**General notes:**

* Nearly all programs require U.S. citizenship or permanent resident status
* Nearly all programs restrict taking classes while participating in the program (Test-prep programs are typically discouraged too)
* SURP = Summer Undergraduate Research Program
* SPUR = Summer Program in Undergraduate Research
* SRP = Summer Research Program
* You can search for European undergraduate research opportunities at [Euro*Scholars*](https://euroscholars.eu/)
* The [VT Office of UG Research](https://www.research.undergraduate.vt.edu/) maintains a listserv about summer research opportunities

**Science Research Programs:**

1. National Science Foundation (NSF) Research Experiences for Undergraduates

“The Research Experiences for Undergraduates (REU) program supports active research participation by undergraduate students in any of the areas of research funded by the National Science Foundation. REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program.”

* Search for programs by research topic – hundreds available
* URL: <https://www.nsf.gov/crssprgm/reu/reu_search.jsp>

Here are some examples of NSF REU programs that might be of interest to Biochemistry/life science students:

* UCLA Institute for Quantitative and Computational Biosciences: BIG Summer Undergraduate Research Program <https://qcb.ucla.edu/big-summer/>

“Bruins-In-Genomics (B.I.G.) Summer Research Program is an 8-week full-time immersionprogram at the University of California, Los Angeles, for undergraduates interested in learning how to read and analyze genes and genomes. Through this program students will have the opportunity to experience graduate-level coursework, and learn the latest cutting-edge research, tools and methods used by leading scientists to solve real-world problems.”

* Colorado State University Program in Molecular Biosciences <http://www.bmb.colostate.edu/undergraduates/reu/>

“The Colorado State Department of Biochemistry and Molecular Biology, with financial support from the National Science Foundation, offers qualified undergraduates from throughout the country the opportunity to conduct research projects in biochemistry and molecular biology for ten weeks each summer. This program allows students to participate in active research in a wide range of areas, including protein structure and function, transcriptional mechanisms, molecular neurobiology, regulation of gene expression in a chromatin context, cancer biology, plant biology, embryonic development, diabetes, cytoskeleton dynamics, and virology.”

* University of Georgia, Department of Microbiology: Molecular and Synthetic Microbiology REU <http://mib.uga.edu/reu-site-molecular-and-synthetic-microbiology>

“The Microbiology Department of the University of Georgia in Athens (UGA) will provide an intensive, 9 week hands-on laboratory research program for 10 undergraduates for Summer 2019. REU participants will conduct independent projects with supervision. A wide variety of research topics will address the diverse functions of bacteria, archaea, fungi, and other microbes. State-of-the art techniques will be used in interdisciplinary approaches that combine knowledge from the fields of Genetics, Biochemistry, Physiology, Molecular Biology, Cellular Biology, and Ecology.”

* Yale University, Raymond and Beverly Sackler Institute for Biological, Physical and Engineering Sciences:

Interdisciplinary Research Training Across Biology, Physics, and Engineering <https://sackler.yale.edu/sackler-nsf-reu-site>

“This program enables undergraduates interested in pursuing a career in the sciences to conduct interdisciplinary research at Yale for a 10-week period during the summer. Our program focuses on research at the intersection of biology, physics, and engineering and serves as a glimpse of what graduate school at a large research institutions is like.”

* Johns Hopkins University, Institute for NanoBioTechnology: Nanotechnology for Biology and Bioengineering Research Experience for Undergraduates (REU) Program <https://inbt.jhu.edu/nanobio-reu/>

“The Institute for NanoBioTechnology at Johns Hopkins University offers undergraduate students from colleges and universities around the country a chance to participate in research projects in the exciting and rapidly growing area of nanobiotechnology, a place where biology, medicine, engineering, and nanoscience meet.”

* The University of California, San Francisco, Summer Research Training Program (SRTP).

<https://graduate.ucsf.edu/srtp>

“The UC San Francisco Summer Research Training Program offers exciting summer research opportunities for undergraduate students in the health sciences. Research disciplines include: Biochemistry and Molecular Biology, Bioengineering, Biological and Biomedical Informatics, Biomedical Sciences, Biophysics, Cell Biology, Chemistry and Chemical Biology, Developmental and Stem Cell Biology, Epidemiology and Translational Research, Genetics, Neuroscience, Oral and Craniofacial Sciences, and Pharmaceutical Sciences and Pharmacogenomics.”

* University of Michigan, College of Pharmacy: Research Experiences for Undergraduates (REU) in the Structure and Function of Proteins Program. <https://pharmacy.umich.edu/reu>

“The University of Michigan Interdisciplinary REU Program in the Structure and Function of Proteins is designed to provide undergraduate students with a 10 week research experience in the areas of biochemistry, biophysics, cheminformatics, computational chemistry, enzymology, marine biology, molecular biology and plant biology. The research projects featured in this program all involve studies of the structure and function of proteins.”

* Boyce Thompson Institute at Cornell University: Plant Genome Research Program for Undergraduates

<https://btiscience.org/education-outreach/internships/program-information/>

“Undergraduate students with an interest in hands-on, plant-focused laboratory research are encouraged to apply. Typical student projects will involve genome-enabled plant molecular biology research, including gene cloning and characterization, functional genomics, expression of exogenous genes in plants, and analysis of biochemical pathways.”

