FOOTHILL COLLEGE
SCIENCE LEARNING INSTITUTE

SLI FLI STEM Internships
Summer 2025: Project Catalog

The following are the possible internship projects you will be working on this summer if selected. In your application, you will be asked to mark all that you are interested in. You may select up to 5 projects to apply to, but you don't need to select five if you're only interested in, for example 2 or 3.

Deadline to apply: Thursday, May 1, 2025. Application is not yet ready.

There are two parts of this catalog:
- **Quick Links Table of Contents** – contains key information about each project. Click on the hyperlink to go to the full description below.
- **Project Full Descriptions** – read each project's full description to make sure this is a project you are interested in. In your application, you will want to explain your interest in each of your selected projects.

You will see that some projects are listed multiple times because they are interdisciplinary or cross disciplinary.

Read through each description carefully to see if
1) You have the skills that the mentor/ supervisor is asking for.
2) You have an interest in the project.
3) The modality works for you – several of these are in-person, either fully or partially. You will need to provide your own transportation to the institution and some have parking fees.
4) Use this as a guide as you fill out the application. READ IN FULL DETAIL!

If you have any questions, please reach out to the SLI Director, Sophia Kim at kimsophia@fhda.edu. Find out more at the website: https://foothill.edu/sli/internships/summer.html

QUICK LINKS TABLE OF CONTENTS
BE SURE TO REVIEW THE FULL DESCRIPTION BELOW THIS TABLE OF CONTENTS!
Some projects are cross-disciplinary and may appear under multiple disciplines

Project Title	Keywords	Required Skills	Modality	Institution/ Company
5: Developing non-opioid drugs to treat pain	Biology, Chemistry, Medicine	Basic understanding of biology.	Fully in-person. Free parking!, Mostly hands-on, in-lab experience	Stanford University: Anesthesiology
6: Boosting Fuel Cells: Smarter Inks for Stronger Catalysts	Chemistry, Engineering	Preferences: Background in chemistry (general, with a preference for some inorganic chemistry knowledge) Basic lab experience (pipetting, solution preparation, etc.) Some coding experience (any software; not required but a plus – but can be trained if you don't have any experience) Enthusiasm for learning and having fun!	Hybrid - remote/ online with some in-person opportunities, Mostly hands-on, in-lab experience, Fully a data-analysis project	Stanford University: Chemical Engineering
7: Lytic enzyme from an Apis mellifera (honeybee) bug – expression, purification, and crystallization	Biology, Chemistry, Physics	Training will be provided by mentor. Desired skills from chemistry/biology courses: pipetting, preparing solutions, use of pH-meter, use of balance, growing E. coli.	Fully in-person, Mostly hands-on, in-lab experience	Stanford University: ChEM-H
10: Biological Formulation Development for GI delivery	Biology, Chemistry, Medicine, Material Science	At least one quarter of Biology and/or Chemistry with Lab Required. Student should have a basic understanding of lab safety and how to document experiments. Basic data analysis/visualization using spreadsheets is helpful as well.	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research, Mostly hands-on, in-lab experience	Intact Therapeutics: R&D
14: Collective Behavior in Social Caterpillars	Biology, Computer Science, Physics	Basic computer skills will be sufficient, but some familiarity with python programming is preferred.	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research	Stanford University: Applied Physics
15: PDBCleanV2, a Python library to curate molecular structures	Biology, Chemistry, Computer Science, Data Science	Basic knowledge of Python (completion of CS 3A) and general chemistry/ biochemistry (completion of Chem 1A) is preferred but not required. It would be good to have some comfort using the terminal (unix/linux systems). But also, if this project excites you, you don't have the exact courses, but you have a desire to learn more, then select this project!	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research	Stanford University: Structural Biology / Levitt Lab
17: Effects of climate change on nectar microbes of sticky monkeyflower	Biology	Prior research experience is not required. Interest in ecology and/or microbes is the only requirement. Desirable skills include being detail-oriented, reliable, and most importantly eager to learn new things.	Fully in-person, Mostly hands-on, in-lab experience	Stanford University: Department of Biology

COMPUTER SCIENCE/ DATA SCIENCE				
Project Title	**Keywords**	**Required Skills**	**Modality**	**Institution/ Company**
11: Exploring the transparency of the universe to gamma-	Astronomy, Computer Science	Basic Python coding skills are necessary – at least one quarter, but two or more quarters and experience with data analysis is preferable.	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer,	UCSC: Physics department / high-energy gamma-ray

Project Title	Keywords	Required Skills	Modality	Institution/ Company
rays: A study of cosmic voids			computational research, Fully a data-analysis project	astrophysics groups
14: Collective Behavior in Social Caterpillars	Biology, Computer Science, Physics	Basic computer skills will be sufficient, but some familiarity with python programming is preferred.	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research	Stanford University: Applied Physics
15: PDBCleanV2, a Python library to curate molecular structures	Biology, Chemistry, Computer Science, Data Science	Basic knowledge of Python (completion of CS 3A) and general chemistry/ biochemistry (completion of Chem 1A) is preferred but not required. It would be good to have some comfort using the terminal (unix/linux systems). But also, if this project excites you, you don't have the exact courses, but you have a desire to learn more, then select this project!	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research	Stanford University: Structural Biology / Levitt Lab
16: Developing Assistive Technology with AI	Computer Science, STEM Education/ Empowerment	python, machine learning, app development	Fully remote - preferred only for micro-internships (6 - 7 hours per week), Mostly on the computer, computational research	UC Santa Cruz: Computer Science and Engineering
18: Utilizing Machine Learning to Create Non Invasive Biopsy for Early Detection of Cancer	Computer Science, Data Science, Engineering, Medicine	Ideally the student has taken at least one quarter or equivalent of computer science in python, ideally used colab before for classes or fun. Students should have an interest in learning machine learning model	Fully in-person, Mostly on the computer, computational research, Mostly literature search, background research, Mostly hands-on, in-lab experience	Stanford University: Structural Biology
20: Development of an online product cost model calculator	Computer Science, Business Administration	Computing with some coding background to create the engine and website, especially important to have experience using Excel with formulas	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Computer background to be able to develop a website calculator	Rambus, Inc.

