

Thursday 4:00-5:30
Saturday 9-2

High School

Apprenticeship Challenge 2024



Inspired by patients.
Driven by science.



STEM
PATHWAYS

Week	Thursday, 4:00-5:30 ONLINE	Saturday, 9A-2PM IN LAB
1		03/16/24: LAB SKILLS Safety, Handling hazards, Measuring in metric
2	03/21/24: LAB SKILLS Keeping a lab notebook	03/23/24: LAB SKILLS Pouring plates, Single colonies, Liquid culturing
3	03/28/24: MAKING SOLUTIONS Glassware, Stocks	03/30/24: MAKING SOLUTIONS Diluting Solutions, Micropipetting & LAB SKILLS: Measuring Cell Concentration*
4	04/04/24: MAKING SOLUTIONS Multi-solute solutions	04/06/24: FOUNDATIONS Miniprep solutions, pH, Isolating DNA 1 & 2
5	04/11/24: FOUNDATIONS Amplifying DNA 1	04/13/24: FOUNDATIONS Amplifying DNA 2, Digesting DNA, Visualizing DNA
SPRING BREAK 04/15 – 04/19		
6	04/25/24: FOUNDATIONS Sequencing DNA & PRE-PROFESSIONAL SKILLS	04/27/24: FOUNDATIONS Solution Preparation, Growth Curves* & Protein Induction
7	05/02/24: FOUNDATIONS Standard Curve & PRE-PROFESSIONAL SKILLS	05/04/24: FOUNDATIONS Calculating protein concentration, Enzyme activity measurement
8	05/09/24: REVIEW Test preparation	05/11/24: CREDENTIAL TESTING & Certificates of completion, stipends

*skills assessment

Overview

This 8-week program is designed to close any skills gap students may have so they can test for micro-credentials that illustrate their readiness to progress into a life science company or academic lab. No student is guaranteed a credential or a placement, but everyone is promised our best efforts to advance the personal and professional goals of all students who complete the apprenticeship training.

Goals

We will focus on three aspects that lead to successful life science careers

- **Content knowledge:** we will spend several hours each week working with synthetic living systems to gain familiarity with terms and details of science and bioengineering.
- **Laboratory techniques:** we will spend several hours each week in our industry-grade research lab carrying out experiments to train hands and minds for benchwork.
- **Professional skills:** we will emphasize collaboration, written and oral communication, and responsibility. The research experience we provide leads to lasting gains in motivation, initiative, listening skills and experiences interacting with others.

Requirements

Students are expected to bring their best selves to our program. All must

- Come with an open mind
- Come with energy to engage with the challenges
- Work collegially and constructively
- Tell people who need to know if there is a problem

Students who miss more than one of our online sessions or miss any of the Saturday sessions will not receive a stipend.

Anyone who fails to notify instructors of absences or tardiness, who are not paying attention during class or lab, or who are distracted during work times will be asked to leave the program and will not receive the stipend associated with our 8-week program.

Evaluation

Students will be offered constructive criticism throughout our program. Comfort with scientific content is important but equally important is the motivation and enthusiasm students show for working together, and their ability to listen, to discuss, and to accept direction and criticism. Troubleshooting laboratory experiments will be valued at least as much as good hands at the bench.

Materials

Students will receive materials that must be brought to class every time. These include

- a blank lab notebook
- a kit of materials for the weekly interactive online lectures

Milestones

March 16th 2024

Lab Orientation

March 30th, 2024

Assessment on lab skills

April 27th, 2023

Assessment on lab foundations

May 11th, 2024

Completion of program and formal credential testing