Register by May 22 for biotechnology summer workshops

The registration deadline is May 22 for one or more of the biotechnology education workshops offered by the Office of Biotechnology at Iowa State University.

Educators in public and 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 Iowa State University 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 to $50 per day.

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.

For more information
For more information about the biotechnology education workshops, see the descriptions on the next page, contact Mike Zeller at 515 294-5949 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 jwcwolf@iastate.edu.

Workshop registration
To register for any workshop, please contact Lori or use the online registration form available at www.biotech.iastate.edu/summer-training-courses-for-educators. Please submit your registration to arrive by May 22, 2017.
**Iowa Biotech Opportunities**

### Biotechnology education workshops

**Biotechnology Education Workshop I**  
Iowa State University, Ames  
June 12-15, 2017

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, antibiotic resistance, biofuels, and more. Educators will prepare and perform the lab protocols as the students would do in class.

**Credits**  
- 2 professional development credits – $70  
- 2 ISU graduate credits – $485 per credit

**Stipend**  
- $200 stipend for Iowa teachers ($50 per day) funded by the Iowa Biotechnology Association

**Travel**  
- Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to $50 per day)

**Registration deadline**  
May 22, 2017

**Biotechnology Education Workshop II**  
Iowa State University, Ames  
June 26-29, 2017

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 and purification, recombinant DNA techniques, DNA amplification with PCR, restriction analysis of DNA, bioinformatics, sequencing, genomics, and more. Educators will prepare and perform the lab protocols as their students will do in class.

**Credits**  
- 2 professional development credits – $70  
- 2 ISU graduate credits – $485 per credit

**Stipend**  
- $200 stipend for Iowa teachers ($50 per day) funded by the Iowa Biotechnology Association

**Travel**  
- Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to $50 per day)

**Registration deadline**  
May 22, 2017

---

**Bioethics workshop**

**Bioethics Workshop I**  
Iowa State University, Ames  
June 19-22, 2017

This course is designed for educators who want to incorporate discussion of ethical issues into existing science courses. Participants will create case studies designed to integrate ethical content in the science curriculum, and which might also be used to address such issues for extension audiences. The focus will be on ethical issues in science education, including especially agricultural biotechnology. Several other bioethics topics will also be covered.

Participants will work through activities and case studies that they can take home and use in their classes. During the workshop, participants will be divided into groups. Each group will develop a study on a topic relevant to students who take their classes.

The workshop will also address some 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. Participants will leave with classroom-ready case study exercises for use in their own classes.

**Credits**  
- 2 professional development credits – $70  
- 2 ISU graduate credits – $485 per credit

**Stipend**  
- $200 stipend for Iowa teachers – ($50) per day

---

Stipends for the two biotechnology education workshops generously are provided by the Iowa Biotechnology Association.

---

To register for any workshop, contact Lori Miller (800 643-9504, lorimill@iastate.edu) or register online at www.biotech.iastate.edu/summer-training-courses-for-educators.
Iowa Biotech Opportunities

Travel
• Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to $50 per day)

Registration deadline
May 22, 2017

2017 Iowa Academy of Science annual meeting to be held April 21-22

The 129th Iowa Academy of Science (IAS) Annual Meeting and 85th Iowa Junior Academy of Science Symposium will be held April 21-22 at the University of Northern Iowa in Cedar Falls. Iowa’s scientists, science educators, and students are invited to attend events and hear invited speakers address topics that include climate change impacts on Iowa, ongoing water quality issues facing Iowans, and mining and the environment.