ENGINEERING/ PHYSICS/ ASTRONOMY				
Project Title	Keywords	Required Skills	Modality	Institution/ Company
1: Structural biology of the metaphase chromosome	Biology, Chemistry, Physics	Pipetting; preparing buffers; solid understanding of SI (international system of units) units/prefixes, moles, molecular weight, pH, pKa. A hands-on biology and/or chemistry lab class.	Fully in-person, Mostly hands-on, in-lab experience	stanford: structural biology
2: Designing Next-Generation High-Energy-Density Batteries	Chemistry, Engineering	General chemistry, physical or materials chemistry	Fully in-person, Mostly hands-on, in-lab experience	UC Santa Cruz: Chemistry and Biochemistry

4: Process Associate Intern @EMD Electronics/ Intermolecular	Chemistry, Engineering, Physics	we will train you – no experience is necessary just an interest in the semiconductor industry	Fully in-person, Mostly hands-on, in-lab experience	EMD Electronics: Operations
6: Boosting Fuel Cells: Smarter Inks for Stronger Catalysts	Chemistry, Engineering	Preferences: Background in chemistry (general, with a preference for some inorganic chemistry knowledge) Basic lab experience (pipetting, solution preparation, etc.) Some coding experience (any software; not required but a plus – but can be trained if you don't have any experience) Enthusiasm for learning and having fun!	Hybrid - remote/ online with some in-person opportunities, Mostly hands-on, in-lab experience, Fully a data-analysis project	Stanford University: Chemical Engineering
7: Lytic enzyme from an Apis mellifera (honeybee) bug – expression, purification, and crystallization	Biology, Chemistry, Physics	Training will be provided by mentor. Desired skills from chemistry/biology courses: pipetting, preparing solutions, use of pH-meter, use of balance, growing E. coli.	Fully in-person, Mostly hands-on, in-lab experience	Stanford University: ChEM-H
8: Manufacturing Engineer Intern @ iSono Health	Engineering	Current enrollment in program related to Engineering, Manufacturing Technology, Industrial Technology, or a similar field. Basic understanding of manufacturing processes, production workflows, or engineering principles. Strong analytical and problem-solving skills, with the ability to work both independently and as part of a team. Excellent communication skills and a willingness to learn new tools and technologies. Proficient in Microsoft Office (Word, Excel, PowerPoint); experience with CAD software is a plus.	Fully in-person, Mostly hands-on, in-lab experience	iSono Health, Inc.: R&D
11: Exploring the transparency of the universe to gamma-rays: A study of cosmic voids	Astronomy, Computer Science	Basic Python coding skills are necessary – at least one quarter, but two or more quarters and experience with data analysis is preferable.	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Fully a data-analysis project	UCSC: Physics department / high-energy gamma-ray astrophysics groups
12: Process Mapping and Management Intern @ Rambus	Industrial Engineering/Process Management	Process-oriented, systems thinker, analytical, ability to identify areas for improvement, designing and implementing new processes to increase efficiency and productivity, ability to collaborate with various process owners to streamline operations. Excellent written and verbal skills, flowcharting skills. Engineering background could be helpful but is not necessary – industrial engineering	Hybrid - remote/ online with some in-person opportunities, Interface with various process owners to map process (As-Is and To-be)	Rambus, Inc.: Quality Assurance
13: Developing drinking water reports and educational tools	Engineering, Public Health, STEM Education/ Empowerment	Attention to detail and punctuality are key! Preference given to students with Spanish proficiency (please indicate in your interest paragraph for this project	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer,	Stanford University: Department of Civil and

Project Title	Keywords	Required Skills	Modality	Institution/ Company
		about your proficiency with written Spanish– for the purposes of developing the print materials), a background in environmental engineering, and experience with Canva, Adobe creative cloud or similar design platforms	computational research, Mostly literature search, background research	Environmental Engineering
14: Collective Behavior in Social Caterpillars	Biology, Computer Science, Physics	Basic computer skills will be sufficient, but some familiarity with python programming is preferred.	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research	Stanford University: Applied Physics
18: Utilizing Machine Learning to Create Non Invasive Biopsy for Early Detection of Cancer	Computer Science, Data Science, Engineering, Medicine	Ideally the student has taken at least one quarter or equivalent of computer science in python, ideally used colab before for classes or fun. Students should have an interest in learning machine learning model	Fully in-person, Mostly on the computer, computational research, Mostly literature search, background research, Mostly hands-on, in-lab experience	Stanford University: Structural Biology

HEALTH/ MEDICINE/ PUBLIC HEALTH				
Project Title	Keywords	Required Skills	Modality	Institution/ Company
3: Measuring Poverty in Brain Development Research	Psychology, Cognitive Neuroscience	This project is ideal for students with a strong interest in **developmental psychology and neuroscience**, attention to detail, and experience (or willingness to learn) literature review methods. While this summer's work will not involve computational analysis, it provides a strong foundation for students who may want to engage in statistical analysis or meta-analytic work in the future. Preference will be given to students interested in continuing beyond the summer to help draft the manuscript and contribute to a potential meta-analysis.	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research	Stanford University: Stanford Center on Early Childhood
5: Developing non-opioid drugs to treat pain	Biology, Chemistry, Medicine	Basic understanding of biology.	Fully in-person. Free parking!, Mostly hands-on, in-lab experience	Stanford University: Anesthesiology
10: Biological Formulation Development for GI delivery	Biology, Chemistry, Medicine, Material Science	At least one quarter of Biology and/or Chemistry with Lab Required. Student should have a basic understanding of lab safety and how to document experiments. Basic data analysis/visualization using spreadsheets is helpful as well.	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research, Mostly hands-on, in-lab experience	Intact Therapeutics: R&D
13: Developing drinking water reports and educational tools	Engineering, Public Health, STEM Education/ Empowerment	Attention to detail and punctuality are key! Preference given to students with Spanish proficiency (please indicate in your interest paragraph for this project about your proficiency with written Spanish– for the purposes of developing the print materials), a background in environmental engineering, and	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Mostly literature search, background research	Stanford University: Department of Civil and Environmental Engineering

Project Title	Keywords	Required Skills	Modality	Institution/ Company
		experience with Canva, Adobe creative cloud or similar design platforms		
18: Utilizing Machine Learning to Create Non Invasive Biopsy for Early Detection of Cancer	Computer Science, Data Science, Engineering, Medicine	Ideally the student has taken at least one quarter or equivalent of computer science in python, ideally used colab before for classes or fun. Students should have an interest in learning machine learning model	Fully in-person, Mostly on the computer, computational research, Mostly literature search, background research, Mostly hands-on, in-lab experience	Stanford University: Structural Biology
9. Clinical Research Intern @ iSono Health	Health/ Medicine	Health sciences background and interest in clinical side of sciences – nursing, ultrasound technician, research.	Fully in-person, Mostly hands-on, in-lab experience	iSono Health, Inc.: R&D

