The registration deadline is May 28 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 $100 per day to help cover their costs of attending. ISU Extension and Outreach educators or personnel can receive travel reimbursements of up to $100 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 at 515-294-9818, 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 28, 2019.
Iowa Biotech Opportunities

Biotechnology education workshops

Biotechnology Education Workshop I
Iowa State University, Ames
June 10-13, 2019

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 – $1,034

Stipend
• $400 stipend for Iowa teachers ($100 per day) funded by the Iowa Biotechnology Association

Travel
• Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to $100 per day)

Registration deadline
May 28, 2019

Biotechnology Education Workshop II
Iowa State University, Ames
June 24-27, 2019

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 would do in class.

Credits
• 2 professional development credits – $70
• 2 ISU graduate credits – $1,034

Stipend
• $400 stipend for Iowa teachers ($100 per day) funded by the Iowa Biotechnology Association

Travel
• Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to $100 per day)

Registration deadline
May 28, 2019

Bioethics workshop

Bioethics Workshop I
Iowa State University, Ames
June 17-20, 2019

This course is designed for educators who want to incorporate discussion of ethical issues into existing K-12 course work.

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, but other bioethics topics will also be covered.

The workshop will also address pedagogical issues, including appropriate objectives for bioethics units, alternative approaches to bioethics pedagogy, and other issues that regularly arise in the science ethics classroom.

Stipends for the two biotechnology education workshops generously are provided by the Iowa Biotechnology Association.
Iowa Academy of Science meeting April 26-27

The 131st Iowa Academy of Science (IAS) Annual Meeting and 87th Iowa Junior Academy of Science Symposium will be held April 26-27 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 the mental, physical and environmental aspects of scaling Mt. Everest, how the Iowa Land and Sky public television project is impacting science classrooms, and insights into how the electric grid works.

General session topics and speakers

Iowans for Everest
Andy (John) R. Anderson, Ph.D., Assistant Professor of Management, University of Northern Iowa, Cedar Falls, Iowa

Iowa Land and Sky
Patrick Boberg, Producer, Director
Tiffany Morgan, Instructional Media Designer, Educational Consultant
Iowa Public Television, Johnston, Iowa

The Evolution of the Modern Electric Grid and How It Operates Today
Bill Skubal, Director of Electric, Gas, and Water Operations, Cedar Falls Utilities, Cedar Falls, Iowa

Symposia

Meeting participants also can attend a symposium of their choice:
Symposium A: Iowa’s Water Quality: Today and into the Future
Symposium B: To boldly go...where no Lego® has gone before!
Symposium C: Topic to be announced

Highlights and more information

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

Stipend

• $400 stipend for Iowa teachers ($100 per day)

Travel

• Travel reimbursement available for ISU Extension and Outreach educators/personnel (up to $100 per day)

Registration deadline

May 28, 2019

Please recycle 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, Iowa State University, Office of Biotechnology, 1210 Molecular Biology Building, 2437 Pammel Drive, Ames IA 50011-1079. Please empty and rinse the 10X TBE bottles before you return them.

Questions? Contact Clark Wolf at 515-294-3068 or e-mail jwcwolf@iastate.edu.
Welcome to the spring edition of the Iowa Biotech Educator.

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

In this issue is the final announcement for the summer Biotechnology Education workshops. Feel free to forward the link given below or make hard copies of the newsletter to distribute among your life science, agriculture, and family and consumer science staff/departments.

Spring 2019
After a late winter to remember, spring is finally 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 10, three biotechnology workshops will be held on campus in Ames (see p. 1). This year’s workshop schedule again will be completed by the end of June. The registration deadline is May 28.

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.

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 that the biotechnology education program offers. 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. You can always find copies of the newsletter on our website at www.biotech.iastate.edu/iowa-biotech-educator-newsletter/.

BOEC has been busy
Since the last newsletter, I have been busy presenting to schools and groups in the BOEC and off campus. By the end of May, I am scheduled to see over 1,100 students.

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 515-294-9818.

