Registration Now Open for Summer 2006 Workshops and Bioethics Course

Educators in public or private schools or those who work with youth in 4-H or other community programs are invited to register for the 2006 summer workshops offered by the Office of Biotechnology at Iowa State University. Educators who want to update their biotechnology and bioethics teaching skills earn staff development or graduate credits at the workshops.

The workshops will be held in the Biotechnology Outreach Education Center (BOEC) on the Iowa State campus in Ames. Iowa teachers can receive stipends of $50 per day to help cover their costs of attending. ISU Extension educators or personnel can receive travel reimbursements of up to $50 per day to help cover their expenses. Materials and stipends for the workshops are funded by Iowa State's Office of Biotechnology and by the Iowa Biotechnology Association.

Upon completion of any of the workshops, Iowa teachers are eligible to receive free supplies and equipment for lab protocols available from the Office of Biotechnology.

For more information about the biotechnology education workshops, contact Mike Zeller or Lori Miller toll-free in Iowa at 800-643-9504, or e-mail mzeller@iastate.edu or lorimill@iastate.edu. For more information about the bioethics workshop, please contact Kristen Hessler at the toll-free number, or e-mail khessler@iastate.edu.

To register for any workshop, please contact Lori, use the form on p. 7, or use the online registration or PDF forms available at www.biotech.iastate.edu/ed_resources/Workshops.html. Submit your registration to arrive by June 2 for the biotechnology education workshops and by July 7 for the bioethics workshop.

June 12-15
Biotechnology Education Workshop I for Science Educators
Iowa State University, Ames, Iowa
2 staff development credits - $20 and/or 1-2 ISU graduate credits - $330 per credit
$200 stipend available for Iowa schoolteachers ($50 per day)
Travel reimbursement available for ISU Extension educators/personnel (up to $50 per day)
Registration deadline - June 2

This workshop course is directed at teachers who want to gain the basic knowledge and laboratory skills necessary to teach biotechnology in their classrooms. Teachers will learn how to prepare and instruct the laboratories in DNA extraction and quantification from various sources, DNA transformation, DNA fingerprinting, bioinformatics, and more. Educators will prepare and perform the lab protocols as the students would do in class. Techniques for encouraging classroom bioethics discussions will be featured.

June 29-30
Biotechnology Education Workshop I for Agriculture Educators and Family and Consumer Sciences Educators
Iowa State University, Ames, Iowa
1 staff development credit - $20 and/or 1 ISU graduate credit - $330 per credit
$100 stipend available for Iowa schoolteachers ($50 per day)
Travel reimbursement available for ISU Extension educators/personnel (up to $50 per day)
Registration deadline - June 2

(continued on p. 2)
This workshop will focus on the basic technologies and principles of biotechnology and how it applies to food, fiber, and health in Iowa. The basic technical knowledge and skills learned in this workshop will help agriculture education and family and consumer sciences educators better understand how to incorporate biotechnology into their school’s curriculum. Laboratory investigations and instruction will provide experience with DNA fingerprinting, DNA extraction, DNA transformation, transgenic crops, and more. Techniques for encouraging classroom bioethics discussions will be featured.

July 10-13
Biotechnology Education Workshop II Advanced Workshop for Science, Agriculture, and Family and Consumer Science Educators
Iowa State University, Ames, Iowa
2 staff development credits - $20 and/or
1-2 ISU graduate credits - $330 per credit
$200 stipend available for Iowa schoolteachers ($50 per day)
Travel reimbursement available for ISU Extension educators/personnel (up to $50 per day)
Registration deadline - June 2

This advanced workshop is open to science, agriculture, and family and consumer sciences educators who have attended one of the previous biotechnology workshops. Educators will learn how to prepare and instruct advanced laboratories in biotechnology. Activities will include showing marker gene expression, DNA isolation, recombinant DNA techniques, DNA amplification, restriction analysis of DNA, bioinformatics, sequencing, genomics, and more. Educators will prepare and perform the lab protocols that their students could do in class. Techniques for encouraging advanced classroom bioethics activities will be featured.