MISCELLANEOUS				
Project Title	**Keywords**	**Required Skills**	**Modality**	**Institution/ Company**
3: Measuring Poverty in Brain Development Research	Psychology, Cognitive Neuroscience	This project is ideal for students with a strong interest in **developmental psychology and neuroscience**, attention to detail, and experience (or willingness to learn) literature review methods. While this summer's work will not involve computational analysis, it provides a strong foundation for students who may want to engage in statistical analysis or meta-analytic work in the future. Preference will be given to students interested in continuing beyond the summer to help draft the manuscript and contribute to a potential meta-analysis.	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research	Stanford University: Stanford Center on Early Childhood
13: Developing drinking water reports and educational tools	Engineering, Public Health, STEM Education/ Empowerment	Attention to detail and punctuality are key! Preference given to students with Spanish proficiency (please indicate in your interest paragraph for this project about your proficiency with written Spanish– for the purposes of developing the print materials), a background in environmental engineering, and experience with Canva, Adobe creative cloud or similar design platforms	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Mostly literature search, background research	Stanford University: Department of Civil and Environmental Engineering
19: Exploring the Impact of a STEM Internship Program on Research and Near Peer Mentors' Sense of Identity and Inclusion	STEM Education/ Empowerment	No prior research experience is required. We are looking for an intern who: • Has enthusiasm for learning new things • Is reliable, detail oriented, well-organized • Has strong communication skills, both written and verbal (you will be conducting interviews) • Is unafraid to ask questions and ask for help when needed • Has a basic understanding of Excel or Google Sheets	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research, Development of an interview protocol and conducting semi-structured interviews with faculty, staff, postdocs, and students	Stanford University: Pediatrics Internship Program at Stanford (PIPS)

		• Has an interest in STEM education in minoritized communities • Skills that are not required but that are helpful: • Basic proficiency in statistics • Experience with qualitative data (collecting/analyzing) Presentation and/or interview skills		
20: Development of an online product cost model calculator	Computer Science, Business Administration	Computing with some coding background to create the engine and website, especially important to have experience using Excel with formulas	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Computer background to be able to develop a website calculator	Rambus, Inc.
21: How do people explain and understand social inequality?	Psychology, Social Inequality	No prior research experience is required! We're looking for someone who is..: - interested in psychology, ideally social or behavioral psychology - highly detail-oriented - passionate and curious - eager to learn - passionate about social/racial justice * some experience with quantitative and qualitative data (collecting/analyzing) helps but isn't required * some experience reading and critiquing academic publications is also helpful, but not required!	Hybrid - remote/ online with some in-person opportunities, partly literature search and partly data analysis (and potentially some experimental design!)	stanford university: social psychology - starck lab

KEEP READING BELOW FOR DETAILED DESCRIPTIONS OF OPPORTUNITIES.

Make sure you read the details as you make your selections of what project you'd be interested in!

PROJECT FULL DESCRIPTIONS

You will find below all the projects that were listed above in the Quick Links Table of Contents. This provides more detail, so be sure to read through the projects you are interested in.

Discipline	Biology, Chemistry, Physics
Project Title	**1: Structural biology of the metaphase chromosome**
Mentor, Title	Andrew Beel, Instructor
Institution/ Affiliation	stanford: structural biology
Institution/ Company Website	https://beel.stanford.edu/
Company Description/ Mission	Chromosome structure and condensation (biochemistry, biophysics)
Mentor Bio	I completed an M.D. and a Ph.D. in Biophysics, the latter under Professor Roger Kornberg, at Stanford in 2022. I formed a lab thereafter with generous support from the NIH Early Independence Award. My lab divides its time between experimental biochemistry, structural biology (microscopy and crystallography), and tool development (primarily computational but also hardware to some extent). Given my training, I am able to advise on both research and medical paths.
Project Description	Our lab, based in the Department of Structural Biology at the Stanford University School of Medicine, studies the structure and formation of the metaphase chromosome (the iconic X-shaped form taken during cell division), by a combination of biochemical and structural methods (the latter including super-resolution light microscopy, electron microscopy, and X-ray crystallography). Our studies critically depend on the production of specialized enzymes by heterologous expression (taking the gene sequence from one organism and moving it into another organism like bacteria or yeast to see how it is expressed) followed by purification from cell lysates, which involves growing the bacteria or yeast and then breaking it open for further study. These enzymes are then applied in various biochemical and structural assays to better understand the structure and function of the chromosome. Students joining this project would learn basic skills in molecular biology and biochemistry, including cloning, DNA sequencing, recombinant protein expression, protein purification by liquid chromatography, and gel electrophoresis. This skill set is widely employed in the biotechnology and pharmaceutical industries.
Required Skills	Pipetting; preparing buffers; solid understanding of SI (international system of units) units/prefixes, moles, molecular weight, pH, pKa. A hands-on biology and/or chemistry lab class.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Fully in-person, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Chemistry, Engineering
Project Title	2: Designing Next-Generation High-Energy-Density Batteries
Mentor, Title	Xinzhe Xue, PhD Candidate
Institution/ Affiliation	UC Santa Cruz: Chemistry and Biochemistry
Institution/ Company Website	https://li.chemistry.ucsc.edu/
Company Description/ Mission	The Li lab focuses on the rational design and fabrication of functional materials using a combination of conventional chemical synthesis methods and 3D printing techniques. These architected materials could serve as versatile platforms to study fundamental science questions and open up new technological opportunities.
Mentor Bio	My name is Xinzhe Xue, and I am a fourth year PhD candidate in Physical/Materials Chemistry at UC Santa Cruz. I am currently working on designing electrolytes and materials for high-energy energy storage systems (supercapacitors and batteries), I like to go to the gym, go hiking and drawing/designing in my spare time! I am looking forward to seeing you!
Project Description	This project is to design and understand battery materials for high energy density aqueous energy storage systems. Student will be able to prepare materials and electrolytes via various methods, and will learn how to process the testing data as well as fundamentals on electrochemistry. We seek to understand and tailor the physical/chemical properties of these battery materials for addressing challenges in climate change-related research directions, including carbon capture and utilization, electro-and photoelectrochemical catalysis, and energy storage (supercapacitors and batteries).
Required Skills	General chemistry, physical or materials chemistry
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Fully in-person, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications and then select top candidates
# of possible interns	One intern

Discipline	Psychology, Cognitive Neuroscience
Project Title	3: Measuring Poverty in Brain Development Research
Mentor, Title	Gabriel Reyes, PhD Candidate
Institution/ Affiliation	Stanford University: Stanford Center on Early Childhood
Institution/ Company Website	https://earlychildhood.stanford.edu/
Company Description/ Mission	The Stanford Center on Early Childhood is an initiative of the Stanford Accelerator for Learning, which seeks to accelerate solutions to the most pressing challenges facing learners. Housed at the Graduate School of Education and led by Dr. Philip Fisher, the center draws on the GSE's cutting-edge expertise in learning, as well as Stanford's globally-recognized strength in innovation and collaboration across disciplines.

