scholarship in mathematics;
- emphasize to students the importance of mathematical modeling in industry;
- improve student understanding and retention of fundamental mathematical concepts;
- assist faculty in developing and initiating alternatives to the lecture format of teaching; and
- promote effective communication between two- and four-year institutions and users of mathematics in the real world.

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LIFE SCIENCES

1998-99 Workshops or Short Courses at Hawkeye Community College **DUE 9752081**

TITLE(S):	DATE(S):	APPLICATION DEADLINE(S):	SITE(S):
Precision Agriculture Professional Development Workshops	June 24-26, 1998, or July 29-31, 1998	call contact	Hawkeye Community College Waterloo, IA
Introduction to Precision Farming	February 18, 25, 1998 March 4, 11, 1998	call contact	Hawkeye Community College Waterloo, IA

Precision Agriculture Professional Development Workshops will provide a working knowledge of the Global Positioning System (GPS), Geographic Information Systems (GIS), and computer technologies as they are applied to agriculture. Hands-on activities, curriculum and instructional materials will also be developed as a part of the workshop. Participants will include the following groups, with the approximate number in parenthesis:

- Ag Science Instructors (18)
- Pre-service teachers (seniors in Agriculture Education) (10)
- Science, Mathematics or Physics Teachers (10)

Introduction to Precision Farming is designed for people who have an interest in precision farming, Global Positioning Systems and Geographic Information Systems (GIS) and their possible use in home or business. There will be specific information about GPS/GIS, collecting field information with GPS and hands-on use of Hawkeye's GPS equipment and GIS software. Creating yield maps, adding field layers, processing data, and methods of analyzing data with a GIS will be demonstrated with students getting hands-on experience in the John Deere Computer Lab. Computer knowledge is helpful but not necessary.

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Molecular Visualization in Undergraduate Biological Science Education **DUE 9653427**

APPLICATION DEADLINE: March workshop: February 27, 1998;
June workshop: June 8, 1998

DATE(S) OF WORKSHOPS: March 1998*

June 1998*

SITE(S):

Long Island University
Brooklyn, NY

University of Massachusetts
Amherst, MA

*See web site for dates

Free software on molecular visualization capable of running "movie" scripts (RasMol) and web-based tutorials (Chime) became available during the past year, making it feasible for every student of the biological sciences to produce colored, space filling, 3D images of biological macromolecules (DNA, RNA, proteins, etc.). Student and faculty responses to lectures accompanied by pilot scripts have been extremely positive, with immediate demand for scripts covering a wider range of topics. The goals of this project are to: (1) hold three-day workshops in the Northeast to prepare undergraduate faculty to use molecular visualization in their classes; (2) demonstrate "movie" scripts and web tutorials at large national meetings of biological scientists/educators; (3) develop a series of new tutorials on topics designed by faculty for use in large undergraduate classes; and (4) make the resulting resources freely available through Internet web sites. Workshop participants will be given follow-up support and encouraged to share experiences and educational methods through an e-mail listproc. Each participant will be required to mentor two additional faculty at their home institution in the use of educational molecular visualization.

For more information please see our web site at http://www.umass.edu/microbio/rasmol/workshop.htm.

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Biotechnology for that Disappearing Budget **DUE 9553720**

APPLICATION DEADLINE: March 31, 1998
DATE(S) OF WORKSHOPS: June 23-25, 1998
June 22-26, 1998
July 4-16, 1998
July 9-11, 1998
July 27-29
August 12-14

SITE(S):
Iowa Falls, IA
Pittsburg, PA
Portland, OR
Kingwood, TX
Goodwin, MS
Honolulu, HI

These three-day training workshops will provide high school and two-year college teachers with hands-on, investigative, cutting-edge, and low-cost activities that emphasize biotechnology's role in environment, medicine, plant and animal preservation, and agriculture. Participants are encouraged to develop partnerships with industry as modeled in this project to share equipment and expertise when implementing the labs.

CONTACT: Kathy Frame

National Association of Biological Teachers
11250 Roger Bacon Drive, #19
Reston, VA 20190-5202
Phone: 703-471-1134; 800-460-0775
Fax: 703-435-5582
E-mail: nabter@aol.com
http://www.nabt.org

Biology Faculty Development **DUE 9752713**

APPLICATION DEADLINE: No deadline: by invitation only
DATE(S) OF WORKSHOPS: May 14-18, 1998

SITE(S):
Oregon Institute of Marine Biology
Charleston, OR

September 20-22, 1998

Archibald Biological Station
Venus, FL

The workshops are designed to develop teams of faculty at field stations who will gain experience in inquiry-based science teaching and learning, and preparation to become regional professional developers of biology faculty.

