

## Professional Development Workshop @ MIT

**If you are a middle school teacher interested in bringing current research and novel inquiry-based curriculum to your students, then we want to work with you!**

You are invited to apply to the **BioBuilding Curriculum** workshop @ MIT. This two and a half day professional development class will prepare middle school educators to bring engineering into their science classrooms and laboratories. Faculty from MIT will work with participating teachers to develop middle school curriculum based on the engineering of biology using the successful activities at [www.BioBuilder.org](http://www.BioBuilder.org). The workshop will include

- close interactions with high school teachers already teaching the BioBuilder curriculum
- lectures that connect the engineering/science/math and technology aspects of synthetic biology
- small group work with other middle school teachers, high school teachers and MIT's faculty
- lunchtime seminars

This workshop will run from **August 1<sup>st</sup>-3<sup>rd</sup>, 2012**. Attendees will receive lunch each day, parking validation and 35 PDPs. Attendees should plan to carry out a BioBuilder activity in the 2012-2013 academic year, and provide feedback on the effort.

### Who should apply?

This workshop is intended for Middle School science teachers, especially those who are

- looking for new ways to teach science content
- engaging their students with design challenges and inquiry-oriented activities
- eager to bring current research topics into their classrooms
- excited by curriculum development
- energized by a challenge and comfortable as life-long learners

### How to apply?

Send a copy of your CV and a completed application to the following address:

Dr. Natalie Kuldell  
Department of Biological Engineering, MIT  
77 Mass Ave, 16-325  
Cambridge, MA 02139

The application is online: <http://www.surveymonkey.com/s/8YKYJQ7>

or can be downloaded:

[http://openwetware.org/wiki/BioBuilding\\_Curriculum\\_Workshop\\_@\\_MIT](http://openwetware.org/wiki/BioBuilding_Curriculum_Workshop_@_MIT)

Applications are due **March 16<sup>th</sup>, 2012** and applicants will be notified by **April 2<sup>nd</sup>, 2012**

**Questions?** [info@biobuilder.org](mailto:info@biobuilder.org)

## 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 for advanced high school/early college settings at [Biobuilder.org](http://Biobuilder.org).

## Why teach Synthetic Biology?

Synthetic biology provides teachers and students an engineering context to learn science content and laboratory 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 BioBuilding2012?

### Dr. Natalie Kuldell

Natalie Kuldell teaches in the Department of Biological Engineering at the Massachusetts Institute of Technology. She develops discovery-based curricula drawn from the current literature to engage undergraduate students in structured, reasonably authentic



laboratory and project-based experiences. She completed her doctoral and post-doctoral work at Harvard Medical School, and taught at Wellesley College before joining the faculty at MIT. Natalie is the director of a web-based resource called *BioBuilder* to teach synthetic biology as well as a scientific adviser for two web-projects to teach the nature and process of science, namely *Understanding Science* and *VisionLearning*.

### Jim Dixon

Jim Dixon has been teaching Biology and AP Biology at Sharon High School since 2004. He is recognized as a Massachusetts Master teacher, Presidential Distinguished Teacher, and holds a National Board Certification. Jim has a BS from Fordham University and an MS



from the State University of New York at Buffalo. In addition to teaching at Sharon High School, he is the adviser for the Science Club and manages China Exchange program. Jim is particularly interested in developing curricula and assessments that makes science curriculum more meaningful to students. He has developed science curricula with Grant Wiggins, Harvard University and MIT.

Lunchtime seminars from members of [SynBERC](#) and [MIT's Department of Biological Engineering](#) (faculty TBA)

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