Mentor Bio	Gabriel Reyes, from Albuquerque, New Mexico, is a Knight-Hennessy Scholar and Quad Fellow pursuing a PhD in Developmental and Psychological Sciences at Stanford Graduate School of Education. They earned a bachelor's degree in cognitive neuroscience from Brown University, and a master's degree in neuroscience and education from Columbia University. Gabriel aspires to investigate how poverty affects brain development, learning and memory and use neuroscience research to academically support students historically excluded from science. They have led several STEM diversity initiatives including co-creating the Neuroscience of Racism course at Brown and designing a summer science research program for high school students while at Columbia. Gabriel is also the founder of FLi Sci, an initiative to support first-generation and low-income students interested in pursuing careers in scientific research. Gabriel is a Gates Millennium Scholar, a QuestBridge Scholar, an Education Pioneers Fellow, and recipient of the Alfred H. Joslin award for outstanding seniors at Brown.
Project Description	This summer internship offers research assistants the opportunity to contribute to a literature review and preliminary manuscript examining how neuroimaging studies define and measure poverty when studying its effects on brain development. This project builds on a prior SLi research initiative from Summer 2022 and is essential groundwork for a potential future meta-analysis. Students will conduct a systematic literature review of all neuroscience studies using neuroimaging techniques to investigate the impact of poverty on brain development. Specifically, RAs will help catalog: 1. How each study defines poverty (e.g., income, socioeconomic status, neighborhood disadvantage); 2. The specific measurement(s) used (e.g., federal poverty level, income-to-needs ratio, parental education); and 3. Whether the measurement aligns with the stated definition of poverty. By the end of the summer, students will compile a comprehensive dataset of these definitions and measures and synthesize preliminary findings for a research manuscript. Students will be listed as co-authors on this paper.
Required Skills	This project is ideal for students with a strong interest in **developmental psychology and neuroscience**, attention to detail, and experience (or willingness to learn) literature review methods. While this summer's work will not involve computational analysis, it provides a strong foundation for students who may want to engage in statistical analysis or meta-analytic work in the future. Preference will be given to students interested in continuing beyond the summer to help draft the manuscript and contribute to a potential meta-analysis.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	Up to two interns

Discipline	Chemistry, Engineering, Physics
Project Title	4: Process Associate Intern
Mentor, Title	Samira Bagheri, Sr. Manager of Ops
Institution/ Affiliation	EMD Electronics: Operations
Institution/ Company Website	https://www.emdgroup.com/en
Company Description/ Mission	Operations team are responsible to run the projects in the cleanroom.
Mentor Bio	https://scholar.google.com/citations?user=AB-FZWwAAAAJ&hl=en
Project Description	This is a meaningful, hands-on, exciting job opportunity for people who want to join a growing business and explore the semiconductor industry! EMD Electronics works in the front end side of this industry. Imagine you are rolling out the dough of a pizza (this is the wafer) and then you put on lots of toppings to make this pizza just right (these are chemicals) – and then you bake the pizza. This is the stage of work we are involved with. As a process associate intern, you will be learning about cleanroom protocol, testing and processing equipment, and monitoring and documenting abnormalities, all under the guidance of a process engineer as your supervisor. Come join us if you're curious and want a hands-on role in the semiconductor industry. You'll get all the training you need on the job.
Required Skills	we will train you – no experience is necessary just an interest in the semiconductor industry
Duration	15 hours per week for 9 weeks (7/7/25 - 9/5/25) - $2800 per student intern
Modality/ Type of Work	Fully in-person, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications and then select top candidates
# of possible interns	One intern

Discipline	Biology, Chemistry, Medicine
Project Title	5: Developing non-opioid drugs to treat pain
Mentor, Title	Eric Gross, Associate Professor
Institution/ Affiliation	Stanford University: Anesthesiology
Institution/ Company Website	https://ericgrosslab.stanford.edu/ // http://med.stanford.edu/grosslab.html
Company Description/ Mission	We are a translational lab precisely advancing anesthetic pharmacology, pain, and organ injury research
Mentor Bio	Eric Gross is an Associate Professor of Anesthesiology in the School of Medicine at Stanford University. He received his MD and PhD from the Medical College of Wisconsin and completed his residency in anesthesiology at Stanford University. Dr. Gross has an extensive background in biomedical engineering, pharmacology, and anesthesiology. His research focuses on developing non-narcotic pain therapeutics. One avenue my team is investigating is how TRPV1 channels, the ion channel which gives you the hot sensation in your mouth after you eat chili pepper, may be part of the cellular cross-talk between nociceptive and cellular stress signaling

	pathways. Dr. Gross has over 75 accepted peer reviewed publications with many in leading journals. Dr. Gross is a member of the Stanford Cardiovascular Institute, Neuroscience Institute, and Center for Asian Research and Education (CARE). At a national level, he serves on the ASA Committee on Research and is Chair of the ASA sub-committee on experimental circulation. He is also section editor for basic science for Anesthesia and Analgesia, and Associate editor and editorial fellowship director for the Journal of Pharmacology and Experimental Therapeutics (JPET).
Project Description	A section of our lab is developing novel pain therapeutics. Working with a team consisting of a PhD scientist and a Stanford undergraduate, you will be screening drugs we developed to treat pain for their anti-inflammatory effects. By the end of the summer, we hope to test our lead compound in models of surgical pain to understand whether these drugs can be translated to use in people.
Required Skills	Basic understanding of biology.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Fully in-person. Free parking!, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Chemistry, Engineering
Project Title	6: Boosting Fuel Cells: Smarter Inks for Stronger Catalysts
Mentor, Title	Alfred Vargas, Ph.D. Candidate
Institution/ Affiliation	Stanford University: Chemical Engineering
Institution/ Company Website	http://jaramillogroup.stanford.edu/phds.html
Company Description/ Mission	We are on a mission to advance matters related to diversity, equity and inclusion (DEI), aspects that are essential and foundational to advancing knowledge in science and engineering. Our research is focused on sustainable energy technologies. In particular, we investigate key chemical transformations for the production, storage, and utilization of renewable energy.
Mentor Bio	I am a first-generation Latino student from Mexico with a passion for science and discovery. Outside of academics, I enjoy staying active through sports like boxing, football, and baseball. I also love spending time outdoors, especially kayaking and fishing with my family My background has shaped my drive to learn and explore new challenges, and I'm excited to support students as they navigate their own academic journeys.
Project Description	This internship focuses on improving tiny metal particles (platinum nanoparticles) that help fuel cells generate clean energy more efficiently. Fuel cells work like batteries but use chemical reactions to create electricity. The main goals of this project are:

	1. **Making Nanoparticles** – Creating nanoscale platinum particles using wet chemical methods to control their properties. 2. **Studying the Nanoparticles** – Using advanced tools like x-ray machines and microscopes to see how these particles change before and after being used in a fuel cell. 3. **Testing in Fuel Cells** – Mixing the particles into an "ink" and testing how well they work in a real fuel cell to see if they can make energy more efficiently and last longer.
Required Skills	Preferences: Background in chemistry (general, with a preference for some inorganic chemistry knowledge) Basic lab experience (pipetting, solution preparation, etc.) Some coding experience (any software; not required but a plus – but can be trained if you don't have any experience) Enthusiasm for learning and having fun!
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly hands-on, in-lab experience, Fully a data-analysis project
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Biology, Chemistry, Physics
Project Title	**7: Lytic enzyme from an Apis mellifera (honeybee) bug – expression, purification, and crystallization**
Mentor, Title	Daniel Fernandez, Director of Crystallography
Institution/ Affiliation	Stanford University: ChEM-H
Institution/ Company Website	https://mskc.stanford.edu/
Company Description/ Mission	We offer our expertise to explore, understand, and explain the nature, function, and structure of protein.
Mentor Bio	My name is Daniel Fernandez - born and raised in Buenos Aires, Argentina, I am the first in the family to earn an academic degree. My licenciatura was in X-ray diffraction of small molecule crystals. Then, I focused my studies on protein crystallography in my PhD and postdoctoral work. Since 2018 I am the head of the Macromolecular Structure Knowledge Center at Stanford Sarafan ChEM-H Institute.
Project Description	In this role you will learn how to do the following: • Protein expression: we use bacterial expression as a factory to obtain the protein sample at high yield and high quality. Under MSKC staff supervision, the student will be trained to safely work with the well-established bacterial strain E. coli. The student will acquire concepts and hands-on experience in areas such as setting the workspace to work under aseptic conditions; assessing bacterial growth in solid and in liquid media; and prepareing solutions (buffers, salts, agar).