CONTACTS: Dr. Jan Hodder

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P.O. Box 5389
Charleston, OR 97420
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Fax: 541-888-3250
E-mail: jhodder@oimb.uoregon.edu

Human Genome Diversity: Student Allele Database **DUE 9455075**

APPLICATION DEADLINE: no deadline	SITE(S):
DATE(S) OF WORKSHOPS: April 3-5, 1998	Pierce College Woodland Hills, Los Angeles, CA
May 1-3, 1998	University of Washington Seattle, WA
May 8-10, 1998	Kingsborough Community College Brooklyn, NY
call contact for dates	Louisiana State University Baton Rouge, LA

These workshops introduce a research technique for use in first-year biology classes. The experiment uses the powerful new tool of the polymerase chain reaction (PCR) to demonstrate the variable nature of human DNA. This workshop is aimed at faculty from two- and four-year institutions. Other topics include Mendelian inheritance, Hardy Weinberg equilibrium, molecular evolution, and transposable elements.

CONTACT: Mark V. Bloom
DNA Learning Center

Cold Spring Harbor Lab
Cold Spring Harbor, NY 11724
Phone: 516-367-7240
Fax: 516-367-3043
E-mail: bloom@cshl.org

Physiology Insights: Enhancement Program for Undergraduate Faculty **DUE 9653425**

APPLICATION DEADLINE: January 5 (annually)
DATE(S) OF WORKSHOP: July 13-19, 1998

SITE(S): Washington, DC

The American Physiology Society (APS), in collaboration with the National Association of Biology Teachers (NABT) and the Human Anatomy and Physiology Society (HAPS), is supporting the formation of collaborative working relationships among life sciences faculty at two-and four-year colleges (including community colleges), physiology research faculty, and physiology teaching faculty. The project will promote collaboration through research and curriculum development experiences; computer networks; and the promotion and adoption of national reforms for undergraduate content and effective pedagogical techniques among undergraduate faculty. Initially, two-and four-year college faculty members will work with a physiology research faculty member on a summer research experience, attend sessions on effective pedagogy during a summer institute at the HAPS annual meeting and, subsequently, develop new curricular materials. Interested triads will then go on to develop and conduct a local professional development workshop for life sciences faculty in their region. Curricular materials developed during the project will be field-tested, edited, and published by NABT.

CONTACT: Marsha Lake Matyas

American Physiological Society
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Bethesda, MD 20814
Phone: 301-530-7132
Fax: 301-571-8305
E-mail: mmatyas@aps.faseb.org
http://mww.faseb.org/education

Teaching Neuroscience in the Laboratory **DUE 9555095**

APPLICATION DEADLINE: April 1, 1998
DATE(S) OF WORKSHOP: June 21-27, 1998

SITE(S): Cornell University
Ithaca, NY

The section of Neurobiology & Behavior at Cornell University is presenting its third workshop on the use of invertebrate preparations in undergraduate neurobiology and physiology laboratory classes. The exercises presented are inexpensive, easy to prepare, and straightforward for students. They use simple invertebrate preparations to illustrate fundamental processes of all nervous systems. The use of invertebrates (crayfish and snails) reduces cost and administrative overhead as well as potential ethical objections on the part of students. These exercises have been successfully used and refined for over 15 years at Cornell and other institutions.

In addition to providing hands-on instruction in the execution of these laboratory exercises, the workshop will feature the use of an instructional CD-ROM directed at teaching faculty. This will review laboratory preparation, demonstrate dissections and use of apparatus, and illustrate results and troubleshooting during the course of a laboratory session.

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Fax: 607-254-4308
E-mail: rrh3@cornell.edu

Molecular Genetic Analysis Applied to Evolution, Ecology, and Systematic Biology: An Extended Laboratory Approach **DUE 9752712**

APPLICATION DEADLINE: April 1, 1998
DATE(S) OF WORKSHOP: August 1-14, 1998

SITE(S): San Francisco State University
San Francisco, CA

This project provides an intense 14-day laboratory short course in Molecular Genetics & Evolutionary Biology, in summer 1998; a four-day follow-up session the summer of 1999; and on-going technical and material support for each of the next two years. The format evolved from prior national Chautauqua and UFE courses. Twenty faculty will be selected from a national applicant pool composed of faculty from community colleges, four-year liberal arts colleges and universities, comprehensive universities, and research universities. Four pre-service teachers will be selected from San Francisco State University (SFSU). Participants learn the fundamentals of molecular biology through lectures and demonstrations, and conduct a series of experiments to develop skill in PCR amplification, restriction enzyme analysis, and various gel separation techniques.

