SUMMER SPRINGBOARD
Look Inward. Go Upward.

Biotechnology Infosheet

New student admissions for Summer 2025 are open.

Program Highlights

UCSD + MIT

- Work alongside scientists discovering treatments for various diseases.
- Start with molecule design and compound creation, and follow the process to the point of in vitro biological activity.
- Take part in a trypsin purification program as well as grow a protein in e-coli
- Learn how to harvest and isolate a protein, and see how it reacts to various compounds in an advanced research laboratory.
- Create a molecule, and test its biological results practicing the scientific method from hypothesis to conclusion.

Berkeley

- Uncover the secrets hidden beneath the soil under our feet and explore the study of microbiology.
- Learn how to isolate and test for the potential to yield the next generation of antibiotics.
- Discover the incredible power to modify DNA within genomes and witness its transformational impact.
- Utilize sophisticated lab tools, from pipettes to gene-editing technology, as you dive deep into the art of scientific discovery.

Academic Program Overview

UCSD + MIT

Are you interested in medicine, science, and technology? Is your goal to create a life-saving drug? This is a unique opportunity for high school students to gain real exposure and hands-on experience working in a biotechnology lab utilizing state-of-the-art equipment. The goal of this program is to provide students intensive laboratory skills experience, and to understand fundamental chemical processes common in prokaryotic and eukaryotic biology, and classical and molecular genetics with an emphasis on gene expression and genetic engineering. The biotechnology industry draws from a variety of different specialties, with microbiology, genetics, biochemistry, and I.T. all having a significant impact. In addition to lab work, students will have an opportunity to visit biotech incubators and hear from industry professionals.

Berkeley

Students in Biotech in Berkeley will explore environmental biotechnology and the discovery of antibiotics from soil microbes. In this course, students will learn how to isolate and test whether microbes found in soil can produce the next generation of antibiotics. In this course, they will experience this fun introduction to microbiology, the scientific process, and modern laboratory techniques. Students will also explore the CRISPR Revolution: From Discovery to Application. They will re-trace the steps of scientists who found and developed this groundbreaking technology used to modify DNA in genomes. Students will work to understand the fundamentals of CRISPR engineering at a molecular level and apply it with hands-on labs. They will perform sample collection, data analysis, and work with fluorescent proteins in a scientific process using sophisticated lab tools.

Instructors

UCSD - Dr. Vicki Nienaber-Meadows, Ph.D.

Dr. Nienaber has over 30 years' experience at large companies, mid-sized biotech, and her own biotech, Zenobia Therapeutics. Throughout Dr. Nienaber's career she has been both an early adopter as well as an inventor of instrumentation and technology directed towards early-stage drug discovery. She is best known as lead inventor of the crystallographic fragment-based lead discovery method that is still used worldwide to identify clinical candidates and marketed products. She was also the technical lead for invention of the first crystal mounting and alignment robot, ACTORTM, which was recognized with an R & D top 100 innovations award. The robot is now sold commercially by Rigaku. Dr. Nienaber has overseen large multinational drug discovery programs, early-stage drug discovery pipelines and build platforms consisting of robotics, procedures, and relational databases and two companies. She has been awarded grants from the Michael J Fox Foundation, California Institute for Regenerative Medicine, National Institutes of Health and National Science Foundation. For more information, click here.

Course Structure

There are nine 3-hour class sessions over the two-week course. During week one, students have class from 9am-12pm Monday - Friday. During week two, students have class from 9am-12pm Monday through Thursday. Wednesday afternoons of each week are dedicated to students' course-specific academic excursion, guest speaker, or activity.

MIT - TBA

MIT Instructor TBA - Courses are taught by accomplished and passionate faculty recruited from many area colleges, universities and professional forums. Each faculty member is selected for their subject area expertise and proven ability to both challenge and captivate students.

Berkeley - Luis Valentin-Alvarado, PhD

Dr. Valentin-Alvarado holds his PhD in microbiology from UC Berkeley. His doctoral research at Berkeley focused on reconstructing genomes from natural ecosystems in an effort to uncover insights into the metabolic capabilities of understudied microbes. He is currently a microbial genomics and structural biology research fellow at Monash University in Australia, where he is working with a group that is pioneering the exploration of CRISPR-Cas and other innovative immune systems. His role in this research involves the strategic integration of laboratory skills and ecosystem-scale genomics to explore the untapped potential of bacteria, archaea, and mobile genetic elements. Prior to this, Luis was a graduate researcher at the Innovative Genomics Institute, a research assistant at MIT, and worked as a research assistant at the Woods Hole Oceanographic Institution at the Saito Lab.




Tuition Information:

Residential Students:

- **Includes:** all meals, lodging, excursions, academic course, weekend excursions
- **Excludes**: optional airport pickup and drop off service (available for an additional fee)
- **Price**: See prices under 2025 dates

Commuter Students:

- **Includes:** lunch, academic course, excursions, programming from 9am to 5pm, Monday-Friday
- **Excludes:** lodging, breakfast, dinner, weekend excursions
  - Weekend excursions can be added on for $125 per day
- **Price**: $3,298

Supplements:

- **Application fee**: $99 (mandatory, non-refundable)
- **Supplies Supplement**: $250 (mandatory for Biotechnology students)
- **Tuition Protection Plan**: Allows for cancellation for any reason up until the day of the program. Click here for more info.

More info on Airport Transfer

More info on Unaccompanied Minor Service

Apply Now!

Summer Springboard programs are not run by our campus partners (with the exception of Cal Poly and NYSID which are run in partnership with SSB). Universities and their affiliated departments and partners do not control and are not responsible or liable in any manner for any part of the Summer Springboard program.

2025 Dates

Berkeley ($5,998)
- Session 2: June 22 - July 04
- Session 4: July 06 - July 18
- Session 6: July 20 - August 01

UC San Diego ($5,698)
- Session 1: June 29 - July 11
- Session 2: July 13 - July 25
- Session 3: July 27 - August 8

MIT ($6,498)
- Session 1: June 22 - July 04
- Session 2: July 06 - July 18

Typical Schedule

Excursions

Students do their daily class directly inside a biotechnology lab. In San Diego, past summer's visits have been to JLabs, Calibr, Bio Tech & Beyond, and other incubators in the San Diego area.

Students in Berkeley do their daily work inside a Berkeley lab and have visited leading biotech companies such as Thermo Fisher Scientific, as well as leading local research labs like the Innovative Genomics Institute (IGI).

Excursion info for MIT will be later announced.

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