	• Protein purification. This module is aimed to train the student in techniques to separate the protein of interest from contaminants from the production stage and quantify the degree of purity of the sample. The student will be introduced to affinity chromatography using metal-ion-bound columns and size exclusion (SEC) using a FPLC apparatus and learn other related techniques.. • Protein Crystallization. This module introduces crystallization and allied techniques aimed at obtaining a molecular picture of the protein of interest.
Required Skills	Training will be provided by mentor. Desired skills from chemistry/biology courses: pipetting, preparing solutions, use of pH-meter, use of balance, growing E. coli.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Fully in-person, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	**Engineering**
Project Title	**8: Manufacturing Engineer Intern**
Mentor, Title	Shadi Saberi, CTO
Institution/ Affiliation	iSono Health, Inc.: R&D
Institution/ Company Website	www.isonohealth.com
Company Description/ Mission	iSono Health a medical device company developing an AI-powered automated and portable 3D ultrasound system for accessible breast imaging.
Mentor Bio	I am the co-founder and CTO of iSono Health, a women-led company dedicated to advancing women's health. As an immigrant who came to the U.S. for graduate school, I am deeply committed to promoting diversity in the workplace. I am passionate about mentoring students from underrepresented backgrounds, helping them build confidence through hands-on experience in a fast-paced startup environment that fosters rapid learning and growth.
Project Description	You will gain hands-on experience in a fast-paced medical device startup production environment, supporting our engineering and operations teams with process improvement, data analysis, and quality control initiatives. The medical device is a breast imaging system with several components, including an ultrasound scanner, variable accessories and disposables, and relevant software. In this role, you will: - Collaborate with manufacturing engineers to optimize production processes, reduce waste, and increase efficiency. - Assist in conducting time studies, collecting process data, and updating documentation for continuous improvement projects. - Troubleshoot basic production issues and propose solutions to enhance product quality and workflow.

	- Help maintain and organize engineering documentation, including process instructions, work instructions, and technical drawings.
Required Skills	Current enrollment in program related to Engineering, Manufacturing Technology, Industrial Technology, or a similar field. Basic understanding of manufacturing processes, production workflows, or engineering principles. Strong analytical and problem-solving skills, with the ability to work both independently and as part of a team. Excellent communication skills and a willingness to learn new tools and technologies. Proficient in Microsoft Office (Word, Excel, PowerPoint); experience with CAD software is a plus.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Fully in-person, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Health/ Medicine
Project Title	**9. Clinical Research Intern**
Mentor, Title	Shadi Saberi, CTO
Institution/ Affiliation	iSono Health, Inc.: R&D
Institution/ Company Website	www.isonohealth.com
Company Description/ Mission	iSono Health a medical device company developing an AI-powered automated and portable 3D ultrasound system for accessible breast imaging.
Mentor Bio	I am the co-founder and CTO of iSono Health, a women-led company dedicated to advancing women's health. As an immigrant who came to the U.S. for graduate school, I am deeply committed to promoting diversity in the workplace. I am passionate about mentoring students from underrepresented backgrounds, helping them build confidence through hands-on experience in a fast-paced startup environment that fosters rapid learning and growth.
Project Description	You will gain hands-on experience in a fast-paced medical device startup production environment supporting clinical trials. The medical device is a breast imaging system with several components, including an ultrasound scanner, variable accessories and disposables, and relevant software. In this role, you will work with the clinical research team to communicate with clinical study sites and review and analyze data collected. You may also be involved with patient recruitment for clinical trials
Required Skills	Health sciences background and interest in clinical side of sciences – nursing, ultrasound technician, research.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Fully in-person, Mostly hands-on, in-lab experience

Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Biology, Chemistry, Medicine, Material Science
Project Title	**10: Biological Formulation Development for GI delivery**
Mentor, Title	Chris Zhan, Senior Scientist
Institution/ Affiliation	Intact Therapeutics: R&D
Institution/ Company Website	https://intacttherapeutics.com/
Company Description/ Mission	Intact Therapeutics is a clinical stage, biopharmaceutical company focused on developing targeted therapies for the gastrointestinal tract based on technology developed at Stanford University. Our drug delivery technology is designed to increase local exposure of therapy to diseases affecting the mucosal lining, thereby improving efficacy and increasing patient acceptance.
Mentor Bio	I am a first-generation immigrant who grew up in the east bay. I attended the Peralta Community Colleges before transferring to UC Berkeley, where I received a B.S. in Chemical Engineering and Material Science. I have 7 years of manufacturing and quality experiences in medical devices where I worked in formulation development and drug delivery technologies. I am now a formulation scientist at Intact Therapeutics working on the development of a drug delivery platform using thermosensitive hydrogels.
Project Description	In this project, the student will to deliver an antisense oligonucleotide (ASO) (a short strand of DNA which works by blocking transcription of certain genes) aimed to reduce inflammations associated with Crohn's disease, which involves inflammation in the colon. The student will contribute to the ongoing effort in the development of a safe, stable, and effective formulation for the treatment of Crohn's fistula, a complication within Crohn's disease patients. The work will be a hybrid of remote literature research and hands-on lab work. The student will be exposed to a variety of laboratory techniques and assays related to polymer characterization, ASO (antisense oligonucleotide) stability, and mammalian cell culture.
Required Skills	At least one quarter of Biology and/or Chemistry with Lab Required. Student should have a basic understanding of lab safety and how to document experiments. Basic data analysis/visualization using spreadsheets is helpful as well.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications and then select top candidates
# of possible interns	One intern