In addition, participants investigate thematic research projects in research groups of six composed of a mix of a pre-service teacher, a mentor teacher, and faculty from community colleges and four-year institutions. Seminar topics include the use of molecular techniques to investigate procaryote, vertebrate, invertebrate, plant and fungal systems, the incorporation of these techniques into the undergraduate laboratory, and examples of effective teaching practices.

As a final exercise, each of the pre-service teachers and faculty will create teaching modules incorporating the new laboratory and teaching techniques developed during the workshop. Following the course the SFSU faculty will be available via telephone and e-mail to help participants incorporate molecular techniques and analysis into their research projects and their undergraduate courses. The instructional materials developed in prior courses, as well as materials developed by new participants are being placed on an SFSU/UFE web site.

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MATHEMATICS

Collaborative Computer Workshops **DUE 9752795**

APPLICATION DEADLINE: May 20, 1998
DATE(S) OF WORKSHOP: June 1-5, 1998

SITE(S): CUNY Borough of Manhattan
Community College
New York, NY

The workshops are including as participants, mathematics regular and adjunct faculty and graduate students. Participants are primarily expected from the tri-state area of New York, New Jersey, and Connecticut; however, faculty from other regions are also encouraged to participate. A primary emphasis of the project is to assist faculty to "bring the lab to the classroom," focusing on the content areas of calculus, differential equations, and linear algebra. Another aspect of the workshop is to address issues to increase the successful participation of women and underrepresented minorities in mathematics.

CONTACT: Patricia Wilkinson
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E-mail: pbwilk@aol.com

Teaching Undergraduate Geometry **DUE 9752807**

APPLICATION DEADLINE: April 1, 1998
DATE(S) OF WORKSHOP: May 28-June 2, 1998

Cornell University
Ithaca, NY

This workshop is intended for college and university faculty who teach, or will soon teach, an undergraduate geometry course—such as the courses typically attended by future or in-service teachers. In the mornings, the participants will experience a learning and teaching environment that is both innovative in content as well as instructional method. The workshop will involve integrating the geometries of planes, spheres, and other surfaces. These exercises will present problems that emphasize experiencing the meanings in the geometry. Student investigations, small group learning, and writing assignments will be explored.

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http://math.cornell.edu/ndwh

Institute in the History of Mathematics **DUE 9752755**

APPLICATION DEADLINE: April 1, 1998
DATE(S) OF WORKSHOP: July 20-31, 1998

SITE(S): Catholic University
Washington, DC

The goal of this workshop is to increase the presence of history in, and improve teacher preparation for, the undergraduate mathematics curriculum. A three-week program for 80 mathematics faculty will be held, focusing on techniques for incorporating history into undergraduate mathematics courses. Information will be disseminated through presentations at national and regional mathematics meetings, publications, and ongoing electronic communications. For more information on this workshop, see the World Wide Web page at http://ernie.bgsu.edu/~vrickey/institute/index-inst.html, or write to Mathematical Association of America, 1529 18th Street, NW, Washington, DC 20036, attn: Dr. Florence Fasanelli.

CONTACT: V. Frederick Rickey
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E-mail: rickey@math.bgsu.edu

Elementary Statistics Laboratory Workshop **DUE 9653442**

APPLICATION DEADLINE: April 1, 1998
DATE(S) OF WORKSHOP: June 16-20, 1998

SITE(S): University of South Carolina
Columbia, SC

This workshop will train college faculty on the use of hands-on laboratory exercises in elementary statistics. Participants will complete 10 laboratory exercises and discuss strategies for successfully incorporating lab experiences into their elementary statistics courses.

CONTACT: John Spurrier
Department of Statistics
University of South Carolina
Columbia, SC 29208
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Missouri Mathematics Faculty Enhancement Program **DUE 9653373**

APPLICATION DEADLINE: May 1, 1998 SITE(S): Osage Beach, MO
DATE(S) OF WORKSHOP: October 8-10, 1998

The project will provide opportunities for Missouri undergraduate mathematics faculty to review and consider the implications of emerging secondary and undergraduate curriculum reform materials. Four conferences serve as the forum in which faculty can learn about and discuss reform. In two of these conferences, teams of high school mathematics teachers and college faculty will participate to further systemic efforts at mathematics reform across multiple levels. Significant follow-up activities will encourage and support reform efforts across the state. The specific objectives of the project are to facilitate:

- college/university mathematics faculty in their review of NSF-sponsored undergraduate curriculum materials and the development of related instructional materials for courses they teach;
- the discussion and study of undergraduate curriculum-related issues including new mathematics content, new instructional approaches, and emerging technologies;
- college/university mathematics and high school mathematics faculty and teachers in their review of NSF-sponsored secondary curriculum materials and the development of related instructional materials for courses they teach; and
- the discussion and study of secondary curriculum and examination and revision of Missouri mathematics teacher preparation programs.

