

Iowa Biotech Educator

A newsletter of the Iowa State University Office of Biotechnology • Volume 21 • Number 2 • Spring 2013

June 3 Registration Deadline for Summer Workshops



Join the fun and learn a lot at the 2013 summer workshops! Register online or use the form on p. 5. Photo by Mike Zeller

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 and ISU Extension and Outreach educators are eligible to receive free supplies and equipment for specific lab protocols from the Office of Biotechnology.

Register by June 3 to reserve your place at one or more of the biotechnology education workshops offered by the Office of Biotechnology at Iowa State University. Educators in public or private schools or those who work with youth in 4-H or other community programs can strengthen and update their STEM-based curriculums with modern content, techniques, and activities in biotechnology and bioethics, while earning professional development or ISU graduate credits at the workshops.

The workshops, instructed by Iowa State's biotechnology outreach education coordinator Mike Zeller and bioethics program director Clark Wolf, 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 and Outreach educators or personnel can receive travel reimbursements of up

For More Information

For more information about the biotechnology education workshops, see the descriptions that follow, 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 Clark Wolf at 515 294-3068 or e-mail jwewolf@iastate.edu.

To register for any workshop, please contact Lori, complete and mail the form on p. 5, or use the online registration or pdf forms available at www.biotech.iastate.edu/ed_resources/regis_form_summer2013.html. Please submit your registration to arrive by June 3, 2013.

June 10-13

Biotechnology Education Workshop I for Science, Agriculture, Family and Consumer Sciences, and ISU Extension and Outreach Educators

Iowa State University, Ames, Iowa
2 professional development credits - \$25
1-2 ISU graduate credits - \$436 per credit

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Connect to Biotech

Office of Biotechnology
1210 Molecular Biology Bldg.
Iowa State University
Ames, Iowa 50011-3260
ph. 515 294-9818
800 643-9504 toll-free in Iowa
fax 515 294-4629
biotech@iastate.edu
www.biotech.iastate.edu

Information and Free Lab Supplies for Iowa Educators
Lori Miller
Program Secretary
lorimill@iastate.edu

Expert Answers to Questions
Mike Zeller
Biotechnology Outreach Education Coordinator
mzeller@iastate.edu

IOWA STATE UNIVERSITY
Helping educators become their best.

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\$200 stipend for Iowa schoolteachers (\$50 per day) funded by the [Iowa Biotechnology Association](#)
Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to \$50 per day)
Registration deadline - June 3, 2013



This workshop course is directed at science, agriculture, family and consumer sciences, and ISU Extension and Outreach educators 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.



June 17-20 Bioethics Workshop I

Iowa State University, Ames, Iowa
2 professional development credits - \$25
2 ISU graduate credits - \$436 per credit
\$200 stipend for Iowa schoolteachers (\$50 per day)
Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to \$50 per day)
Registration deadline - June 3, 2013

This course is designed for educators who want to incorporate discussion of ethical issues with students, to integrate some ethical content in the science curriculum, or to address such issues for extension audiences. The focus will be on ethical issues in science education, with attention to agricultural biotechnology. However, other topics relevant to both agriculture and human health will also be covered. Participants will work through activities and case studies that they can take home and use in their classes. In the course of the workshop, participants will be divided into groups to develop their own case studies on topics relevant to their courses. The workshop will also address pedagogical issues, including appropriate objectives for bioethics units; alternative 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.



June 24-27 Biotechnology Education Workshop II – Advanced Workshop for Science, Agriculture, Family and Consumer Sciences, and ISU Extension and Outreach Educators

Iowa State University, Ames, Iowa
2 professional development credits - \$25

1-2 ISU graduate credits - \$436 per credit
\$200 stipend for Iowa schoolteachers (\$50 per day) funded by the [Iowa Biotechnology Association](#)
Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to \$50 per day)
Registration deadline - June 3, 2013



This advanced workshop is open to science, agriculture, family and consumer sciences, and ISU Extension and Outreach educators who have attended one of the previous biotechnology workshops. Educators will learn how to prepare and instruct advanced biotechnology laboratories in their classrooms.

Activities will include marker assisted selection, DNA isolation, recombinant DNA techniques, DNA amplification, restriction analysis of DNA, bioinformatics, sequencing, genomics, and more. Educators will prepare and perform the lab protocols as their students will do in class.

Lab Notes

Recycle Before Leaving for Summer



This is the final issue of the *Iowa Biotech Educator* for the 2012-2013 school year. Before you leave for the summer, please recycle any free biotechnology lab supplies that you ordered from the ISU Office of Biotechnology during this school year. Thanks for your help and have a great summer!

