

## Synthetic Biology – STEM Professional Development Workshop at the University of North Carolina – Chapel Hill

You are invited to the BioBuilder 3-day workshop at the University of North Carolina in Chapel Hill, NC. This professional development opportunity prepares educators to bring biological engineering and synthetic biology into their classrooms and laboratories.

**This workshop will be held:  
July 10 - 12, 2019**

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](http://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 of 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 30 days 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](http://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** is an Associate Professor and Director of the Biobehavioral Laboratory at the University of North Carolina at Chapel Hill (UNC-CH) School of Nursing. Her research focuses on the study of sex differences and hormonal control of lung inflammation and disease. She holds BS and MSc degrees in Molecular Biology and Biotechnology and a PhD in Biochemistry. Before moving to UNC-CH, Dr. Silveyra was an Associate Professor of Pediatrics and Biochemistry & Molecular Biology at the Pennsylvania State University College of Medicine, where she led two BioBuilder workshops.



**Joanne Bartsch** has been teaching at Carolina Day School in Asheville, NC for 38 years, serving as Science Department Chair for 10 years. Her primary responsibility is with 9th graders where she has developed and teaches the introductory course in human biology. She has also taught a variety of elective courses including Genetics, Biotechnology, Aquatic Ecology, Evolution and Microbiology. This year, she has also undertaken AP Biology. Joanne attended a BioBuilder workshop in 2014, sponsored a BioBuilder team in 2014/2015 and currently works with a student developing a BioBuilder project independently. Outside of the biology classroom, Joanne practices Taekwondo and is learning to tempt trout with flies.

### SPONSORS:

**BioBuilder.org**



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For more information, please email: [carla@biobuilder.org](mailto:carla@biobuilder.org).

*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.*