Monographs generated from each conference will be provided for each participant and mathematics department chair in the State of Missouri.

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and Computer Science
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The New Mexico Initiative for Math Reform **DUE 9653367**

APPLICATION DEADLINE: May 1, 1998 SITE(S): Las Cruces, NM
DATE(S) OF WORKSHOP: May 26-28, 1998

A consortium of five New Mexico community colleges and the state's mathematics association of two-year colleges has created a project called New Mexico Initiative for Math Reform. The project is designed to help improve student learning in introductory college mathematics and calculus through mathematics reform and technology.

The region to be served is New Mexico and its bordering states. The partners of the consortium are the Albuquerque Technical Vocational Institute, New Mexico Military Institute, New Mexico State University at Alamogordo, New Mexico State University at Dona Ana, University of New Mexico at Valencia, San Juan Community College, and the New Mexico Mathematical Association of Two Year Colleges. The project has the potential of reaching every student in the New Mexico region and is being evaluated by an outside investigator both formatively and summatively. The results of the project will be disseminated through participants' own workshops, presentations to professional organizations, and scholarly journals.

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Fax: 505-224-3700
E-mail: bpletsch@tvi.cc.nm.us

Calculus: Mathematics and Modeling **DUE 9752805**

APPLICATION DEADLINE: call contact SITE(S): call contact
DATE(S) OF WORKSHOP: call contact

This project will run three workshops during the summer of 1998 based on "Calculus: Mathematics and Modeling." The key theme of the workshops will be the integrated and pervasive use of a computer algebra system throughout the calculus course. In addition, the workshops will feature a real world modeling approach to mathematics, writing, group work, guided discovery, and the use of other technology in addition to computer algebra systems.

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Chance Workshop **DUE 9653416**

APPLICATION DEADLINE: March 15, 1998
DATE(S) OF WORKSHOP: July 7-11, 1998

SITE(S): Dartmouth College
Hanover, NH

Chance is a new introductory quantitative literacy course that teaches basic concepts of probability and statistics in the context of such current issues as medical trials, opinion polls, weather prediction, and the use of DNA fingerprinting in the courts. The aim of the course is to make students better able to understand and critically analyze chance news. The Chance course makes significant use of group learning and activities. This workshop will allow college teachers to experience a brief version of the Chance course and learn how it is taught. For more information about the Chance course and the workshop, see the web site http://www.dartmouth.edu/~chance.

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Broadening Horizons in Mathematics Instruction Through Technology and Applications **DUE 9653381**

APPLICATION DEADLINE: no deadline
DATE(S) OF WORKSHOP: June (1-3, 3-5, and 6-9) 1998

SITE(S): Oklahoma State University
Stillwater, OK

Oklahoma State University is producing 12 workshops, four each summer, from 1998 through 1999, for college faculty. The workshops focus on technology and applications in undergraduate mathematics. Each summer will feature a one-day overview workshop; a three-day workshop on calculators in undergraduate mathematics, emphasizing applications in entry level mathematics; a three-day workshop on computer algebra in undergraduate mathematics with professional engineers showing working applications of mathematics; and an Internet workshop that will enable participants to learn about all forms of electronic communication and establishing themselves on the Internet. Each of the three-day workshops accommodates 25 participants. Of particular note is the involvement of secondary school teachers in the workshops, and recruitment strategies and workshop activities that target faculty involved in pre-service teacher preparation courses and programs. In addition, the project will host two three-day conferences, in 1998 and 1999, on the applications of computer algebra systems to education and research in the mathematical sciences. The research portion of the conferences will be supported by Oklahoma State University.

