Guiding Outstanding Learners to Discover (GOLD):

Summer Youth Intensive Program 2019

Remote Coaching & 4-week Laboratory Internship
About SYIP

SYIP is intended for the most accomplished high school students who are passionate about learning and doing scientific research in chemistry, biochemical chemistry, material science, physics, or related fields, and who are focused on maximizing their future success in college.

Selected students are paired with an assigned mentor in a faculty research group. The mentor provides 9 months of remote coaching beginning October 2018. Students learn about the mentor’s current research, strategies, and aims in preparation for a 4-week on-site internship in the assigned mentor’s research laboratory beginning July 2019.

During the 4-week internship, students shadow their assigned mentor to assist with data analysis and non-hazardous laboratory procedures, and attend seminars and group meetings. Students will get an in-depth view into concept development, methods design, decision making, scientific processes, and inner workings of world-renowned laboratories that develop advanced technologies and solutions to society’s issues.
SYIP is unlike any other summer program!

Brought to you by the TOP RANKED chemistry program in the world. SYIP is administered and delivered by the College of Chemistry at UC Berkeley and is led by globally recognized and highly influential faculty. The College’s Department of Chemistry is ranked NUMBER ONE in the world!

Observe and experience cutting-edge research. SYIP teaches students to think for themselves, learn to apply theory, communicate effectively, work in a team, and hone skills that set a UC Berkeley student apart from the others. Students are afforded a unique opportunity to interact with UC Berkeley professors and students while learning about cutting-edge research that is currently being done on campus. Students participate, observe, and experience the workings of world-class research laboratories through on-site internships.

Provides invaluable insight into the college application process and college life. During the 4-week onsite experience, students stay in UC Berkeley dormitories, are mentored by UC Berkeley undergraduate students, and receive learning opportunities outside of the laboratory. Students visit Lawrence Berkeley National Laboratory, gain insight about the college application process from the UC Berkeley Admissions Office, and engage in discussions with UC Berkeley undergraduates and faculty mentors.

Continuous interaction with Berkeley professors and students. SYIP provides multiple opportunities for students to interact with and learn from distinguished scientists over the course of a year. This continuous interaction will better inform UC Berkeley professors and mentors when writing recommendation letters.
Joel Ager  
**Materials Science and Engineering**  
Professor Ager’s research focuses on fundamental transport in photovoltaic materials, solar to electricity and solar to fuel materials, and discovery of solar fuel catalysts.

Paul Alivisatos  
Research concerns the structural, thermodynamic, optical, and electrical properties of colloidal inorganic nanocrystals. The lab investigates the fundamental physical and chemical properties of nanocrystals and also works to develop practical applications of these new materials in biomedicine and renewable energy.

Kwabena Bediako  
**Inorganic Materials Chemistry, Electrochemistry, Low-Dimensional Materials, Quantum Transport, Optoelectronics**  
Research efforts in the Bediako Group involve the mesoscopic investigation of interfacial charge transfer and charge transport in two-dimensional (2D) materials and heterostructures.

Francis Hellman  
**Condensed Matter Physics and Material Science**  
The Hellman group studies thermodynamic and temperature-dependent properties of materials. Current projects include ferromagnetic and antiferromagnetic thin films and nanoparticles, studying the effects of disorder on the magnetic, transport, and thermodynamic properties of magnetic materials and relaxor ferroelectrics, and low temperature thermal properties of amorphous materials.

Markita Landry  
**Nanomaterials, Single-molecule Fluorescence Microscopy, Biophysics**  
Research lies at the intersection of single-molecule biophysics and nanomaterial-polymer science to develop new tools to probe and characterize complex biological systems.
Participating Faculty

Dan Nomura  
Chemical Biology and Analytical Chemistry  
Research in the Nomura group is focused on developing and applying chemical proteomic and metabolomic platforms to identify and pharmacologically target metabolic drivers of human disease.

