STANFORD EARTH
SUMMER UNDERGRADUATE RESEARCH PROGRAM
(SESUR)

Jennifer Saltzman
saltzman@stanford.edu
School of Earth, Energy & Environmental Sciences
▪ Are you eager to investigate a question or solve a problem?
▪ Do you want to explore an idea or issue that interests you?
▪ Would you like to work with a scientist or engineer to learn about the world of research?
Why do research as an undergraduate?

- A way to learn and create knowledge
- Develop relationships with faculty/graduate students/post docs
- Address your own curiosity about a topic, or help address a societal need
- Learn resilience, creativity, and problem-solving skills
- Explore a potential career direction
- Learn how to effectively communicate about your work
What is research like?

- Collaborative
- Alternately frustrating and exciting
- Often open-ended
- Requires development of technical expertise and immersion in background literature
- May require field work
- Fun, interesting, and rewarding!
SESUR Timeline for 2022
SUMMER

February 17
application
deadline

Write proposal

Prepare for research
Enroll in EARTH 100

Work on research
Participate in summer program

Present research

Winter Quarter

Spring Quarter

Summer 10 weeks

Fall Quarter

decisions announced

application deadline

February 17

application

February 17

application
How do I find a project and mentor?

- Look on the website for potential projects. Choose 3 that spark you.
- Send an email message to both the professor and grad student/postdoc. Set up an appointment to talk about the project. Student Application Tips

Self-directed projects
- You must find a faculty mentor who has expertise in your area and has the time to guide you.
- Consider applying for a major grant instead if you are junior

Projects from last summer
- Variable Transport Methods on Traffic Density, Flow, and Emissions on Highway 17
- Measuring Collective Environmental Literacy in Watsonville, CA to Identify Climate Resilience Barriers and Opportunities
- Automated Identification of Ice Sheet Surface and Bed from Archival Radar Film Data
- Predicting the future aerobic habitat of Dungeness crab (Cancer magister) in the NE Pacific Ocean
- The Impact of Soil Quality on Children's Health and Nutrition in India
How do I apply?
Your application is a written proposal including the following:

**A description of the proposed project**
- What question are you asking?
- Why is a significant or important question?
- How will you address it (experimental design, if applicable)?
- What methods will you use?
- What are your research objectives?

**A tentative work plan**
- What are you going to do and when? (Week by week bullet points are good) 50-75% data collection, time for analysis

*View examples of successful proposals and submit your own application on the program website*
Expectations for SESUR fellows

- Commit to 40 hours/week for 10 weeks of project. Think of SESUR as a full-time job.
- Take EARTH 100 in Spring Quarter (1 unit, C/NC).
- Participate in summer seminar, if on campus.
- Proactive communication with your research advisor.
- Poster and/or oral presentation. At Stanford Earth undergraduate research symposium in fall.
What do you wish you had known last February when applying to SESUR?

- I wish I had known that I should start contacting faculty members as early as possible. More specifically, I wish I had known to be confident and direct when meeting with faculty members about summer research or potential projects.

- I wish I better understood how much time would be spent doing training courses and other time-consuming things that indirectly contribute to the research project. I also wish I knew that it was okay and good to go ask questions when I needed help.

- I wish I had known that it would be a full commitment during the summer. However, I don't regret how much time I spent on the project.

- I thought research would be easy, and it definitely is not.

- I wish I had known that I would have appreciated a lab component more after working on a laptop more often than not.

- I wish I had known how to communicate more effectively with my advisors. I struggled somewhat asking questions and noting important details involved with lab work, but later developed this skill.
To recap…

December/January – Project descriptions posted
December/January – Proposal prep w/advisor – should be collaborative. This takes some time, don’t wait!

February 17 (Thursday) – Proposal submission; research fellows selected.

Spring Quarter – Research preparation (enroll in EARTH100).

Summer – Work on research; participate in seminar & field trips.

Fall – Presentation at Stanford Earth symposium.

Beyond . . . Present at scientific meetings, publish in journals, develop honors theses, achieve fame and glory
https://earth.stanford.edu/stanford-earth-summer-undergraduate-research-program

bit.ly/sesur

Questions??

THANKS FOR COMING!

Jenny Saltzman
Email: saltzman@stanford.edu
Office: Mitchell bldg, room 132
▪ Are you eager to investigate a question or solve a problem related to the Earth, energy, or our environment?

▪ Do you want to explore an idea or an issue that interested you in a class?

▪ Would you like to work with a faculty member and graduate student to learn about the world of research in the Earth and environmental sciences?