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Fax: 405-744-8275
E-mail: bevans@mass.okstate.edu

Cooperative Learning in Undergraduate Mathematics Education: Developing a Comprehensive Program for College Faculty **DUE 9653383**

APPLICATION DEADLINE: March 13, 1998
DATE(S) OF WORKSHOP: June 21-23, 1998

SITE(S): Georgia State University
Atlanta, GA

Cooperative Learning in Undergraduate Mathematics Education (CLUME) is a national program to provide faculty with the knowledge, skills, and experience to implement cooperative learning in undergraduate mathematics courses. It is a pedagogical approach that can be used in classes of any size and embodies a kind of thinking which may have profound impact on a faculty member's ideas about teaching and learning. CLUME activities will provide faculty who have differing levels of interest and expertise an opportunity to explore and evaluate the effectiveness of cooperative learning. The cornerstone activities are a 12-day summer workshop providing intensive training in the theory and practice of cooperative learning, an academic-year apprenticeship with mentoring and electronic networking, and a three-day follow-up workshop during the succeeding summer. In addition to the workshop cycle, the project includes shorter introductory experiences: mini-courses at national AMS/MAA meetings, short courses and panels at MAA sectional meetings, and national conferences. CLUME will develop a cadre of experienced practitioners of cooperative learning capable of providing training for others. Materials developed as part of the workshop experience will be available to the mathematics community. Of particular interest are the CLUME activities that target faculty and departments who have a large responsibility for pre-service teacher preparation. Special attention is paid, during the recruitment phase, to securing the participation of those faculty, and specific components of the workshop activities will focus on cooperative learning in the K-12 setting. An evaluation component will document successes and limitations of cooperative learning.

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DIMACS Reconnect Conference/DIMACS Two-Day Reconnect Workshops **DUE 9752776**

APPLICATION DEADLINE: March 13, 1998
DATE(S) OF WORKSHOP: May 18-19, 1998;
July 5-17, 1998;
November 21-22, 1998

SITE(S): Rutgers University
Piscataway, NJ

These projects seeks to "reconnect" to the mathematical sciences enterprise two-and four-year college faculty who lack the time to keep up with research developments. The projects expose them to current research topics in discrete mathematics and theoretical computer science that are relevant to their teaching. This is accomplished by placing the faculty in a research center where much of the relevant research is being conducted. The projects aim to enhance the ability of faculty to transform their classrooms into places that connect up to modern uses of mathematics and computer science and to help them produce classroom materials that reflect current research. Both summer conferences and a sequence of two-day conferences are taking place. The summer conferences, national in scope and directed at two-and four-year college faculty with some prior exposure to discrete mathematics and theoretical computer science, present recent research results in topics such as computational molecular biology, network visualization, clustering, and visibility in geometry, and divide the participants into writing groups. The two-day conferences, regional in scope and directed at two-year college faculty with little prior exposure to discrete mathematics and theoretical computer science, present an introduction to these materials, with connection to topics of current research interest, and also involve the participants in writing materials in a six-month period between two two-day conferences. Participants in both the two-day and two-week conferences are expected to use the materials they have written as vehicles to bring discrete mathematics and theoretical computer science into their classrooms. Participants are encouraged to make their materials available to a broader audience through developing and publishing them in the DIMACS Undergraduate Module Series.

CONTACT: Fred S. Roberts

Rutgers University, DIMACS Core Building
Bush Campus
P.O. Box 1179
Piscataway, NJ 08855-1179
Phone: 732-445-4303
Fax: 732-445-5932

PRE-STAT **DUE 9752749**

APPLICATION DEADLINE: April 15, 1998
DATE(S) OF WORKSHOPS: July 19-21, 1998

SITE(S):
Appalachian State University
Boone, NC

July 26 - August 1, 1998

Montana State University
Bozeman, MT

The goals of PRE-STAT are to enable college faculty to enhance the statistical education of pre-service teachers on their home campuses and to encourage active learning through problem-solving in order to improve statistical education in the middle and secondary schools.

The PRE-STAT project is developing a model faculty development workshop that prepares participating mathematics educators to implement an effective statistical education curriculum. A network of teacher educators is being established to share statistical education ideas. PRE-STAT is also supporting the participants during the development of incorporation of statistical education components into the curriculum at their home institutions for pre-service and in-service teachers. Curriculum ideas are being organized into "Guidelines" for differing curriculum settings.

The PRE-STAT project is disseminating ideas including: (1) curriculum guidelines developed by participants; and (2) instructional activities appropriate for these curricula. The World Wide Web site is www.prestat.appstate.edu.

PRE-STAT is a two-year project that begins with faculty development workshops in the summer of 1998 at Appalachian State and Montana State Universities. A follow-up phase during 1998-99 is providing support for participants.