Lisa Pruitt  
Mechanical Engineering  
Professor Pruitt’s research is focused on structure-property relationships in orthopedic tissues, biomaterials and medical polymers.

Clay Radke  
Surface and Colloid Science Technology  
Research focuses on using modern spectroscopic tools to combine principles of surface and colloid science towards engineering technologies where phase boundaries dictate system behavior.

Ting Xu  
Polymers, Biomaterials, Materials Chemistry  
Professor Xu’s group focuses on a fundamental understanding of the physics of assemblage on multiple length scales leading to the design and assembly of functional thin films with tailored functionalities and characterization of de novo designed peptides.

Wenjun Zhang  
Biomolecular Engineering and Bioenergy  
Research includes genome mining for new bioactive small molecule discovery, pathway enzyme identification and characterization, as well as pathway designs toward combinatorial natural product biosynthesis and biofuel production.
Remote Coaching and Laboratory Internship

9-Month Remote Coaching:
October 2018 through July 2019

Selected students will be matched to a laboratory that fits their interests as well as the laboratory’s needs and preferences based upon the student’s demonstrated qualifications and maturity. Each student will be paired with a mentor from the laboratory. The mentor will communicate with the student once or twice per month remotely through email and/or live chat. The student and mentor will work together to determine the best method and frequency for communicating. The objective of the remote coaching will be to provide the student with continuous learning, as well as an understanding and familiarity with the laboratory’s research and more advanced scientific concepts in preparation for the 4-week Internship.

4-week On-Site Internship
July 7 to August 3, 2019

During the 4-week internship in the assigned faculty research group, the student will attend group meetings, research seminars, assist with data analysis and simple, non-hazardous procedures under the supervision of his/her mentor. The student will get an in-depth view into concept development, methods design, decision making, scientific processes, and inner workings of world-renowned laboratories that develop advanced technologies and solutions to society’s issues.

At the conclusion of their internship, the students will present their findings to their peers and mentors. Students who successfully complete the Remote Coaching and Internship will be provided reference letters and a completion certificate.
Student Experiences

JENNIFER GRANNEN
SYIP introduced me to the beauty of research and chemical engineering through the scope of grad school. Because of this program, I am now planning on pursuing a PhD in the future! I feel so lucky to have participated in such a unique program!
UC Berkeley Chemical Engineering Class of 2022

DANIEL LEE
SYIP was the most fun I’ve had any summer, and it’s pretty amazing to see Professor John Arnold, who taught one of the classes, now as the Undergraduate Dean of the College of Chemistry!
UC Berkeley Chemistry Class of 2022

FRANCESCA STEPANOV
The SYIP program was the most amazing 2 months of my summer. I established amazing connections to peers who were also interested in chemistry and with my mentor who pushed me to understand scientific concepts on a more advanced level. I believe that the SYIP experience has been a catalyst for my love for chemistry as well as research science.
Eligibility
Rising students entering grades 9-12 are encouraged to apply and participate in the program. Successful applicants will be among the top 10% of their respective class and must demonstrate fluency in English. Applicants must be available for a remote or in-person interview to be considered for the program.

Program Details
SYIP will take place on the historic UC Berkeley campus every summer.

There is a non-refundable application fee of $75. This fee will be applied towards the total tuition and fees of US $14,000 if you are accepted. Tuition includes room and board, course materials, UC Berkeley “swag”, excursions, access to facilities, and official completion certificates signed by the dean of the College.

We will be accepting applications until all slots are filled. SYIP has the capacity for 30 qualified scholars to join. Click here to apply!

For more information, please visit our website:
chemistry.berkeley.edu/gold/syip

Contact Us
For questions about the Summer Youth Intensive Program 2019, please contact us:
Gold Programs    goldprograms@berkeley.edu
Suzanne Sutton           suttons@berkeley.edu
Or visit our website at:
chemistry.berkeley.edu/gold/syip