General session topics and speakers
The Polar Vortex: Overview and Implications for Iowa Weather
Jim Lee, General Forecaster, National Weather Service, Des Moines, Iowa

From Molecules to Satellites: A Physical Chemistry Approach to Next-Generation Spacecraft Technology
Jaime Stearns, Ph.D., Senior Research Chemist, Space Vehicles Directorate, Air Force Research Laboratory, Kirkland AFB, New Mexico

The Northeast Iowa Intrusive Complex: Is It Another Mineral-Rich Duluth Complex?
Benjamin Drenth, Ph.D., Research Geophysicist, U.S. Geological Survey, Denver, Colorado, and Dean Peterson, Ph.D., Senior Vice President for Exploration, Duluth Metals Ltd; Research Associate, UMD Natural Resources Research Institute; Adjunct Asst. Professor, University of Minnesota Duluth

Symposia
Meeting participants also can attend a symposium of their choice:
Symposium A: Flooding, Climate Change and Agriculture: Strategies for Resilience
Symposium B: Iowa’s Water Quality: Scientific Solutions and Legislative Trends
Symposium C – Workshop: Care and Management of Natural History Collections

Highlights and more information
Other highlights of the meeting are the poster and oral research presentations of the Iowa Junior Academy of Science, the President’s Banquet on Friday evening, and award presentation events. For more information on additional speakers, events, the conference hotel, maps, and how to register, visit the IAS website at www.scienceiniowa.org.

Mike’s message . . .

Welcome to the spring edition of the Iowa Biotech Educator. This edition will highlight the Office of Biotechnology and the Biotechnology Outreach Education Center’s (BOEC) spring activities and summer workshops.

As with all future editions, you will receive copies electronically via e-mail. You can always find copies of the newsletter on our website at www.biotech.iastate.edu/iowa-biotech-educator-newsletter/. Feel free to make hard copies to distribute among your life science, agriculture, and family and consumer sciences staff/departments.

Spring 2017
Spring is here and it’s time for you to make final decisions about outreach and summer professional development opportunities here in the BOEC at Iowa State University.

Beginning June 12, three biotechnology workshops will be held on-campus in Ames (see p. 2). This year’s workshop schedule again will be completed by the end of June. These workshops will help you and your science, agricultural education, and family and consumer sciences departments meet many of your school’s needs.

Save the dates: ISTS fall conference October 8-9

The Iowa Science Teaching Section fall conference Elements of STEM is at the FFA Enrichment Center, Ankeny, on Oct. 8-9. Details/flyer: www.scienceiniowa.org

Continued on page 4
Iowa Biotech Expertise  
Mike’s message continued

The workshops are designed to enhance your curriculum’s STEM, life science, Iowa Core, and Next Generation Science Standards criteria by bringing the newest life science principles and techniques into your classrooms. You might even look into bringing a team of colleagues from your department to the workshops. All workshops offer professional development credits for licensure and/or Iowa State graduate credits.

Past attendees have found it useful to attend a workshop(s) again as a refresher to learn new content and to update knowledge of materials and techniques. Maybe it’s time to attend the advanced workshop or one in bioethics? Even if you don’t intend to visit Iowa State to attend one of the workshops, we need your help in getting the word out to colleagues in your district and others about the services and summer workshops the Biotechnology Outreach Education program offers.

Spread the word. . .
Please tell your colleagues about the services and workshops offered by the BOEC.

BOEC has been busy
Since the last newsletter, I have been busy presenting to many schools and groups on and off campus. If you are thinking of planning a visit to the BOEC, there are still a few dates left in May. For those of you who have attended workshops and plan to take advantage of the free supplies and equipment, it is time to plan your end of the year orders. To schedule a visit 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.

Summer 2017 in the BOEC
This summer, the BOEC will be full of workshops, course offerings, and hosting other Iowa State programs. It is also a time to reinvent and update activities, restock supplies, repair/update equipment, refresh, and generally get ready for the 2017-18 school year.

I hope to see some of you in the bio-tech workshops or around campus at other Iowa State programs. I especially look forward to helping everyone bring biotechnology into your classrooms this spring, summer, and starting again next fall.

The next issue of the Iowa Biotech Educator will greet you electronically as you arrive back at school in August. That issue will announce all curriculum materials, familiar and new, and our current slate of outreach opportunities that will be available for you during the 2017-18 school year. Have a great summer!
Iowa Biotech Competitions

I.O.W.A. STEM Teacher Award recipients for 2017 announced

The Iowa Governor's STEM Advisory Council and Kemin Industries have announced the recipients of the 2017 I.O.W.A. STEM Teacher Award sponsored by Kemin Industries.