PCR equipment available
It has now been a year since the BOEC started offering equipment and supplies for PCR (polymerase chain reaction) activities.

Even though the BOEC offers supplies for only the TPA-25 Alu sequence protocol right now, each thermal cycler also is programmed for the most popular PCR activities offered by Bio-Rad and Carolina Biological, if educators prefer to purchase the activities from these companies.

You can review the TPA-25 Alu sequence activity’s required equipment and materials at www.biotech.iastate.edu/laboratory-protocols.

An article detailing the PCR activity can be found in the 2018 Winter edition of the Biotech Educator located on the K-14 Educators link from our home page at www.biotech.iastate.edu.

Thinking about next year
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 2019-2020 school year.

Have a great and restful summer!
Iowa Biotech Competitions

I.O.W.A. STEM Teacher Award recipients for 2019

The Iowa Governor’s STEM Advisory Council and Kemin Industries have announced the recipients of the 2019 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. The recipients will receive $1,500 for personal use and another $1,500 for their classroom, generously sponsored by Kemin Industries. The award recipients from each of the regions include:

- **Northwest Region:** JoAnne Sackett, TAG/Explore Lab STEM teacher, Okoboji Elementary School (Milford)
- **North Central Region:** Sharon Jaeschke, high school math teacher, Southeast Valley High School (Gowrie)
- **Northeast Region:** Ann Gritzner, middle school and high school science teacher, Central Community School District (Elkader)
- **Southwest Region:** Lacy West, 7th and 8th grade science teacher, Missouri Valley Middle School (Missouri Valley)
- **South Central Region:** Matthew Eddy, agricultural teacher, Southeast Polk High School (Pleasant Hill)
- **Southeast Region:** Jacob Hunter, agricultural teacher, North Scott High School (Eldridge)

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 by STEM Council Co-Chairs Gov. Kim Reynolds (represented by Lt. Governor Adam Gregg) and Roger Hargens, Accumold President and CEO, the morning of Wednesday, February 13th.

Following STEM Day at the Capitol, all past and present I.O.W.A. STEM Teacher Award recipients gathered for a 5th Year Reception at Kemin Industries to honor all thirty teachers who have been awarded this prestigious award. The educators had the opportunity to network over refreshments, tour the Kemin worldwide headquarters, and engage with Kemin scientists. 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 2019 Science Bowl winners

**Iowa Regional High School Science Bowl**

Congratulations to Pleasant Valley High School (Bettendorf) students who won the 2019 Iowa Regional High School Science Bowl hosted by the U.S. Department of Energy’s Ames Laboratory and Iowa State University in January.

Students Sujay Marisetty, Aditya Desai, Aadil Manazir, Mitchell Strobbe, and Aman Manazir and their coach Bartley Meinke advanced to the U.S. Department of Energy’s National Science Bowl® to be held April 25-29 in Washington, D.C. Congratulations also to runner-up West Des Moines Valley and third place winner Ames High School.

Thirty-six teams competed in this year’s event.

**Iowa Regional Middle School Science Bowl**

Congratulations to the Stilwell (West Des Moines) team 2 students who won the 2019 Regional Middle School Science Bowl hosted by the U.S. Department of Energy’s Ames Laboratory and Iowa State University in February. Twenty-nine teams competed in the event.

The winning team of Stilwell students included Owen Kouba, Henry Golay, Jackson Keith, Rose Penar, Ayden Murenzi, and their coaches Bryan Bacehowski and Shelley Urban.

Stilwell advances to the National Middle School Science Bowl® in Washington, D.C., to compete April 25-29. Congratulations also to Ames Middle School team 1 for a second-place finish and Pella Middle School who finished third.

Free Resources

**National DNA Day is April 25**

[genome.gov/dnaday](http://genome.gov/dnaday)

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. DNA Day is celebrated annually on April 25th by action of the 108th Congress designating it as DNA Day.

For events in Iowa and other states, activity ideas, and more about the history of DNA, visit the National DNA Day website given above, 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
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