

November 19, 2024

Summer Plans and REU Workshop

Society of Physics Students @UCLA

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Summer Plans?

- The Summer is a great time to gain skills and experience, and simultaneously build your resume/CV
- A lot of physics and physics-related undergraduate students try to do research full-time
 - no classes so more progress!
 - dedicated research programs



What is an REU?

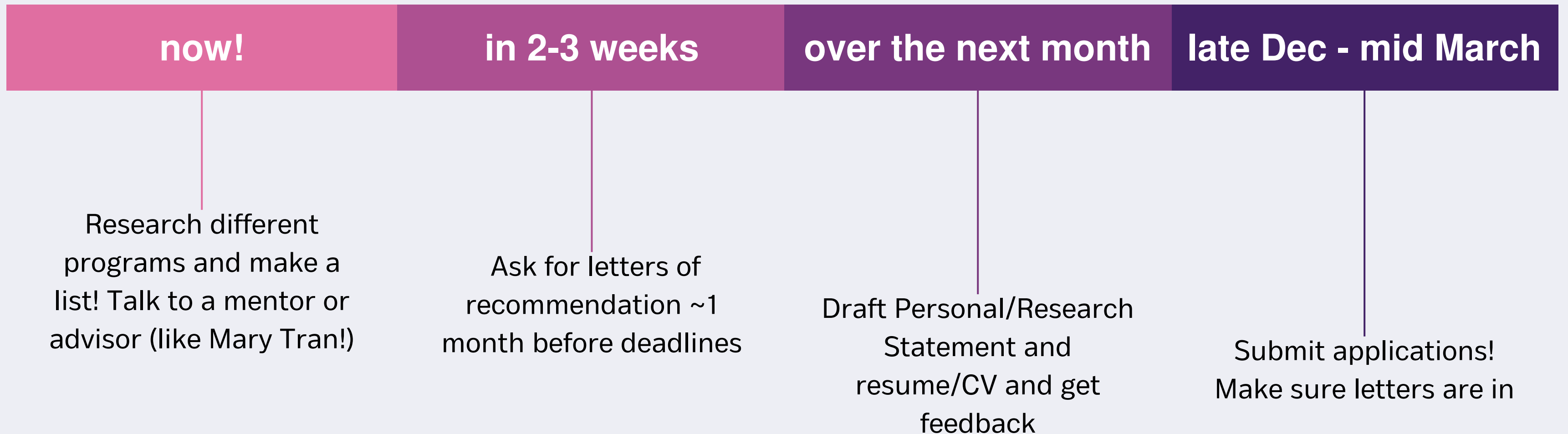
- Research Experiences for Undergraduates (REUs) are traditionally 8-10 week full-time summer research programs
- Your research mentor will be a professor or post-doctoral fellow
- You will be given a stipend of varying amounts, from \$5000-\$8000 usually, and you may also get housing and travel accommodations
- Most REU programs are NSF funded and hence you must be a US Citizen or Permanent Resident to apply, but non-NSF funded programs also exist!



REU Application

- Personal Statement
- Letters of Recommendation
- Resume/CV
- Unofficial Transcript

Application Timeline



General application pointers

- Personal Statement
 - Go to the Undergraduate Writing Center! They're very nice and helpful.
 - Usually, you describe your future goals and what you hope to gain from the REU program and your relevant background: academic experience, skills, interests, previous research experience (if any).
 - You may also include in the essay any challenges (academic or otherwise) that you faced and how you persevered through them
 - Remember: REUs are meant to fund students interested in research NOT researchers. They're meant to teach you how to do research! Don't worry about not having existing research experience, and focus more on your personal motivations for research.
 - Remember to tailor your statement to the program you're applying to
 - Talk about the field you're interested in but don't close yourself out from other fields
- Research Statement
 - These are rarer, but you would essentially talk about your previous research experience, or if you have none, they might ask you to describe your experience facing a challenge.
- ASK FOR FEEDBACK: Your research advisors, undergraduate department advising, the writing center, friends/family are all great sources of feedback.

General application pointers

- Resume: limited to one page, relevant work experience, relevant course work, research skills, leadership, technical skills
- CV: a complete list of all your activities, award, accomplishments, etc.
- Rec Letter: for most REUs they require 2 letters of recs. 1 has to be from a faculty at your school. Ask professors who know you well, either through research or recent classes.
- UCLA has access to VMock through Handshake that can help you make your resume
 - <https://career.ucla.edu/resources/resumes-cover-letters/>
 - <https://career.ucla.edu/resources/vmock/>
- Also, the career center has several workshops!
- Again, ask for feedback.
- W+PS has a more in-depth application related workshop this Thursday!

Research REU Programs

- All branches of physics
 - NSF-Supported Physics and Astronomy REU Programs: Go to the NSF REU directory, and you can filter by research area: <https://new.nsf.gov/funding/initiatives/reu/search>
 - Each university usually runs its own application process, and students apply to each university's program individually. It is just NSF funded.
 - SPS summer research and internship listings
- Astronomy-specific
 - American Astronomical Society listing of REU Programs
 - Space Astronomy Summer Program at the Space Telescope Science Institute
 - NASA internships and fellowships
- Biomedical-specific (relevant for medical physics)
 - NIH summer internship program
- Particle-physics-specific
 - CERN summer student programme
 - CERN summer internship through George Mason University