How to Recycle ISU Lab Supplies

The 10X TBE bottles and unused pipette tips and boxes are refilled or reused for other teachers. To help keep costs down, please return these items to Lori Miller, Office of Biotechnology, 1210 Molecular Biology Building, Iowa State University, Ames IA 50011-3260. Please empty and rinse the 10X TBE bottles before you return them.

Please Help Maintain DNA Fingerprinting Kit Supplies

Iowa educators who use the DNA fingerprinting kits provided by the Office of Biotechnology at Iowa State can help keep the contents up-to-date. The kits should have certain equipment and supplies in them at all times. Follow the link provided under the heading “Lab Equipment” at www.biotech.iastate.edu/publications/ed_resources/Supplies.html to see what should be in the kit.

If you checked out a kit this year and found that an item was missing or broken, please contact Lori Miller at the Office of Biotechnology, phone toll-free in Iowa 800 643-9504, or e-mail lorimill@iastate.edu.

The kits can be checked out by contacting local Area Education Agencies or the Office of Biotechnology. Educators who obtained the kits in the past from their regional ISU Extension and Outreach offices should contact Lori Miller to determine their current availability.

Educational Opportunities

Summer Research Internship for 7-12 Grade Biology Teachers

Iowa State University is offering 7-12 grade biology teachers the opportunity to participate in a six-week training and research internship in molecular biotechnology and genomics to be held in Ames from June 12 - July 26, 2013 (contingent on unforeseeable snow days). The internship program is supported by the National Science Foundation and includes stipends and travel expenses. For further details, please visit www.eeob.iastate.edu/plantgenomeoutreach/7-12teachers.html or contact program director Dr. Adah Leshem, phone 515 294-8453, e-mail adah@iastate.edu.

Summer Academy on Biorenewables for Middle School Science Teachers

Middle school science teachers can participate in a three-week professional development workshop to study the methods of biomass utilization to produce biorenewable products, including biofuels and bio-materials. The Summer Academy will be held on the Iowa State University campus in Ames from July 8 - July 26, 2013. Participants can earn continuing education or graduate credit. The Summer Academy is supported by the National Science Foundation, which is providing stipends and travel expenses. More details are at www.cbirc.iastate.edu/education/precollege/summer-academy, or contact program director Dr. Adah Leshem, phone 515 294-8453, e-mail adah@iastate.edu.

Spring Career Conferences for Young Women April 11, 18, 25

Young women in grades 6-12 can interact with professional women who have careers in science, engineering, math, and technology at *Taking the Road Less Traveled* career conferences sponsored by Iowa State University's Program for Women in Science and Engineering (PWSE). The dates for the grades 6-8 middle school conferences are April 18 and 25. For grades 9-12, the spring conference date is April 11. Mike Zeller, Iowa State's biotechnology outreach education coordinator, is a regular presenter at the career conferences.

For registration forms and details, visit the PWSE website at www.pwse.iastate.edu/trlt.html. For more information, e-mail Carol Heaverlo at heaverlo@iastate.edu or phone her at 515 294-5883.

Outreach News



By Mike Zeller
BOEC Coordinator

Biotechnology Outreach Education Center

This is the final *Iowa Biotech Educator* newsletter of the school year, and I would like to remind you that it is time to make final decisions about summer professional development opportunities here at the Biotechnology Outreach

Education Center (BOEC) at Iowa State University. Beginning June 10, three biotechnology workshops will be held on-campus in Ames (see p. 1). This year's workshop schedule again will be completed before July 4th. These workshops meet many of the STEM life science standards and criteria. Past attendees have found it useful to attend a workshop(s) as a refresher to learn new content and to update knowledge of materials and techniques. Maybe it's time to attend the advanced workshop with activities that can be used in AP biology and advance your content and technique knowledge.

Please pass this information along to colleagues who might be interested in bringing the newest life science principles and techniques into their classrooms, or bring a team of colleagues with you to the workshops. All workshops offer professional development for licensure credits or ISU graduate credits.

BOEC Has Been Busy

Since the last newsletter, I have been busy presenting to schools and groups on and off campus. Even though the weather has been a challenge, to date this school year I have hosted or visited nearly 2,100 students and adults.

If you are planning to visit the BOEC, or because of limited budgets want the BOEC to come to your school before the end
(continued on p. 4)



Photo by Mike Zeller

of the school year, there are still some dates left in April and May. It is also time to plan your order for free supplies. To schedule a date or order supplies, e-mail Lori Miller (lorimill@iastate.edu) or me (mzeller@iastate.edu) or call our Iowa toll-free number at 800 643-9504.