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Coalition for the Mathematical Preparation of Elementary School Teachers (CoMPET) **DUE 9752756**

APPLICATION DEADLINE: April 6, 1998
DATE(S) OF WORKSHOP: June 8-12, 1998;
(follow through meetings in
August, September, and January)

SITE(S): Sam Houston State University
Huntsville, TX

This 18 month project is extending an existing coalition formed among Sam Houston State University, North Harris College, and Tomball College. The original coalition was formed to implement changes in the mathematics content courses for prospective elementary school teachers. These changes were the result of the Guidelines for Mathematics Courses for Prospective Elementary School Teachers. This document was developed and disseminated in 1996 by the Texas Statewide Systemic Initiative (SSI) and is consistent with nationally known standards. The original coalition (SSI Coalition) is expanding to a network of two-year colleges and universities seeking to revitalize their mathematics courses for elementary teachers. The extended coalition is growing from institutes and is being fostered by mentoring, electronic mail, a web page, follow-through workshops, and a newsletter.

The expanded coalition is using the student projects manual and instructor's guide of the SSI Coalition project and Ohio State short course materials. The materials developed by both programs integrate substantial mathematical tasks with cooperative learning, manipulatives, technology, and writing that challenges students while improving their confidence and appreciation of mathematics.

Four members of the SSI Coalition faculty and one additional faculty are serving as senior personnel. They are leading 24 other faculty participants who are experiencing the SSI Coalition approach. These mentoring participants plan for the ensuing year by crafting a new course or restructuring an existing course consistent with the Guidelines.

The project is employing an instructional consultant and an outside evaluator as well as an advisory board to guide the project's progress. Evaluation is being used to refine the instructional approach, to customize it to local site conditions, and to measure the success of the project.

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Undergraduate Faculty Program **DUE 9653447**

APPLICATION DEADLINE: February 15, 1998
DATE(S) OF WORKSHOP: July 12-August 1, 1998

SITE(S): IAS/Park City Mathematics Institute (PCMI)
Park City, Utah

The Undergraduate Faculty Program (UFP) is a component of the IAS/Park City Mathematics Institute (PCMI), a three-week Summer Session which brings together researchers, students and educators in separate yet overlapping programs. The PCMI is directed by John Polking, Rice University, and its Principal Investigator is Robert MacPherson, Institute for Advanced Study.

The 1998 Summer Session will be held in Park City, Utah, and the research topic is Representation Theory of Lie Groups. Within the setting, the Undergraduate Faculty Program will provide an opportunity for enthusiastic and creative undergraduate educators to work on linear algebra reform. Of specific interest is the development of new enrichment materials and enhanced teaching techniques especially for linear algebra courses, along with methods for assessing the impact of such innovations. Knowledge of group representations is not necessary for participation — just a willingness to interact with people involved with mathematics in many different ways. The UFP is organized by Daniel Goroff, Harvard University, and is funded by the National Science Foundation. Participants come from two-year colleges, four-year colleges, and universities. Accommodations, meals, and travel are provided for all accepted participants.

CONTACT: Professor Robert McPherson

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E-mail: pcmi@math.ias.edu
http://www.ias.edu/park.htm

Implementing Modern Curricula in Linear Algebra and ODE in an Interactive Learning Environment: A New York State Coalition Project **DUE 9752736**

APPLICATION DEADLINE:
DATE(S) OF WORKSHOP:

SITE(S): SUNY Oswego
Oswego, Ny

Building upon its previous workshop, "Integration of Workshop Approaches in Calculus and Precalculus," the SUNY coalition will focus on the content and mode of instruction in Ordinary Differential Equations (ODE) and Linear Algebra. The SUNY Coalition, composed of 29 two-and four-year institutions, will be expanded to include private institutions. Workshop participants will learn to: integrate modern curricula (conceptualization, exploration, and higher-level problem solving) into the teaching of ODE and Linear Algebra; integrate technology and innovative pedagogy into the teaching of ODE and Linear Algebra; attract and retain students from underrepresented groups; and change the academic culture by collaborating with the Long Island Consortium for Mathematical Sciences Throughout the Curriculum to extend mathematical sciences throughout the curriculum.

These efforts will increase faculty's knowledge in the content and pedagogy related to teaching and scholarship in ODE and Linear Algebra; emphasize the importance of mathematical modeling in industry; improve student understanding and retention of fundamental mathematics concepts; provide the opportunity to develop and initiate alternatives to the lecture format; and promote effective communication between two-and four-year institutions and users of mathematics in the real world. First-year participants and new members will implement ODE and/or Linear Algebra modern curricula and innovative pedagogical approaches in the year following the summer training. In addition, the Lead Professors, selected from the first-year participants, will begin work on interdisciplinary courses.