Southern California REU highlights

- UCLA Physics REU! Due late March
- Caltech SURF, due late-February. For this program, you will need to reach out to Caltech faculty and come up with a research proposal before you apply. Don't worry! They'll help you write it.
- Carnegie Astrophysics Student Summer Internship (CASSI)
- UCSB REU
- UC Davis REU
- UC Riverside Astronomy REU
- USC Physics and Astronomy REU
- JIFRESSE Summer Internship Program (JSIP) (JPL and UCLA collaboration) -- Physics, Astronomy, AOS

Related Field REUs

- UCSD Advanced Materials REU
 - UCSC Materials Science and Engineering REU
 - Southern California Earthquake Center SURE (Earth Sciences)
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Research Internships

- Department of Energy Summer Undergraduate Laboratory Internships Program (SULI) (Due January 8, 2025)
 - Government opportunities to conduct research, attend scientific seminars, and interact with professionals in the field.
 - You'll be placed at one of 17 national laboratories!
 - Application similar to REU application, requiring transcripts, LORs, essays and resume/CV.
 - Department of Defense summer internships: <https://dodstem.us/participate/opportunities/>
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Research Internships

- NASA JPL Internships (Due March 14th) - Only a resume + unofficial transcripts required
 - 10-week, full-time, summer internship opportunities at JPL to undergraduate and graduate students pursuing degrees in science, technology, engineering or mathematics.
 - Students are partnered with JPL scientists or engineers, and complete designated projects outlined by their mentors
 - educational experience in their fields of study + contribute to NASA/JPL missions
 - Enrichment activities: tours, lectures and career advisement, arranged by the JPL Education Office.
- NASA OSTEM (Due February 28, 2025 for Summer 2025)
 - paid opportunities to work alongside research scientists, engineers, and professionals, contributing to NASA's mission in science, technology, aeronautics, and space exploration.
 - Internships are available in full-time or part-time formats, both on-site at NASA centers or remotely, with three sessions offered annually.
- NASA Pathways (due February 2025)
 - Offers path to full-time NASA career

Industry Internships

- These are typically recruiting now (December - January)
 - Typically pays more
 - So many places to apply! IBM, Raytheon, Boeing, Intel, General Electric (GE), SpaceX, etc.
 - Search for companies you want to work at and find out how to apply to internships there
 - Go to career fairs!
 - Make a good resume that highlights key things about yourself that you can show to recruiters at these fairs
 - Networking is the best way to get these kinds of internships!
 - Reach out to people on LinkedIn.
 - Ask your advisors/mentors if they can refer you to industry professionals
 - These applications tend to be even more of a crapshoot than REUs and research internships -- try not to take it harshly if you apply to several places and don't even hear back from them. Still, apply! You never know what may happen.
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Alternate Funding Opportunities

- URC Sciences Summer Program (Due Feb/Mar)
 - The URC-Sciences Summer Program is a 10-week research opportunity at UCLA for undergraduates, running from June 24 to August 30, 2024, with workshops and seminars for professional development.
 - Students conducting research with UCLA faculty are eligible, with part-time and full-time scholarships available for those enrolling in summer school.
 - UC LEADS (Due Feb/Mar)
 - UC LEADS Scholars receive funding for research with a faculty mentor, participate in two summer research programs at UCLA
 - Eligibility includes being a physical sciences or engineering major, educationally/economically disadvantaged, interested in research, a UC sophomore or rising junior with a 3.0 GPA, and planning to pursue a PhD in a STEM field.
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Alternate Funding Opportunites

- Paid Student Researcher (Due Feb/Mar)
 - Respectfully ask for compensation from your PI
 - UCLA SPUR (Upper Division) (Due Feb/Mar)
 - Many SPUR programs pair students with faculty mentors whose expertise aligns with the student's research interests and career goals.
 - Applying for funding can be very beneficial as it gives you flexibility in choosing who you work for, especially for theory research which is more funding-limited than space-limited
 - Experimental/instrumentation groups tend to have more funding for students who may want to cold email for summer research positions
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Alternate Research Routes

- Cold email professors:
 - Experimental/instrumentation groups tend to have more funding for students who may want to cold email for summer research positions
 - Reach out to professors at UCLA and ask if you can work with them over the summer
 - If they don't have funding, you can work with them part-time and find another job-part time to cover housing and other bills
- Look outside the US!
 - CHALMERS
 - UM-CERN REU
 - Do some googling!

For International Students

- Because REU's are NSF funded, most REU's don't accept international students, however there are a few programs that don't require US citizenship status
 - SURF @ Caltech:
 - In 2025, SURF Fellows receive a \$7,950 award for a ten-week program
 - conduct research under a faculty from Caltech
 - CIERA Research Experiences for Undergraduates (REU)
 - interdisciplinary collaboration, combining methods from fields like computer science, chemistry, engineering, math, and planetary science. Northwestern's REU program offers students the chance to pursue astrophysics-based research alongside faculty from Astronomy, Applied Math, Chemistry, EPS, CS, and Physics.
 - Note international students may apply but will need to provide own funding.
 - UCLA physics REU
 - open to international students, and international students will receive a stipend
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calm.

It's okay if you aren't accepted into any of the programs you applied to

You can do so many other things!

- **Take some classes (catch up on GEs or the intensive language requirement)**
 - **Work at the library or at a summer camp, or some other fun summer job.**
 - **Take classes outside of your major that interest you**
 - **Study abroad! UCLA has a couple wonderful exchange programs.**
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Take a break.

Fact: Most college students spend their summer resting.

hobbies

travel

sleep

mental health



thank you. questions?
