

iGEM High School Workshop on Biology & Engineering at NYU Abu Dhabi

We invite high school students in the UAE to experience a mini workshop on iGEM, an international synthetic biology competition targeted towards high school and university students. Within the scope of iGEM, synthetic biology presents a way to redesign parts of the bacterial genome to create bacteria with novel functions. This one-day workshop provides the students with the opportunity to channel their interest in both the biology and the engineering aspects.

WHAT IS iGEM?

iGEM stands for international Genetically Engineered Machines, which is an international synthetic biology competition targeted towards high school and university students. Check out igem.org for more details.

BIOLOGY WORKSHOP: GLO, BACTERIA, GLO

Transformation is a fundamental technique to synthetic biology research and a major tool for iGEM projects. It involves the incorporation of foreign DNA into a cell, most commonly into bacterial cells. In this workshop, you will learn how to transform pGLO DNA into the *E. coli* cloning vector, a type of cell used to produce high copy of your DNA of interest, using the heat shock method. If your transformation is successful, you'll be able to see your bacteria glow green under UV light!

ENGINEERING WORKSHOP: ARDUINO + ENGINEERING DESIGN

Engineering and component design constitute a major part of the iGEM competition. Engineering is about integrating many elements to create a device and requires several skills such as interactive design, programming, and circuitry. Students will also learn about the engineering design process which makes a certain device stand out among others. In this workshop, you will learn the basics of programming and circuit design by reverse engineering a Bike light and creating your own using an Arduino kit and LEDs.

SCHEDULE

9:45 – 10:00 am	<i>Registration</i>
10:00 – 10:30 am	<i>iGEM introduction presentation</i>
10:30 – 11:30 am	<i>Biology Workshop/ Engineering Workshop</i>
11:30 am – 12:25 pm	<i>Lunch</i>
12:25 – 1:30 pm	<i>Biology Workshop/ Engineering Workshop</i>
1:30 – 2:00 pm	<i>Campus tour and team photo</i>

COMPETITION (OPTIONAL)

At the end of the series of the workshops, there will be a competition involving all the students who participated. At the end of the week, the competition details and criteria will be released to all the participants at the same time so that all students have the same amount of time to work on it. The winning teams will be mentored for lab and design skills by the iGEM team.

WORKSHOP DETAILS

Date	<i>To Be Determined</i>
Time	<i>10 am – 2 pm</i>
Place	<i>New York University Abu Dhabi, Saadiyat Island</i>

Register by submitting the online form by June 25, tinyurl.com/nyuadigemworkshop

Note Students will have to attend both workshops, which will be held on the same day.

Need more information? Contact na51@nyu.edu or dm3900@nyu.edu