Discipline	Astronomy, Computer Science
Project Title	**11: Exploring the transparency of the universe to gamma-rays: A study of cosmic voids**
Mentor, Title	Olivier Hervet, Assistant project scientist and lecturer
Institution/ Affiliation	UCSC: Physics department / high-energy gamma-ray astrophysics groups
Institution/ Company Website	lab: https://scipp.science.ucsc.edu/ my website: https://www.olivierhervet.com/
Company Description/ Mission	Our research group is expert in high-energy extragalactic astrophysics. We are mostly focused on gamma-ray astrophysics with the telescope array VERITAS located in Arizona, but also have a strong expertise in optical, X-ray, and lower gamma-ray energies. Our main scientific goals are to understand the high energy processes of distant quasars, to use gamma-ray propagation through the universe as cosmological probes, and to develop the future gamma-ray ground-based telescope CTAO.
Mentor Bio	I am passionate about astronomy and astrophysics since my childhood in the French countryside. After obtaining a PhD in France, at the Paris Observatory, I moved to Santa Cruz to pursue a postdoc in the field of high-energy astrophysics. I am now assistant project scientist and lecturer at UCSC. I would say my hobby eventually became my job. I like the fact that Astrophysicist is a job that still possesses a part of romanticism, as I felt when I was out of the grid in Namibia to observe the sky with one of the largest worldwide telescope. I like to share my interest with the new generation and see them develop rigorous scientific methods and critical spirit.
Project Description	Distant quasars emitting gamma-rays are like lighthouse in the fog. During their millions years travel to the Earth, gamma rays are slowly dissipated through their interaction with the ambient background light of the universe. As a consequence, there is a cosmic horizon were astronomers cannot see very-high-energy gamma-rays anymore due to their too high absorption. Recent studies and new source catalogues suggest that the universe may be more transparent to gamma-rays in some locations, especially where we find large cosmic voids. The student will work on studying the effect of voids in the gamma-ray spectra of numerous quasars. The final goal will be to quantify this effect by applying rigorous statistical methods to our dataset. The student tasks will mostly be on adapting/improving pre-existing python scripts developed by our team for gamma-ray cosmology. It is then critical for this project that the student has already basic knowledge and experience of the Python computing language.
Required Skills	Basic Python coding skills are necessary – at least one quarter, but two or more quarters and experience with data analysis is preferable.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Fully a data-analysis project
Selection Process	Mentor will review 3 - 5 applications with the possibility of short interviews and then select top candidates
# of possible interns	One intern

Discipline	Industrial Engineering/Process Management
Project Title	**12: Process Mapping/ Management Intern**
Mentor, Title	Jorge Tibon, Director, Quality Assurance
Institution/ Affiliation	Rambus, Inc.: Quality Assurance
Institution/ Company Website	www.rambus.com
Company Description/ Mission	Quality Assurance ensures compliance to customer requirements and applicable regulatory , statutory requirements. Ensures the Quality Management System compliance to ISO 9001 standards and all related processes are in compliance with the ISO requirements.
Mentor Bio	
Project Description	Rambus is scaling up which means new new systems need to be created and implemented to build more adequate infrastructure to handle larger scale operations. In this role, you will learn about the current processes in all aspects of the company's work and then work with the team to where processes can be improved and made more efficient. You may look at a product which doesn't meet specifications (nonconformance) and you will help analyze and review that process to improve it. Or you may look at hiring and training processes and help determine how these processes can be streamlined and improved.
Required Skills	Process-oriented, systems thinker, analytical, ability to identify areas for improvement, designing and implementing new processes to increase efficiency and productivity, ability to collaborate with various process owners to streamline operations. Excellent written and verbal skills, flowcharting skills. Engineering background could be helpful but is not necessary – industrial engineering
Duration	15 hours per week for 9 weeks (7/7/25 - 9/5/25) - $2800 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Interface with various process owners to map process (As-Is and To-be)
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Engineering, Public Health, STEM Education/ Empowerment
Project Title	**13: Developing drinking water reports and educational tools**
Mentor, Title	Allisa Hastie, PhD Candidate
Institution/ Affiliation	Stanford University: Department of Civil and Environmental Engineering
Institution/ Company Website	https://www.osman.science/
Company Description/ Mission	Developing data-driven solutions to integrating equity and environmental justice in the design and management of infrastructure systems.
Mentor Bio	I grew up in the Sierra Nevada Mountains and love spending time outside and want to help ensure access to clean air, water, and natural spaces for all people today and into the future. My research is focused on understanding and improving sanitation and drinking water systems in disadvantaged

	communities in the U.S. By combining qualitative and quantitative research methods, I am working to holistically understand the context of drinking water and wastewater failures and develop community-centered solutions.
Project Description	Student will work with their mentor to develop print, digital, and presentation materials describing household water quality results for residents in East Palo Alto and Detroit. Some basic analysis and interpretation of water quality data may be required. We are looking for someone with an interest in science communication and public health and experience with multimedia design.
Required Skills	Attention to detail and punctuality are key! Preference given to students with Spanish proficiency (please indicate in your interest paragraph for this project about your proficiency with written Spanish– for the purposes of developing the print materials), a background in environmental engineering, and experience with Canva, Adobe creative cloud or similar design platforms
Duration	15 hours per week for 9 weeks (7/7/25 - 9/5/25) - $2800 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Mostly literature search, background research
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Biology, Computer Science, Physics
Project Title	**14: Collective Behavior in Social Caterpillars**
Mentor, Title	Avaneesh Narla, Stanford Science Fellow
Institution/ Affiliation	Stanford University: Applied Physics
Institution/ Company Website	https://avnarla.github.io/
Company Description/ Mission	I am broadly interested in studying self-organization in living systems using a transdisciplinary approach, where I draw from multiple traditions such as physics, organismal biology, ecology, computation, and mathematics. My research uses insights and tools from dynamical systems and statistical mechanics to explore key conceptual questions regarding collective behavior in social insects and community dynamics in microbial ecosystems. Specifically, I analyze collective motion in social caterpillars, observed in natural field sites and tabletop experiments, and compare these observations to analytical predictions and computer simulations of agent-based and hydrodynamic models. I also study microbial population dynamics, analyze experimental data from bacterial communities, and compare them to predictions of theoretical frameworks drawn from statistical mechanics.
Mentor Bio	Avaneesh is a Stanford Science Fellow hosted by the Good and Fisher Labs. He is broadly interested in the dynamic adaptation of biological collectives. He is doing this in the context of microbial communities adapting to dynamic resource environments by studying the interplay of ecology and evolution, and in the context of social insects by studying collective behavior and