The I.O.W.A. STEM Teacher Award was created in 2014 to recognize and celebrate one teacher from each of the six STEM regions who goes above and beyond to increase their students’ interest in STEM. Each recipient is recognized for their dedication in representing I.O.W.A. by being Innovative in their methods, Outstanding in their passion for education, Worldly in the way they help students see that STEM is all around them, and Academic through engaging students in the classroom to prepare them for higher education and high-demand careers.

Each recipient was selected by a panel of judges after being nominated for the award by a colleague, school administrator, parent, student or community member and completing an application showcasing their contributions to STEM education. Each recipient will receive $1,500 for personal use and another $1,500 for their classroom.

The award recipients from each of the regions include:

- **Northwest Region:** Keith Juelfs, 5th grade teacher at Morningside Elementary STEM School, Sioux City
- **North Central Region:** Benjamin Jass, industrial technology teacher at Webster City High School
- **Northeast Region:** Chelsie Slaba, model science teacher at Dike-New Hartford High School
- **Southwest Region:** Brett Roberts, 6th grade science teacher/Ten-80 Coach at Shenandoah Middle School
- **South Central Region:** Heather Anderson, 2nd grade teacher at Grant Ragan Elementary School, Waukee
- **Southeast Region:** Gregory Smith, industrial technology teacher at Davenport West High School

All six recipients have each been honored with ceremonies in their classrooms with their students and peers, and were recognized together at STEM Day at the Capitol, with Gov. Branstad, Lt. Gov. and STEM Council Co-Chair Kim Reynolds, and Kemin Industries President and CEO and STEM Council Co-Chair Dr. Chris Nelson the morning of Thursday, February 16th.

For more information about the award and all current and previous recipients, please visit [www.stemaward.fluidreview.com](http://www.stemaward.fluidreview.com).

Congratulations to 2017 Science Bowl winners

**Iowa Regional High School Science Bowl**

Congratulations to the Valley High School of West Des Moines students who won the 2017 Iowa Regional High School Science Bowl hosted by the U.S. Department of Energy’s Ames Laboratory and Iowa State University in January.

Students Jacob Bedia, Cayden Codel, Arjun Ganga, Gabriel Mintzer, and Guowei Qi and their coach Nathan Speichinger advanced to the U.S. Department of Energy’s National Science Bowl® to be held April 27-May 1 in Washington, D.C.

Congratulations also to runner-up Des Moines Central High School, and third place Ames High School. Forty teams competed in this year’s event.

**Iowa Regional Middle School Science Bowl**

Congratulations to the Ames Middle School students who won the 2017 Iowa Regional Middle School Science Bowl hosted by the U.S. Department of Energy’s Ames Laboratory and Iowa State University in February. Sixteen teams competed in the event.

The winning team of Ames students Nethaka Dassanayke, Shirlin Kingston, Varun Prasanna, Jacob Stevens, Rishabh Swamy, and their coach Rachel Miller advanced to the National Middle School Science Bowl® in Washington, D.C., to compete April 27-May 1.

Congratulations also to Council Bluffs St. Albert for a second-place finish and Bettendorf Middle School who finished third.

Free Resources

**National DNA Day is April 25**

[https://www.genome.gov/10506367/national-dna-day/](https://www.genome.gov/10506367/national-dna-day/)

National DNA Day commemorates the completion of the Human Genome Project in April 2003 and the publication of the discovery of the double helix of DNA in 1953 by James Watson and Francis Crick. This year’s DNA Day is on April 25, 2017.

For events in Iowa and other states, activity ideas, and more about the history of DNA, visit the National DNA Day website given above. The website is hosted by the National Human Genome Research Institute of the National Institutes of Health (NIH).
About Iowa State’s Public Education Program in Biotechnology . .

Iowa State University’s Public Education Program in Biotechnology thanks donors for their generous support:
Sustaining donor: Iowa Biotechnology Association
Major donors: 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 Farm Bureau Federation Agricultural Foundation; the Iowa Soybean Promotion Board; Iowa State University Extension and Outreach; 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.

To Contact the Program
Phone: 515 294-9818 or, toll-free in Iowa, 800 643-9504
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