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PHYSICS

Teaching Introductory Physics Using Interactive Teaching Methods and Computers **DUE 9653372**

APPLICATION DEADLINE: March 18, 1998
DATE(S) OF WORKSHOP: June 21-July 3, 1998

SITE(S): University of Oregon
Eugene, OR

This two-week faculty seminar is designed to help introductory physics teachers develop pedagogical approaches that enable their students to learn physics using guided inquiry techniques and computer tools to explore "real world" phenomena. The seminar will be offered in the summer of 1998 for 60 invited participants drawn from universities, four-year colleges, community colleges that offer year-long introductory physics courses with laboratories, and high schools. Topics covered will include interactive instructional strategies based on outcomes of educational research; assessment of student learning gains; laboratory design; microcomputer-based and calculator-based laboratory tools; spreadsheet analysis and dynamic graphing; the application of laboratory interfacing and real-time data analysis to laboratories and lecture demonstrations; mathematical modeling; and digital video analysis for the study of motion, heat and temperature, and electrostatics.

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Undergraduate Education **DUE 9653438**

APPLICATION DEADLINE: March 31, 1998
DATE(S) OF WORKSHOP: June 15-26, 1998

SITE(S): Harvard University
Cambridge, MA

This two-week conference will develop materials for teaching introductory physics with an emphasis on conservation laws. The conference, organized by Eric Mazur and Catherine Crouch, funded by the National Science Foundation, and co-sponsored by Harvard University and Prentice Hall, is intended to provide opportunities for faculty interested in excellence in teaching to work together on materials for this new curriculum and also to develop relationships and share ideas. Faculty from two-year colleges, four-year colleges, and universities will be represented at the conference.

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Two-Year College Physics Workshop Project **DUE 9554683**

APPLICATION DEADLINE: Six weeks before each workshop

TITLE(S) AND DATE(S) OF WORKSHOPS:	0SITE(S):
Implementing Workshop Physics and Microcomputer-Based Laboratories in Mechanics, Sound, and Heat in Introductory Physics March 12-14, 1998	Maple Woods Community College Kansas City, MO Site Host: Perry Doyle
Constructing and Implementing Effective Microcomputer Physics Simulations in Introductory Physics Courses (PS) April 30-May 2, 1998	Jamestown Community College Jamestown, NY Site Host: Marie Plumb
TYC Introductory Physics Conference III June 16-20, 1998	Joliet Junior College Joliet, IL Site Host: Curtis Hieggelke
Implementing Modeling, Digital Video Analysis, and Microcomputer-Based Laboratories in Electricity, Magnetism, Optics, and Radiation in Introductory Physics Courses (MBL II) October 1-3, 1998	Forsyth Technical Community College Winston Salem, NC Site Host: Robert Tyndall
Building a Better Understanding of Physics and Developing Effective Problem Solving Skills in Introductory Physics courses using Conceptual Exercises and Active Learning Problem Solving (CE/ALPS) November 5-7, 1998	Lee College Baytown, TX Site Host: Tom O'Kuma

This is the third year of a three-year national program and is a continuation of several successful projects administered by Joliet Junior College and Lee College. In 1998, four workshops will be held, as well as the third Two-Year College Introductory Physics Conference. The four workshops will acquaint participants with the development and implementation of: (1) microcomputer-based laboratories in mechanics and heat; (2) digital video, modeling, and microcomputer-based laboratories in electricity, magnetism, and optics; (3) physics simulations; and (4) active learning problem-solving strategies using conceptual exercises and overview case studies. The fifth workshop will be a working conference on introductory physics and will provide previous workshop participants with an opportunity for sharing, gaining additional experiences, and discussing new developments and technologies. The workshops will be reinforced by a networking system that employs a microcomputer bulletin board system, an Internet access system, and a newsletter. Additional information about this project can be obtained by visiting our web site: http://tycphysics.org.

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Two-Year College Physics Faculty Enhancement Program (PEPTYC) **DUE 9752718**

APPLICATION DEADLINE: March 13, 1998
DATE(S) OF WORKSHOPS: May 18-29, 1998

SITES(S): Texas A&M University
College Station, TX

The impact of Two-Year Colleges (TYCs) in the teaching of college level physics is often not appreciated. This is particularly true for students who have been historically at risk. Nationally 47 percent of all minority students are enrolled at TYCs. Most of the students who are trained to enter the technological workplace are trained at TYCs. Historically the opportunities for TYC faculty members to participate in professional development have been limited. This two-year program is designed to serve as a continuing model for the utilization of cooperative relationships between university professors and outstanding TYC physics faculty members working together to provide professional enrichment opportunities for TYC physics faculty members from across the United States.