	decision-making in response to environmental changes.
Project Description	Embark on a fascinating journey where the intricate world of caterpillars meets the principles of physics! Yes, physics! This project offers a blend of nature's marvels with scientific exploration. You'll dive into the captivating behaviors of caterpillars, discovering their collective patterns. You'll also delve into fundamental physics concepts, learning how they can be ingeniously applied to understand these tiny creatures. Your role will be dynamic: from studying caterpillar behavior to analyzing real-world data. Then, you'll bring your insights to life through computer simulations. This isn't just about observing nature – it's about unlocking its secrets through the lens of physics. Prepare to be amazed by what you'll find!
Required Skills	Basic computer skills will be sufficient, but some familiarity with python programming is preferred.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Biology, Chemistry, Computer Science, Data Science
Project Title	**15: PDBCleanV2, a Python library to curate molecular structures**
Mentor, Title	Fatima Pardo Avila, Basic Life Research Scientist
Institution/ Affiliation	Stanford University: Structural Biology / Levitt Lab
Institution/ Company Website	https://med.stanford.edu/structuralbio.html
Company Description/ Mission	The Department of Structural Biology at Stanford is a world leader in the molecular and structural understanding of biology. The discipline sits at the interface of physics, chemistry, and biology. Research in the department spans a wide range of biological problems at the molecular, cellular, tissue, and whole animal scales. The Levitt Lab is a computational biology lab, in recent years we have worked on protein structure prediction, molecular basis of translation and COVID dynamics
Mentor Bio	My name is Fatima Pardo Avila. I was born and raised in Mexico City, where I got a BSc in Basic Biomedical Research. My undergraduate program allowed me to do internship rotations in research labs. This allowed me to figure out what research I enjoyed the most. I became interested in using computational biology to understand how life works at the molecular level and was determined to become a scientist. My family had financial trouble at the time of graduation and didn't understand why I wanted to obtain a PhD. Fortunately, I won a fellowship that allowed (paid for) me to move to Hong Kong and get a PhD in Chemistry at the Hong Kong University of Science and Technology. After graduation, I moved to the USA for a postdoc at Stanford University in the lab of Michael Levitt, where I am currently a Research Scientist. In my free time, I enjoy learning Mandarin Chinese, listening to BTS, and enjoying delicious food.

Project Description	In recent years, there has been an explosion in the number of molecular structures available in public databases. We can extract meaningful information by comparing these structures. However, comparing multiple structures through these databases can be challenging due to inconsistencies and errors in the ways these structures are catalogued. We built PDBCleanV2 (bit.ly/PDBCleanV2), a Python tool to help address common issues with structures and create curated datasets. You will work to improve this Python tool while learning about computational structural biology. You will also use PDBCleanV2 to analyze molecular datasets and create a online repository to share these structures.
Required Skills	Basic knowledge of Python (completion of CS 3A) and general chemistry/ biochemistry (completion of Chem 1A) is preferred but not required. It would be good to have some comfort using the terminal (unix/linux systems). But also, if this project excites you, you don't have the exact courses, but you have a desire to learn more, then select this project!
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Computer Science, STEM Education/ Empowerment
Project Title	**16: Developing Assistive Technology with AI**
Mentor, Title	Li Liu, Ph.D. student
Institution/ Affiliation	UC Santa Cruz: Computer Science and Engineering
Institution/ Company Website	https://leolee7.github.io/
Company Description/ Mission	My group is working on assistive agents for augmenting perception and interaction.
Mentor Bio	I am a Ph.D. student in Computer Science and Engineering at the University of California, Santa Cruz, where I focus on AI-driven assistive technology and human-centered computing. My research explores how large generative models can enhance accessibility for individuals with disabilities. I have worked on projects involving AI-based guidance systems, ambiguity assessment in visual question answering, and trustworthy healthcare applications.I'm interested in developing user-centered design and real-world AI applications. I enjoy mentoring students and have been involved in teaching programming, computer vision, and AI ethics.
Project Description	This project focuses on creating assistive technology using large generative AI models to enhance accessibility for individuals with disabilities. Interns will conduct user studies to understand real-world needs, implement AI-based solutions, and develop a user-friendly app. Through this experience, students will gain hands-on skills in AI integration, software development, and human-centered design while contributing to impactful technology for assistive applications.

Required Skills	python, machine learning, app development
Duration	"Micro-internship" - 6 - 7 hours per week for 9 weeks (7/7/25 - 9/5/25) - $1200 per student intern (possibility of more hours, depending on circumstances – up to 15 hours per week - $2800)
Modality/ Type of Work	Fully remote - preferred only for micro-internships (6 - 7 hours per week), Mostly on the computer, computational research
Selection Process	SLI team will select
# of possible interns	One intern

Discipline	Biology
Project Title	**17: Effects of climate change on nectar microbes of sticky monkeyflower**
Mentor, Title	Rosa McGuire, Postdoctoral fellow
Institution/ Affiliation	Stanford University: Department of Biology
Institution/ Company Website	https://stanford.edu/~fukamit/
Company Description/ Mission	We aim to understand the complexity of ecological communities and ecosystem functioning using a wide range of biological systems and approaches.
Mentor Bio	I'm Rosa McGuire, an NSF Postdoctoral Fellow in the Fukami Lab at Stanford University. After immigrating to the US (I'm Peruvian) I attended Victor Valley College before transferring to UC Riverside, where I completed my B.S in Biology. Afterwards, I obtained my Ph.D. from UCLA, where I studied the effects of temperature on parasitoid-host dynamics. I'm broadly interested in studying the impacts of climate change at different ecological scales and combining theoretical and experimental approaches. Outside of the lab I enjoy birdwatching and baking.
Project Description	Our lab studies the microbes (bacteria and yeast) in the nectar of sticky monkeyflowers, a bush native to the western US. When a new flower opens, the nectar inside is considered free of microbes. Pollinators, such as Anna's Hummingbird, bring different microbial species into the system every time they visit a flower. In sticky monkeyflower, the order of arrival of different microbial species is key in determining the final structure of the nectar community, a process known as priority effects. It has been shown that different microbial species have different thermal tolerances, and this might play a role in community assembly in these flowers. We aim to investigate the effects of temperature on these microbes and their interactions. Potential research directions in this project include 1) Community composition and identification of microbial communities in nectar, 2) Testing the effects of temperature on microbial interactions through lab experiments, and 3) Chemical analysis of nectar resources (sugars and amino acids) after microbial growth at different temperatures.
Required Skills	Prior research experience is not required. Interest in ecology and/or microbes is the only requirement. Desirable skills include being detail-oriented, reliable, and most importantly eager to learn new things.
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern

Modality/ Type of Work	Fully in-person, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Computer Science, Data Science, Engineering, Medicine
Project Title	**18: Utilizing Machine Learning to Create Non Invasive Biopsy for Early Detection of Cancer**
Mentor, Title	Yonatan Winetraub, Instructor
Institution/ Affiliation	Stanford University: Structural Biology
Institution/ Company Website	yolab.xyz
Company Description/ Mission	The lab combines machine learning and optical imaging to create realistic non invasive biopsy images. We assist clinicians in determining tumor margins and treatment and closely work with department of dermatology and neuroscience.
Mentor Bio	I founded an organization called SpaceIL that sent the first private spaceship to the Moon in 2019. I started SpaceIL in Israel with two friends at a bar, writing down our ideas on a napkin. Today I work at Stanford researching how to diagnose cancer without taking biopsies
Project Description	Multiple options exist. The student will join the lab's main project "developing non invasive biopsy tool" and could assist in tasks from sample collection and preparation to writing simple codes to process the data and run machine learning algorithms. More specifically, the student will help by evaluating several machine learning models to see how they perform. You would read 1-2 papers and help us implement methods from the paper to improve our algorithm.
Required Skills	Ideally the student has taken at least one quarter or equivalent of computer science in python, ideally used colab before for classes or fun. Students should have an interest in learning machine learning model
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Fully in-person, Mostly on the computer, computational research, Mostly literature search, background research, Mostly hands-on, in-lab experience
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	STEM Education/ Empowerment
Project Title	**19: Exploring the Impact of a STEM Internship Program on Research and Near Peer Mentors' Sense of Identity and Inclusion**
Mentor, Title	Allison Guerin, Senior Director of Education and Diversity, Equity, Inclusion & Justice
Institution/ Affiliation	Stanford University: Pediatrics Internship Program at Stanford (PIPS)

