SuperUROP 2019-2020

Information Session

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6.UAR Faculty

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SuperUROP Overview

- Year-long UROP research project primarily for juniors and seniors in SoE
- Development of technical communications skills through 6.UAR deliverables:
  - Extended abstract
  - Oral presentation of proposal
  - Poster presentation of results
  - Journal-style paper
- Lectures featuring guest speakers from academia and industry
- Recitations for smaller-group work on communication skills
- Can serve as a launch pad for academia, research, industry, start-ups
“With what I learned during this class and relationships I developed with the research group, I have been able to strengthen my MEng project and accelerate the completion of my degree. SuperUROP has been an exceptional experience.”
SuperUROP Success

Rishi Patel (SuperUROP 2013-2014)
  • SuperUROP research prize
  • Now PhD student at Stanford
  • Record-efficiency interface between silica fiber and solid state quantum memory
  • SuperUROP elements: E&M theory & simulations, Nanofabrication, Quantum optics
  • Oral presentations: 2015 Material Research Society Fall Meeting (Boston, MA); 2015 CLEO/QUELS (San Jose, CA)
Ava Soleimany ‘16
Computer Science and Molecular Biology
Synthetic Biology Group of Dr. Timothy K. Lu
SuperUROP project: Synthetic State Machines in Living Cells
Roquet, N., Soleimany, A.P., Ferris, A.C., Aaronson, Scott, Lu, T.K.; 22 July issue of Science

Now PhD student at MIT and Harvard

SuperUROP Success

“SuperUROP allowed me to immerse myself in research. The support from the EECS department and the program’s organization were huge in making my experience the best it could be. I’m so excited to take the skills and experience I gained through the SuperUROP program with me into graduate school.”
SuperUROP Components

SuperUROP is a two-semester integrated experience with two separate and related components.

1. Research Communication: 6.UAR assignments
   - Required enrollment in Fall and Spring – 6 units per semester

2. Research Execution: Average of 10 hours / week
   - Students meeting criteria for SuperUROP funds will receive funding from respective departments
     or
   - Students working with faculty from a non-participating department or outside their primary department can apply for standard UROP funding or ask for direct funding from the supervisor
     or
   - Students can do the research component for credit (12 credits per semester) instead of receiving payment

Note: Doing a standard UROP prior to enrollment is also required.
Advanced Undergraduate Research Certificate

- 10 hrs/week research is in addition to the 6.UAR attendance and assignment
- Certificate in Advanced Undergraduate Research will be awarded for completion of 6.UAR (12 units) plus advanced research project
- For EECS Only: 6.UAR (12 units) can be used to satisfy second EECS CI-M
- Other departments: Please check with your undergraduate office
6. UAR Goals

Participants learn about:

• Selecting research projects and doing background research
• Current research topics related to various areas in EECS and other participating departments
• Metrics used in the different fields
• Student entrepreneurship
• Industry design
• Ethics in engineering
• Writing high-quality research papers and the conference/journal review process
• Giving effective research presentations
Fall 2019 6.UAR Deliverables

• Attending class; recitations; TA check-ins

• Preparing 8-10 page extended abstract, due late November 2019

• Presenting proposal (problem definition, research approach) at a poster session, held on last day of class December 5, 2019

• Grading is based on completion of deliverables – J grade with interim grade

• No grade or credit given if not enrolled in spring
Spring 2020 6.UAR Deliverables

• Attending class; recitations; TA check-ins
• Completing 10-15 page research paper with results
  ✓ Preliminary paper with intro, background and technical approach (peer review), due in early April 2020
  ✓ Final paper due in May 2020 (graded)
• Attend communication workshops (writing technical papers; giving presentations)
• Poster presentation of results: final technical elevator-pitch presentation of project results
• Grading is based completion of spring deliverables + fall interim grade. Same grade reported for fall and spring terms
How is SuperUROP Funded?

Department named-scholar program awards:

- Funding is raised by departments from individual donors and industry sponsors
- Funded scholars are for students who work with faculty in the same department as their primary major

Continuing this year for 10 content-specific scholars:

- Project content to bridge CS and HASS disciplines

Additional engagement with sponsors beyond SuperUROP events:

- Some industry sponsors also assign staff volunteers to be friends from industry to connect with students working in a related interest area
Participating Departments

Funding for majority of qualified students
  • Electrical Engineering and Computer Science

Limited number of scholars per department
  • Aeronautics and Astronautics
  • Chemical Engineering
  • Civil and Environmental Engineering
  • Mechanical Engineering
  • Nuclear Science and Engineering
2019-2020 Payment Plan

• Each selected student receives up to $3,000 per term.
• Payment is distributed based on time-card submissions with supervisor sign-off for hours spent on research.
  ✓ Payments will be based on actual time spent on research, limited to 40 hours a month.
  ✓ Students submit weekly hard-copy time cards to department payroll administrators.
• Payments are discontinued students if drop 6.UAR or if a student becomes G and takes on a TA/RA.

Note: You may to continue working with your advisor during IAP (as a volunteer or for pay if the group can support it).
Talk to current students at SuperUROP Showcase

Thursday, April 25, 2019
3 – 5 pm SuperUROP
Student Street Stata Center
SuperUROP Application Schedule (2019-2020)

• Approved supervisors to post research opportunities: March 4, 2019
  • Format: paragraph and picture
  • Maximum of 3 students per supervisor
  • Contact Dorothy Curtis (dcurtis@csail.mit.edu) if you need technical help with the website (https://superurop-apply.mit.edu)

• Student Information Sessions:
  March 5, 2019, 4-5 pm, Rooms 36-462 & 36-428
  March 6, 2019, 1-2 pm, 32-D463 (Star)

• Students apply (with approval from supervisor):
  • Intent (resume, transcript) deadline: April 5, 2019
  • Proposal deadline: April 29, 2019
  • Keep proposal short (a figure and a couple of paragraphs)
  • Recommendation (letter of support) needed from the primary SuperUROP supervisor

• Announcements on funding for 2019-2020: June 2019