July 17-19
Bioethics Workshop I
Iowa State University, Ames, Iowa
1 staff development credit - $20 and/or
1 ISU graduate credit - $330 per credit
$100 stipend available for Iowa schoolteachers ($50 per day)
Travel reimbursement available for ISU Extension educators/personnel (up to $50 per day)
Registration deadline - July 7

This course is designed for educators who are interested in discussing bioethics with their students or extension audiences. The focus will be on ethical issues in biotechnology, especially agricultural biotechnology, but other topics relevant to both agriculture and human health will be covered. Educators will work through activities and case studies that they can take home and use with their classes. Pedagogical issues in teaching bioethics will also be covered, including appropriate objectives for bioethics units, various approaches to bioethics pedagogy, how to relate bioethics issues to personal ethical issues familiar to students, how to help students identify ethical issues, how to address bioethics while respecting diversity of views in the classroom, and assessment for bioethics units.

Register for Online Bioethics Course

The Office of Biotechnology at Iowa State University is offering one online bioethics course this summer, Teaching Bioethics. The course, offered from July 10-28, is especially for science or social studies teachers, extension personnel, and others interested in teaching bioethics.

Course topics include advantages of incorporating bioethics in science and social studies courses, appropriate objectives for bioethics units, a brief study of ethical theory, various approaches to bioethics pedagogy, how to relate bioethics issues to personal ethical issues familiar to students, how to help students identify ethical issues, how to address bioethics while respecting diversity of views in the classroom, and assessment for bioethics units.

The course requires a minimum of 15 hours online, plus an additional 15 hours of reading, writing, and research. No prerequisites are required. Course participants can earn one graduate credit from Iowa State University. Two staff development credits from Area Education Agency 11 in Johnston, Iowa, are available for participants from Iowa and may be available for those from other states. Dr. Kristen Hessler, bioethics outreach coordinator at Iowa State University, will instruct the course.

For more information about course content, please contact Hessler at 515-294-7576, e-mail her at khessler@iastate.edu, or visit the Web page www.bioethics.iastate.edu/activities/biotechnology_ethics.html.

To register for the online course, please contact Lori Miller, 515-294-9818, toll-free in Iowa 800-643-9504, or e-mail lorimill@iastate.edu. You also may register online at www.biotech.iastate.edu/ed_resources/regis_form_summer2006.html or obtain a PDF registration form at www.biotech.iastate.edu/ed_resources/Workshops.html. The registration deadline is June 30. Class enrollment for the course is limited to 20.
Biotechnology Outreach Education Center

BOEC in Action
This winter, several schools have taken advantage of our efforts to bring biotechnology to their schools. The BOEC has made or will make visits to Shenandoah Middle School, Walnut Creek High School and Stillwell Junior High in West Des Moines, Edwards Elementary in Ames, Des Moines Central Campus (four Saturdays), United Community near Boone, and school districts in Davenport, Swea City (two days), and Council Bluffs. Groups that have visited or will visit the BOEC include West Marshall High School in State Center, Guthrie Center High School, Marshalltown High School, AEA 11’s Science Education Mobile Instruction (SEMI) project, St. Augustin in Des Moines, and Iowa State University's agricultural education pre-service teachers and Toying with Technology’s pre-service elementary teachers.

Spring traditionally is our busiest time, so plan ahead to guarantee that equipment and supplies will arrive when you need them in your classrooms and so that on- and off-campus visits can fit into your busy spring schedule. Typically, the BOECs programs will have contact with over 1,000 students in April and May. Planning ahead will allow the BOEC to serve you better.

Upcoming Events
For the past three years, I have had the privilege of working with Iowa Public Television (IPTV) to bring ICN sessions titled “Genetic Engineering in Iowa” to the state’s classrooms. The next sessions are scheduled for March 13 at 9:00 and 10:00 a.m. For more information, visit the “Explore More: Genetic Engineering” link on the IPTV Web site at www3.iptv.org/exploremore or call 800-532-1290.

The BOEC is planning to host an open house at Veishea on Saturday, April 22. On display will be some of our most recent and older established materials for you to review. If you are on campus for the fun, please stop in to visit and see what the BOEC has new to offer you. For details, see the article on p. 4.