Electronic Iowa Biotech Educator Newsletter

The Office of Biotechnology, like many other departments on campus, is reducing program costs by using electronic media to deliver our information. If you find it more convenient to have the *Educator* e-mailed to you (PDF format), please contact Lori Miller with your e-mail address. I would encourage you to use this delivery method by placing your entire school's/district's life science staff on the list to receive the *Educator*. It does seem inevitable that the newsletter will be delivered only by e-mail in the near future. Remember to contact us if your e-mail and/or mailing address have changed. Any printing and mailing costs that we save will return to you in free supplies and services. Thank you in advance for considering this option.

Summer 2013

This summer, the BOEC will be full of workshops and course offerings through June. I hope to see some of you in the workshops or around campus at other ISU programs. I especially look forward to helping everyone bring biotechnology into your classrooms starting again this fall.

The next issue of the *Iowa Biotech Educator* will greet you as you arrive back at school in August. That issue will announce all curriculum materials, familiar and new, and hopefully our expanded state outreach opportunities that could be available for you during the 2013-14 school year. Have a great summer!

Awards/Competitions

Science Bowl Winners

Annual Regional High School Science Bowl

Congratulations to Pleasant Valley High School of Bettendorf students who won the 2013 Regional High School Science Bowl sponsored by the U.S. Department of Energy's Ames Laboratory and Iowa State University in January. Students Ben Bruster, Vivian Medithi, Deepon Sarkar, Mary Sears, and Allen Wang, and their coach Jamie Homb advanced to the Department of Energy's National Science Bowl® to be held in April in Washington, D.C. Congratulations also to runner-up Dubuque Wahlert High School and third place winner Dubuque Senior High School. Forty teams from across Iowa competed in the event.

Annual Middle School Science Bowl

Congratulations to Central Lee (Donnellson) Middle School students who won the 2013 Middle School Science

Bowl sponsored by the U.S. Department of Energy's Ames Laboratory and Iowa State University in February. The winning team of students Paolo Adajar, Carleigh Cass, Kacey Davis, Richard Galle, and Aaron Wills, and their coach Heather Davis advanced to the National Middle School Science Bowl® in Washington, D.C., to compete in April. Congratulations also to Ames Middle School for a second-place finish and Lynnville-Sully and Central Academy (Des Moines) that finished third and fourth, respectively.

Biotech on the Internet

Computing Life Booklet

<http://publications.nigms.nih.gov/computinglife>

Computing Life is a free 24-page booklet (also available in PDF, HTML, E-PUB) and website describing how scientists use computers to advance discoveries in biology and human health. Published in 2010 by the National Institute of General Medical Sciences, the booklet covers computing topics in genetics, structural biology, chemistry, diseases, systems, and images. Sections on computing careers and computing news are included. Web exclusive movies, interviews, and articles explore gene-drug interactions, virtual modeling of how infectious diseases spread, cell behaviors, how molecules move within cells, how computer modeling is being used to map the distribution of the fly that spreads sleeping sickness in Africa, and more.

HHMI Holiday Lectures

www.BioInteractive.org/lectures

The Howard Hughes Medical Institute's 2012 Holiday Lectures on Science were titled "Changing Planet: Past, Present, Future" and discussed the history of life on Earth and concerns about climate change. The lectures are now available at www.BioInteractive.org.

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James M. Reecy
Professor of Animal Science and
Director of the Office of Biotechnology

Glenda D. Webber
Editor

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Registration Form for 2013 Biotechnology Education Summer Workshops

Registrations are due by June 3, 2013, for all workshops.

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 10-13 Biotechnology Education Workshop I
for Science, Agriculture, Family and Consumer
Sciences, and ISU Extension and Outreach Educators

_____ June 24-27 Advanced Biotechnology
Education Workshop II for Science,
Agriculture, Family and Consumer
Sciences, and ISU Extension and
Outreach Educators

_____ June 17-20 Bioethics Workshop I



Credit available: 2 professional development credits AND/OR
1-2 graduate credits
(See workshop descriptions on [p. 1-2.](#))

Credit payment and local hotel 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 deadline 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 800 643-9504 • E-mail: lorimill@iastate.edu

Online registration available at www.biotech.iastate.edu/ed_resources/regis_form_summer2013.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.

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About the ISU Public Education Program in Biotechnology. . .

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To Contact the Program

Phone: 515 294-9818 or, toll-free in Iowa, 800 643-9504

Fax: 515 294-4629

E-mail: biotech@iastate.edu

WWW: www.biotech.iastate.edu

Public Education Program Personnel

James Reecy, Professor of Animal Science and
Director of the Office of Biotechnology

Mike Zeller, Biotechnology Outreach Education Coordinator

Lori Miller, Program Secretary

Glenda Webber, Editor

Joel Nott, Assistant Scientist, and Camie Stockhausen, Communications Specialist, Homepage Webmasters