Guiding Outstanding Learners to Discover (GOLD):

Summer Youth Intensive Program 2018

Remote Coaching & 4-week Laboratory Internship

Image: Keegan House

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 2017. 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 2018.

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.

Image: Elena Zhukova

Image: Keegan Houser

The Summer Youth Intensive Program is unlike any other summer program!

Brought to you by the TOP RANKED chemistry program in the world. SYIP is administered and delievered 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 chaperoned 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.

Participating Faculty

Douglas Clark

Biochemical Engineering and Biocatalysis

Professor Clark's research is in the field of biochemistry engineering, with particular emphasis on enzyme technology, biomaterials, and bioenergy.

Matthew Francis

Organic, Bioorganic, and Materials Chemistry

Research in the Francis group is focused on the development of new synthetic methods for the construction of nanoscale materials.

Richmond Sarpong

Organic and Organometallic Chemistry

Research lies in the total synthesis of natural products with a keen eye toward the development of new synthetic methods and strategies.

Omar Yaghi

Reticular Chemistry

Developing the science of building chemical structures from molecular building blocks; a field referred to as Reticular Chemistry.

Wenjun Zhang

Biomolecular Engineering and Bioenergy

Research includes genome mining for new bioactive small molecule discovery, pathway enzyme identification and characterizaation, as well as pathway designs toward combinatorial natural product biosynthesis and biofuel production.

Joel Ager

Materials Science and Engineering

Professor e research focuses on fundamental transport in photovoltaic materials, solar to electricity and solar to fuel materials, and discovery of solar fuel catalysts.

Francesco Borrelli

Automotive control systems, distributed and robust constrained control, manufacturing control systems, energy efficient buildings, model predictive control.

Research interests include constrained optimal control, model predictive control and its application to advanced automotive control and energy efficient building operation.

Lisa Pruitt

Tissue biomechanics, biomaterial science, fatigue and fracture micromechanisms, orthopedic polymers for total joint replacement, cardiovascular biomaterials

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

Jeffrey A. Reimer

Materials Chemistry, Applied Spectroscopy, Alternative Energy, and Nuclear Spintronics

Professor Reimer's research seeks to generate new knowledge that will deliver environmental protection, human sustainability, and fundamental scientific insights via materials chemistry, physics, engineering, and magnetic resonance spectroscopy.

Feng Wang

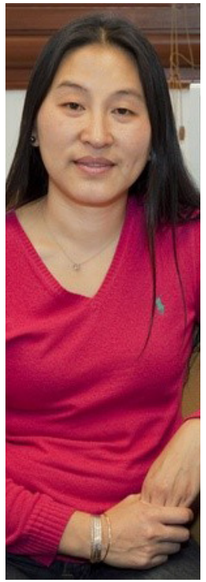
Ultrafast nano-optics

Research lies in light-matter interaction in condensed matter physics, with an emphasis on novel physical phenomena emerging in nanoscale structures and at surfaces/interfaces.

Ting Xu

Polymers, Biomaterials, Materials Chemistry

Professor Xu's group designs, synthesizes, and characterizes *de novo* designed peptides that serve as building blocks for functional biomaterials. The group develops new functional materials at the molecular level that exhibit novel electronic, photonic, and biological properties.



Remote Coaching and Laboratory Internship

9-Month Remote Coaching:

October 2017 through July 2018

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 8 to August 4, 2018

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.


Image: Keegan Houser

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 $13,500 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 on a rolling basis 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 Summer Youth Intensive Program 2018, please contact us:

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Suzanne Sutton suttons@berkeley.edu

Or visit our website at:
chemistry.berkeley.edu/gold/syip

College of Chemistry

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