Summer Workshops
The Office of Biotechnology’s BOEC will offer four workshops on the Iowa State campus in Ames this summer (see p. 1 for details). First-time workshop participants or teachers who have attended previous workshops and want to update their knowledge and skills are welcome to attend one or more workshops. New materials, activities, and content are constantly being updated and added to the workshops. Mark your summer calendars with the dates for the workshops, and then share this newsletter with a colleague you think could benefit from attending one or more of our workshops. To register for the workshops, contact Lori Miller or complete the registration form on p. 7 or online at www.biotech.iastate.edu/ed_resources/regist_form_summer2006.html. Please check our Web site at www.biotech.iastate.edu/ed_resources/Workshops.html for updated information about registering and attending our summer workshops. Have a great spring.

The bioethics outreach program hosted the bioethics retreat on January 6. This year’s topic was “Ethics, Politics, and Science,” and we are proud to report that we had record attendance of nearly a hundred people! We will soon be posting a review of the retreat, including a synopsis of the presentations and a few photos. Check our Web site soon at www.bioethics.iastate.edu/retreat.html. I also am developing a unit on Societal Issues and Science for students in the Biology Education Teaching and Learning program here on campus.

If you have been thinking of incorporating bioethics into your classroom, this is a great time to check out our summer bioethics courses and workshops. We’ll be offering the online course, Teaching Bioethics, from July 10 through 28, and our Bioethics Workshop will be offered from July 17 through 19. More information, including registration deadlines and procedures, can be found on p. 2.

If you can’t make it to our summer bioethics course or workshop, you are always welcome to visit us on campus with your students, or, if you organize a group of ten or more teachers in your area, I’ll come to you to conduct a bioethics workshop in your area. I hope to see you over the summer or before!
Educational Opportunities

BOEC Open House at Veishea

The Biotechnology Outreach Education Center (BOEC) will host an open house from 9 a.m. to 5 p.m. during Veishea on Saturday, April 22. Visitors can explore the BOEC laboratory facilities and check out both new and tried-and-true activities and curriculum materials. The BOEC is located in room 1320B of the Molecular Biology Building on the northwest side of the Iowa State University campus in Ames. If you plan to bring your students to the BOEC open house or want to stop by yourself, please contact Lori Miller for more information at 515-294-9818, toll-free in Iowa 800-643-9504, or send an e-mail message to lorimill@iastate.edu.

Veishea is Iowa State University's annual student-run festival. For more information on other Veishea events, visit www.veishea.iastate.edu/.

April 18 Workshop for High School Students Targets Impacts of Natural Disasters

Iowa State University's College of Agriculture is hosting a spring workshop for Iowa high school science teachers, social science teachers, agriculture teachers, and students. The “Hurricanes and Other Natural Disasters” workshop will be held on April 18 from 8:30 a.m.-2:30 p.m. on the Iowa State campus in Ames. Light morning refreshments and lunch will be provided. The workshop is free to students, teachers, and chaperones.

This year’s workshop will educate students about the social, economic, environmental, and biological impacts of natural disasters and how those impacts affect Iowa. Students will participate in hands-on activities to explore topics such as:

- Infectious disease
- Economic impact on agriculture
- Water quality
- Meteorology
- Impacts on families and communities
- Economic impact on energy
- How ecological changes influence the impact of hurricanes

For more information about the workshop and how to register, visit the Web site at www.agstudent.iastate.edu/naturaldisasters/ or contact Leah Hansen, Agriculture Student Services, 23 Curtiss Hall, Iowa State University, Ames, IA 50011-1050, phone 515-294-8653, e-mail lhansen@iastate.edu.

College Independent Study Courses for Chemistry Teachers

The College Independent Study Program at the University of Nebraska-Lincoln offers online biological sciences courses designed specifically for high school chemistry teachers. The Chemistry of Life Processes series includes three courses about biomolecules, DNA, and energy and metabolism.

The Chemistry for Secondary School Classrooms series offers 12 more courses, including courses about water and solutions, periodicity, bonding and structure, carbon chemistry and polymers, acids and bases, analysis and instrumentation, thermodynamics, and more.

The courses are offered for credit. For more information, visit http://independentstudy.unl.edu or contact David Brooks, phone 402-472-2018, or e-mail dbrooks1@unl.edu.

