SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATES: LIFE AND PHYSICAL SCIENCES, MATHEMATICS, ENGINEERING, AND SOCIAL SCIENCES

MARYLAND CENTER FOR UNDERGRADUATE RESEARCH
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WHY DO UNDERGRADUATE RESEARCH?

- Get hands-on experience in your field
- Understand how discoveries are made
- Learn new skills, procedures, and computer programs
- Develop professional contacts and friendships, useful for later recommendations and networking
- Great experience for graduate school & medical school
EXAMPLES OF SUMMER UNDERGRADUATE RESEARCH PROGRAMS:

• National Science Foundation (NSF) Research Experiences for Undergraduates
• National Institute of Standards and Technology (NIST) Summer Undergraduate Research Fellowships (SURF)
• Amgen Scholars
• Lawrence Livermore National Laboratory Summer Internships
• And many more!!!
COMMON FEATURES OF UNDERGRADUATE SUMMER RESEARCH PROGRAMS:

- Many larger programs take place at multiple locations
- Research full-time for 8-10 weeks
- Take part in an established research project supervised by professional researchers, usually as part of a team of 10-12 summer researchers
- Sizeable stipends ($3,000-$6,000), many cover room/board and travel costs
- Read guidelines carefully. Many programs have strict GPA and citizenship requirements, some prefer sophomores or juniors, or students with previous research experience
- Main purpose is to help students, especially underrepresented students, prepare for PhD and MD programs
IF YOU DON’T HAVE RESEARCH EXPERIENCE YET, NOW IS A GREAT TIME TO GET STARTED HERE AT UMD WHILE CONSIDERING OUTSIDE PROGRAMS….

• Begin by talking with your major advisor, grad student TAs, and course professors about what research is being done in your major.

• Contact people you might like to work with several weeks before the start of the semester.
  • Tell them why you’re interested in working with them and what skills you bring to the table.

• Use the Maryland Student Researchers database of campus opportunities here.
IF YOU ARE READY TO APPLY FOR SUMMER RESEARCH PROGRAMS:

• Formal application process including essay(s), CV, transcripts, and letters of recommendation (usually 2)

• These programs are competitive: Apply to at least 5-6 options that are a good match for your skills/interests/goals

• Deadlines usually are in January or February, so plan ahead!!!

• Some programs require prior research experience, a minimum GPA (usually 3.0 or above), and course prerequisites: read pre-reqs carefully

• Most programs target current sophomores and juniors; some are open to qualified freshman or graduating seniors—again, read guidelines carefully

MARYLAND CENTER FOR UNDERGRADUATE RESEARCH
www.ugresearch.umd.edu
Hundreds of opportunities in most STEM and Social Science fields

NSF-funded researchers receive extra funds to bring in 10-12 students each summer

Students apply directly to each REU site – separate application for each!!!

Eligibility: U.S. citizens or permanent residents

Deadlines: Vary depending on the research site – usually in January or February for the following summer

Benefits: Students receive stipends and for most sites, housing and travel expenses also
**NATIONAL SCIENCE FOUNDATION**

**RESEARCH EXPERIENCES FOR UNDERGRADUATES (REU’S)**

**EXAMPLE SITE: JOHNS HOPKINS UNIVERSITY PROGRAM IN NANOTECHNOLOGY FOR BIOLOGY AND BIOENGINEERING**

- Experiences include **hands-on research** under the guidance of a faculty mentor, **professional development** workshops, practice **presenting research** orally and at a conference, and organized **social activities**

- **10 weeks** long, with a **$5,250 stipend**, housing near campus, and travel assistance

- Aimed at students interested in applying to **graduate school**; particularly interested in recruiting minorities and people from groups with traditionally low STEM representation

- Open to **US citizens** and **permanent residents** who are rising sophomores, juniors, and seniors with 3.5+ GPAs

- Accepts **10 students each year**

- Online application opens in November and requires a **personal statement, resume, official transcript, and two recommendation letters**
  - Personal statement addresses your relevant background experiences and professional goals
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)
SUMMER UNDERGRADUATE RESEARCH FELLOWSHIPS (SURF)
NIST.GOV/SURF

- Open to students with physics, material science, chemistry, applied mathematics, computer science, or engineering majors
- Students should be considering MS or PhD
- NIST Research Campuses in Gaithersburg, MD and Boulder, CO
- Hundreds of students at 7 facilities—30+ UMD students annually
  - Nanoscale, Neutrons, Communications, Information, Engineering, Material Measurement, and Physical Measurement
- Application is through the UMD Engineering Co-op and Career Services Office’s Careers4Engineers: www.coop.eng.umd.edu

Eligibility:
- Must apply through your university
- Must be a U.S. citizen or permanent resident to apply
- Must have a 3.0+ GPA

Deadline: February 7 in Engineering Co-op and Career Services Office

Benefits: $5,500 stipend and allowances for travel and housing
Students conduct research in Life Sciences and Related Fields, attend seminars and socials, and meet at an end-of-summer symposium
  - Includes biology, bioengineering, genetics, medicine, neuroscience, statistics, chemistry and more

Hosts about 200 students at 10 major U.S. research universities
  - Including Caltech, Columbia, Harvard, MIT, NIH, and others

Eligibility:
- U.S. citizens or permanent residents
- Sophomores, juniors, or non-graduating seniors
- Cumulative GPA of 3.2 or above
- Strong interest in pursuing a PhD or MD-PhD

Deadline: February 1, with the exception of Cal Tech, which is mid-February

Benefits: $3,600-$6,000 plus housing and some meals and travel. Varies by institution
LAWRENCE LIVERMORE NATIONAL LABORATORY
SUMMER INTERNSHIP PROGRAMS
INTERNSHIPS.LLNL.GOV

• Federal national defense laboratory in Livermore, California hosts 300+ undergraduate and graduate interns each summer
• Opportunities in engineering, physics, computer science, and other physical and life sciences, as related to counterterrorism, energy, and biosecurity

Eligibility:
Minimum GPA of 3.3 with 3.5+ preferred
Most programs require U.S. citizenship

Deadline: Varies

Benefits: Competitive salaries based upon students’ degree discipline and academic standing according to a salary schedule
Students must make housing arrangements; housing opportunities are listed on the program’s website.
THERE ARE MANY, MANY MORE SUMMER RESEARCH OPPORTUNITIES THAN THE ONES WE FEATURED!

- Pay attention to department listserv messages and postings on bulletin boards
- Ask your advisor if he/she can recommend summer research opportunities and programs, particularly those that former students and advisees have completed.
- Check out these links especially on the MCUR Website:
  - Research in DC Area: http://www.ugresearch.umd.edu/current-DCresearch.html
  - Research in the U.S.: http://www.ugresearch.umd.edu/current-research-us.html
- Lastly, please feel free to make an appointment with the MCUR office by emailing ugresearch@umd.edu or bmulder@umd.edu