The program focuses on the recent developments in physics research, innovative physics teaching methods and successful techniques for recruiting local minority students into two year college science and engineering programs. The program includes an annual May Institute at Texas A&M University, biannual academic year follow-up workshops, local projects and staff visits to the 18 participants from across the United States.

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Powerful Ideas in Physical Science: A Model Course **DUE 9554625**

APPLICATION DEADLINE: April 15, 1998
DATE(S) OF WORKSHOP: May 25-June 5, 1998

SITE(S): Louisiana State University
Baton Rouge, LA

This two-week program is designed for faculty members who teach physical science to prospective elementary teachers and nonscience majors. Features of this program include observing the course in action; trying out activities from the model; and participating in seminars and discussions. All participants will receive *a Powerful Ideas in Physical Science* instructor's manual and a site license to copy the materials.

Applications are available at http://www.aapt.org/programs/powersum1998.html, or from AAPT, One Physics Ellipse, College Park, MD, Phone: 301-209-3300

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Innovative Physics Experiments Workshop for Beginning College Faculty **DUE 9752701**

APPLICATION DEADLINE: June 30, 1998
DATE(S) OF WORKSHOP: August 3-9, 1998

SITE(S): Winston-Salem State University
Winston-Salem, NC

A week-long workshop will be held to develop innovative and inexpensive physics experiments and physics-at-home activities for Freshman-level General Physics courses. Most U.S. universities offer such courses and generally these courses have large enrollments. In order to reduce the cost of offering such courses and to provide innovative, hands-on laboratory experiments and home activities, 25 such exercises have been developed by 25 physics faculty members from HBCUs in the Southeastern U.S. Based on the positive feedback from earlier workshops, the present workshop will develop, test, evaluate, and disseminate 25 additional innovative, hands-on physics experiments and home activities to 25 beginning physics faculty from other two-year and four-year colleges and universities. Preferences will be given to faculty with less than five years teaching experience.

All 50 innovative physics experiments (25 old and 25 new) will be field tested by the workshop participants. Each participant will select at least ten experiments for field testing and evaluation in his/her courses. The results of field testing and evaluations will be compiled by the director. All experiments will be refined and ranked by the participants in numerical order and the top ten experiments will be presented at AAPT meetings by their originators and developers. All experiments will be stored on electronic media and compiled into a book format. Each participant will receive copies of the experiments in both formats and a complete kit to test the experiments.

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SOCIAL SCIENCES

Human Geography in Action **DUE 9752794**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: June 15 - 19, 1998
Optional field trip on June 20

SITE(S): Arizona State University
Tempe, AZ

Introduction to Human Geography, like most freshman-level survey courses in the social sciences, is typically taught using the traditional model of instructor as lecturer and student as note-taker. The proposed series of one-week summer workshops engage faculty who teach introductory human geography courses in a more student-centered model of learning using hands-on materials that challenge students to collect, manipulate, analyze, and present geographic information.

The workshop will be organized around 13 activities from "Human Geography in Action," a recently published human geography workbook (New York, Wiley, 1997). Each freestanding activity demonstrates a basic concept in human geography including: scale, region, diffusion, spatial interaction, space-time prisms, location theory, age distribution, development, urban hierarchy, urban land use, residential segregation, nations and states, and environmental change. Seven of the activities are computerized projects on CD-ROM.

Each session participant will be expected to complete several of the activities, and brainstorm topics and methods for future activities. These workshops will serve as the basis for disseminating a more innovative approach to human geography, one in which students literally do geography as they learn geography.

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Advancing the Integration of New Technologies into the Undergraduate Teaching of Economics **DUE 9653421**

APPLICATION DEADLINE: call contact
DATE(S) OF WORKSHOP: May 28-30, 1998

SITE(S): University of Pittsburgh
Pittsburgh, PA

Traditional methods of teaching undergraduate economics courses have been slow to change in spite of dramatic changes in the available instructional technologies. This workshop is being organized to review recent applications of new technologies and/or ways of overcoming institutional and other obstacles that have slowed the pace of instructional innovations in undergraduate economic courses throughout the United States.

The projects objectives are to

- increase awareness of the effectiveness of nontraditional teaching methods;
- gather individuals who are recognized leaders in institutional change to discuss what might be done to increase the diffusion rate of improved teaching methods; and
- accelerate the dissemination of promising new instructional technologies by providing a broader forum for discussions and recognition of the work of those who are active in developing and evaluating new approaches. This will include publication of the workshop papers and the comments of participants in a dedicated issue of the *Journal of Economic Education.*

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