Career Conferences for Young Women Scheduled for April

“Taking the Road Less Traveled” career conferences sponsored by Iowa State University’s Program for Women in Science and Engineering (PWSE) are scheduled for April. Young women in grades 6-12 can interact with professional women who have careers in science, engineering, math, and technology. The spring conference dates for grades 6-9 are April 13 and 20. For grades 9-12, the spring conference date is April 6.

Registration forms and details will be available on the PWSE Web site at www.pwse.iastate.edu/outreach/trlt.html. For more information, e-mail Kristin Menning at trlt@
Grants/Competitions

State Science Fair on March 24-25

The 2006 State Science and Technology Fair of Iowa (SSTFI) will be held in Ames on Friday and Saturday, March 24-25. The SSTFI is affiliated with the Discovery Channel Young Scientist Challenge and the Intel International Science and Engineering Fair.

All high school exhibitors at the fair are eligible for many scholarships. In addition, the top biological and physical high school projects will represent the SSTFI at the Intel International Science and Engineering Fair in Indianapolis, Indiana, in May.

As one of the fair sponsors, the Iowa Biotechnology Association (IBA) will be making five tuition scholarship awards at the 2006 fair. The IBA tuition scholarships will be awarded to the five students who exhibit the best use of biotechnology with their projects. All Iowa high school students who exhibit at the fair are eligible for the IBA tuition scholarships, which are $1,000 if used at an Iowa-based college or university or $500 if used at an out-of-state institution.

All exhibitors in grades 6-12 are eligible for trophies, medals, and other special awards. About the top 10% of participants in the 6th-8th grades have a chance to win a Discovery Channel Young Scientist Challenge nomination that includes a lapel pin, certificate of recognition, and an entry booklet to enter the national competition. The SSTFI has had at least one semi-finalist at the Discovery Channel Young Scientist Challenge for the last four years.

For more information, visit www.sstfi.iastate.edu or contact fair director Andrea Spencer c/o SSTFI, 52653 160th Street, Gilbert, IA 50105; phone 515-233-6512 or cell 515-460-5559; or e-mail aspence@iastate.edu.

Ames Lab / ISU Middle School Science Bowl on April 7-8

The U.S. Department of Energy's Ames Laboratory and Iowa State University will host their third annual middle school science bowl on Friday and Saturday, April 7-8, on the Iowa State campus.

On Friday, up to 16 teams of five students each will build and race hydrogen fuel-cell cars. Berg Middle School, Newton, was last year's fuel-cell car challenge champion.

On Saturday, participants will compete in a traditional science and math quiz bowl. Last year's academic champion was Central Academy Middle School, Des Moines. Evans Middle School, Ottumwa, was the academic runner-up, and Berg Middle School, Newton, was third.

The winning team of the 2006 competition will receive an all-expenses-paid trip to the National Middle School Science Bowl® in Golden, Colorado, in June to compete against other regional winners from around the country.

For more information, visit the Web site at www.external.ameslab.gov/community/ScienceBowl/MSSciBowlHome.htm, phone Deb Samuelson at 515-294-9557, or e-mail her at debsam@ameslab.gov.

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Low-Cost Resources

From Mendel to Markers Curriculum

Don’t forget that educators have three ways to access a new molecular technology curriculum for high school students and adults, From Mendel to Markers: Impact of Molecular Technologies on Animal, Plant, and Human Genetics. The curriculum, prepared by the Iowa State University Office of Biotechnology in cooperation with ISU Extension, can be ordered as a printed curriculum or as a CD-ROM.

For convenient online ordering of the printed or CD version, go to Iowa State University's Extension Distribution Center at www.extension.iastate.edu/store/ListItems.aspx?Keyword=4H948LDR. To contact the Extension Distribution Center, phone 515-294-5247, fax 515-294-2945, or e-mail pubdist@iastate.edu. The publication number is 4H 0948 LDR CD for the CD and 4H 0948 LDR for the printed version. Current prices are 75 cents for a CD and $12 for a printed copy, plus shipping and handling.

Educators also can download PDF files of the curriculum free-of-charge from the Internet at www.biotech.iastate.edu/publications/mendel/.

