

Synthetic Biology – STEM Professional Development Workshop at Penn State Hershey Medical Center

You are invited to the BioBuilder 3-day workshop at Penn State Hershey Medical Center in Hershey, Pennsylvania. This professional development opportunity prepares educators to bring biological engineering and synthetic biology into their classrooms and laboratories.

This workshop will be held from July 25 - 27, 2018.

The workshop will include:

- Lectures that connect the science, technology, engineering, and math aspects of these fields.
- Labs and classroom activities taught from the online www.BioBuilder.org resource and the BioBuilder textbook published by O'Reilly.
- Discussion with members of the university research community.
- Activities that address human practice questions such as the safety, security, economics and wisdom of engineering novel biological systems.
- Activities that address the nuts and bolts of running a BioBuilderClub or iGEM team.
- Attendees receive a copy of the BioBuilder textbook, all workshop classroom materials in ready to use formats, lunch each day, and a certificate of completion.

Who should apply?

This workshop is intended for:

- High school and middle school Biology and STEM teachers, including those looking for new ways to teach the AP content or for compelling material to teach college-bound students.
- College-level instructors looking for classroom and lab curricula to include in a biotechnology-style class.
- Science Club leaders, in particular anyone looking for ways to bring cutting-edge content to students with a variety interests from math to biology to electronics.

How to apply?

- [Register online.](#)
- Tuition is \$400 when registered by April 1; \$500 after. Scholarships are available.
- A non-refundable registration/deposit fee of \$50 is due upon application, reserving your place in the workshop. Balance is due four weeks in advance of the workshop.
- **Pre-registration is required for all participants, as space is limited.**

What is Synthetic Biology?

Synthetic Biology is an emerging field that applies engineering and mathematical principles to the development of novel biological systems. These principles and technologies extend the teaching of molecular genetic techniques into real world, authentic applications. Examples of synthetic systems include bacteria that smell like bananas, and light-sensitive bacteria that can serve as pixels in a photograph. These teachable systems are included in the curriculum at Biobuilder.org.

Why teach Synthetic Biology?

Synthetic biology provides teachers and students an engineering context to learn molecular biology, genetic engineering and microbiology methods. This approach asks students to learn while designing, or testing designs of, engineered biological systems. In addition, this approach provides science teachers with a means of exploring numerous state and national technology standards that are hard to address in most science classes.

Who's teaching this workshop?



Dr. Patricia Silveyra, MSc, PhD, is an Assistant Professor of Pediatrics, Biochemistry and Molecular Biology, and Humanities at The Pennsylvania State University College of Medicine. She received her Master's in Molecular Biology and PhD in Biochemistry from the University of Buenos Aires, Argentina, and she did her postdoctoral training in lung physiology at Penn State University.



Lauren Chiota is a Biology Teacher and Science Department Chair at the Milton Hershey School in Hershey, Pennsylvania. Her past work experience includes being a clinical genomics research technician at Dana Farber Cancer Institute in Boston, Massachusetts, and working on STEM curriculum development and advocacy at the Museum of Science in Boston. She completed her Master of Education degree from Boston College. She leads a team with the BioBuilderClub.

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The BioBuilder Educational Foundation is a 501(c)3 organization. Donations are tax-deductible and all proceeds go directly to funding the foundation's programs and materials.