Institution/ Company Website	https://pips.stanford.edu
Company Description/ Mission	The Pediatrics Internship Program at Stanford is a 6-week internship focused on learning about science, medicine, and research careers that is open to high school rising juniors and seniors who live in the Bay Area. Our goal is to expose diverse students to the exciting world of science, research, and medicine.
Mentor Bio	My name is Allison Guerin. I was born and raised in a small rural community in Pennsylvania to working class parents who did not go to college. In high school I was very involved in my FIRST Robotics team and helped our team win the national Chairman's award my senior year. I was the first in my family to go to college, with no support from my family. The area of the country in which I grew up was not at all diverse, and going to college exposed me to so many new perspectives, individuals, and viewpoints. I lived in the International House during all my years at college so that I could be exposed to individuals from all over the world and learn about new cultures. I received my undergraduate degree in Business & Economics with a minor in Education. I knew I wanted to pursue a career in education to ensure future students could have an experience in college that could help change their life. I moved to San Francisco after college and have subsequently worked at 3 different higher education institution in STEM and non-STEM related fields. I have been at Stanford for 9+ years and I started the PIPS program to provide opportunities for diverse Bay Area students to be exposed to the fields of science and medicine.
Project Description	This project is a qualitative interview study to understand the experiences, challenges, and achievements of the research mentors and near peer mentors of our PIPS students. The intern will: • Develop the interview protocol (interview questions) • Conduct semi-structured interviews with research mentors (faculty, staff, research postdocs) and near peer mentors (students) • Use thematic analysis techniques to identify patterns and themes within the participants' narratives. The study's aim is to provide important insight into the experiences of research mentors and near peer mentors in the PIPS program and how mentoring underrepresented students impacts their sense of identity and inclusion.
Required Skills	No prior research experience is required. We are looking for an intern who: • Has enthusiasm for learning new things • Is reliable, detail oriented, well-organized • Has strong communication skills, both written and verbal (you will be conducting interviews) • Is unafraid to ask questions and ask for help when needed • Has a basic understanding of Excel or Google Sheets • Has an interest in STEM education in minoritized communities • Skills that are not required but that are helpful: • Basic proficiency in statistics • Experience with qualitative data (collecting/analyzing)

	• Presentation and/or interview skills
Duration	15 hours per week for 9 weeks (7/7/25 - 9/5/25) - $2700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly literature search, background research, Development of an interview protocol and conducting semi-structured interviews with faculty, staff, postdocs, and students
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Computer Science, Business Administration
Project Title	**20: Development of an online product cost model calculator**
Mentor, Title	Lin Lin, Director of Semiconductor Sourcing
Institution/ Affiliation	Rambus Inc: Semiconductor sourcing
Institution/ Company Website	https://www.rambus.com/
Company Description/ Mission	Responsible for Rambus direct product procurement sourcing activities
Mentor Bio	Semiconductor industry background
Project Description	You will work with a team member to develop a user-interface online calculator with the calculating engine running in the background. Currently, we use a large Excel spreadsheet with a lot of formuals to calculate product costs, and we are trying to improve efficiency by creating this online calculator. The tool should allow users to enter key parameters and then see a webpage with the expected results. The tool would also record documentation over a certain period of time so the user can track back to find the record. This will be a new online tool for the company, and we are looking for someone who can take the initiative with creative ideas to create the tool.
Required Skills	Computing with some coding background to create the engine and website, especially important to have experience using Excel with formulas
Duration	20 hours per week for 9 weeks (7/7/25 - 9/5/25) - $3700 per student intern
Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, Mostly on the computer, computational research, Computer background to be able to develop a website calculator
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern

Discipline	Psychology, Social Inequality
Project Title	**21: How do people explain and understand social inequality?**
Mentor, Title	Anmol Gupta, Graduate Student (2nd year)
Institution/ Affiliation	stanford university: social psychology - starck lab
Institution/ Company Website	https://www.jordangstarck.com/

Company Description/ Mission	The Starck Lab is housed in the psychology department at Stanford University, beginning in the fall of 2023. We study the psychological mechanisms that drive racial inequality. We grapple with how our histories, social organizations, ideologies, and institutions intersect with individuals to fuel systemic forces that bestow advantage to some groups and disadvantage to others. Ultimately, we aim to unearth implementable insights that can help create a more equitable society.
Mentor Bio	I'm a second-year (soon to be third-year!) graduate student in Psychology at Stanford, where I'm working on social psychological solutions to social problems, especially pertaining to race, gender, and disability. In undergrad, I studied psychology and music, and I love to listen to and make music in my free time. Before coming to Stanford, I worked at the Center for Social Development and Education at UMass Boston, where I worked on program evaluations for inclusive in-school/after-school programming and at Stanford as a research staffer working on a project to help students transition from juvenile detention back to school. I'm also a first-gen Indian American and grew up in Wisconsin!
Project Description	In our lab, we study the psychological mechanisms that drive racial inequality. We grapple with how our histories, social organizations, ideologies, and institutions intersect with individuals to fuel systemic forces that bestow advantage to some groups and disadvantage to others. Ultimately, we aim to unearth implementable insights that can help create a more equitable society.

This summer, we're working on several projects in this line of work. Specifically, we're working to develop a theory about how people understand racial disparities from a systemic frame (as compared to an individual frame) and how we might be able to help people develop more comprehensive understandings of the causes for social problems. SLI RAs will be involved in various tasks, including literature reviews, data coding, and potentially experimental design depending on project needs and RA interests. |
| **Required Skills** | No prior research experience is required! We're looking for someone who is..:
- interested in psychology, ideally social or behavioral psychology
- highly detail-oriented
- passionate and curious
- eager to learn
- passionate about social/racial justice
* some experience with quantitative and qualitative data (collecting/analyzing) helps but isn't required
* some experience reading and critiquing academic publications is also helpful, but not required! |
| **Duration** | "Micro-internship" - 6 - 7 hours per week for 9 weeks (7/7/25 - 9/5/25) - $1200 scholarship with the potential for up to 15 hours per week ($2800) if interested. Some training will start in June because mentor is out of town from July 4 – July 17. |

Modality/ Type of Work	Hybrid - remote/ online with some in-person opportunities, partly literature search and partly data analysis (and potentially some experimental design!)
Selection Process	Mentor will review 3 - 5 applications, arrange short interviews, and select top candidates
# of possible interns	One intern