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Grants, Awards, and Competitions

For more information about science-related scholarship competitions for students or educator award programs, visit the Office of Biotechnology's educational funding Web site at www.biotech.iastate.edu/publications/ed_resources/Ed_funding.html. Brief descriptions of each opportunity and links to more information are on the site. If you know of other opportunities in science, family and consumer sciences, or agriculture that should be added to the Web site, please e-mail them to Glenda Webber, gwebber@iastate.edu. National Association of Biology Teachers (NABT) opportunities with early spring deadlines include the following:

Award for Excellence in Encouraging Equity
Deadline: March 15, 2006
Recognizes a biology educator's efforts to encourage, promote, and strive for equity in the educational community

NABT Biotechnology Teaching Award
Deadline: March 15, 2006
Funds for a short-term series of activities or a long integration of biotechnology into the curriculum to be done by a secondary school teacher or undergraduate college biology instructor

NABT Outstanding New Biology Teacher Achievement
Deadline: March 15, 2006
Recognizes outstanding teaching by a grade 7-12 biology/life science instructor within the first three years of teaching

Biotechnology Protocols

For more information, contact Virginia Commonwealth University at 804-827-5600 or e-mail lifesci@vcu.edu.

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Registration Form for 2006 Biotechnology Education Summer Workshops and Summer Online Bioethics Course

Registrations due by JUNE 2, 2006, for biotechnology education workshops.
Registrations due by JUNE 30, 2006, for summer online bioethics course.
Registrations due by JULY 7, 2006, for bioethics education workshop.

Name ___________________________________________________________________________________________________
School district or extension area ____________________________________________________________________________
Subject areas taught_______________________________________________________________________________________
Home (summer) mailing address ____________________________________________________________________________
Work phone ____________________    E-mail__________________________________    Home phone __________________

I would like to register for the following Biotechnology Education Workshop(s) to be held at Iowa State University in Ames:

_____ June 12-15  Workshop I for Science Educators

Register by June 2, 2006

_____ July 10-13  Advanced Workshop II for Science, Agriculture, and Family and Consumer
Sciences Educators

Register by June 2, 2006

_____ June 29-30  Workshop I for Agriculture Educators and Family and Consumer Sciences Educators

Register by June 2, 2006

_____ July 17-19  Bioethics Workshop I

Register by July 7, 2006

I would like to register for the following online course that I can take on the Internet from home:

_____ July 10-28  Teaching Bioethics

Register by June 30, 2006

Credit available: 1-2 staff development credits AND/OR 1-2 graduate credits
(See workshop descriptions on p. 1-2 and online course description on p. 2 for details.)

Credit payment and housing information will be sent to you when your registration is received.

Register early! Class sizes are limited. Return this registration form by mail or fax before the deadlines to:

Lori Miller
Office of Biotechnology
1210 Molecular Biology Building
Iowa State University
Ames, Iowa  50011-3260
Fax: (515) 294-4629 • Phone: (515) 294-9818 or toll-free in Iowa 1-800-643-9504 • E-mail: lorimill@iastate.edu

Online registration available at www.biotech.iastate.edu/ed_resources/regis_form_summer2006.html

Publicity/Image/Voice Permission
The Office of Biotechnology normally takes photographs, video, and/or tape recordings of our programs. During these workshops, a photograph or video/audio recording may be taken of you. Unless you request otherwise, your application will be considered permission for Iowa State University and the Office of Biotechnology to photograph, film, audio/video tape, record and/or televise your image and/or voice for use in any publications or promotional materials, in any medium now known or developed in the future without any restrictions. If you object to ISU using your image or voice in this manner, please notify the Office of Biotechnology, in writing, at the time of your application.
About the ISU Public Education Program in Biotechnology.

Iowa State University's Public Education Program in Biotechnology is supported by Ajinomoto Food Ingredients, LLC/Ajinomoto Heartland, LLC; Bayer CropScience; Cargill; Genencor International, Inc.; Golden Harvest Research; Growmark; The Greater Cedar Rapids Foundation–Diamond V Mills Donor-Advised Fund; the Iowa Biotechnology Association; the Iowa Farm Bureau Federation Agricultural Foundation; the Iowa Soybean Promotion Board; Kemin Americas; MBS Genetics, LLC; Pioneer Hi-Bred International, Inc.; the Roy J. Carver Charitable Trust; Syngenta Seeds, Inc.; West Central Cooperative; and private individuals.

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