* Rice University, Institute of Biosciences and Bioengineering: NSF Research Experience for Undergrads (REU) in Multi-Scale Biomolecular Networks (BioNetworks). <https://ibb.rice.edu/nsf-reu-bionetworks>

“The goal of this program is to provide students first-hand experience with cutting-edge interdisciplinary research that is needed to predict biological functions sufficiently to reprogram cells to avoid diseases or to perform new tasks.”

* University of Georgia: Population Biology of Infectious Diseases REU <http://reu.ecology.uga.edu>

“The goal of this program is to catalyze a new generation of inter-disciplinary infectious disease science by introducing life science students to computational and mathematical techniques and to provide students in mathematics, statistics, and computer science opportunities to collaborate with life scientists, to collect and analyze data, and to develop empirically-motivated research.”

* Purdue University, Department of Biochemistry: Research Experience for Undergraduates (REU) in Molecular and Biochemical Analysis of Proteins. <https://ag.purdue.edu/biochem/Pages/REU.aspx>

“This program provides advanced training in the manipulation and analysis of proteins for undergraduate students, and facilitates deep understanding of experimental laboratory research, insights into protein biochemistry and contemplation of the broader context of research.”

* Harvard-MIT Health Sciences and Technology (HST) – Wellman Summer Institute for Biomedical Optics

<https://hst.mit.edu/academics/summer-institute/biomedical-optics>

“The HST-Wellman Summer Institute for Biomedical Optics provides undergraduate student participants with research experience in the field of biomedical optics.”

1. Howard Hughes Medical Institute - Janelia Undergraduate Scholars Program:

“The Janelia Undergraduate Scholars program is a 10-week summer program aimed at well-prepared, independent, and committed students with significant research experience. We accept undergraduates and post-baccalaureate students who have not committed to a PhD program.”

* URL: <https://www.janelia.org/you-janelia/students-postdocs/undergraduate-scholars-program>
* Location: Ashburn, VA
* Duration: 10 weeks
* Academic standing and eligibility:
	+ Eligible applicants have at least one independent research experience that is not part of a course.
	+ Current undergraduate students or post-baccalaureate students who have not yet committed to a PhD program are eligible to apply.
	+ Students should have programming experience in at least one of the following languages: Python, MATLAB, and/or C++. Other languages may also be suitable.
1. Amgen Scholars Program

“The Amgen Scholars U.S. Program provides hundreds of selected undergraduate students throughout the U.S. with the opportunity to engage in a hands-on research experience at many of the nation’s premier educational institutions. Currently, thirteen institutions in the U.S. host the summer research program.”

* URL: <https://amgenscholars.com/>
* Location: 13 institutions in the U.S., 24 institutions worldwide
* Duration: 10 weeks
* Academic standing and eligibility - varies by institution
	+ A cumulative grade point average of 3.2 or above
	+ An interest in pursuing a Ph.D. or M.D.-Ph.D.
	+ U.S. citizens or U.S. permanent residents
	+ Undergraduate students enrolled in accredited 4-year colleges or universities in the U. S., Puerto Rico or other U.S. territories
	+ Sophomores (with four quarters or three semesters of college experience) juniors or non-graduating seniors (who are returning in the fall to continue undergraduate studies).

**Underrepresented Minority programs:**

1. Summer Health Profession Education Program (SHPEP)

“The Summer Health Professions Education Program (SHPEP) is a free summer enrichment program focused on improving access to information and resources for college students interested in the health professions. SHPEP’s goal is to strengthen the academic proficiency and career development of students underrepresented in the health professions and prepare them for a successful application and matriculation to health professions schools.”

* URL: <http://www.shpep.org/about/>
* Location: 12 program sites across the nation
* Duration: 6 weeks
* Academic standing and eligibility:
	+ Currently attending community college or 4-year college/university
	+ Have a minimum overall GPA of 2.5
	+ Be a U.S. citizen, a permanent resident, or an individual granted deferred action for childhood arrivals (DACA) status by the U.S. Citizenship and Immigration Services
	+ Have not previously participated in the program
	+ From underrepresented and educationally or financially disadvantaged communities
1. Pathways to Science resource
* URL: <https://www.pathwaystoscience.org/>

“A searchable database of programs and funding opportunities created by the Institute for Broadening Participation, whose mission is to increase diversity in science, technology, engineering, and mathematics (STEM)”

1. Multicultural Academic Opportunities Program (MAOP) Summer Research Internship

“The MAOP Undergraduate Summer Research Internship (SRI) provides undergraduates from diverse backgrounds an opportunity to conduct research on campus and learn about graduate education. Students from a wide variety of academic disciplines spend ten weeks during the summer, working closely with a faculty mentor to design, conduct and present a scholarly research presentation.”

* URL: <https://www.maop.vt.edu/Undergraduate_programs/summer_research.html>
* Location: Blacksburg, VA
* Duration: 10 weeks

**Biomedical Research:**

1. Fred Hutchinson Cancer Research Center

“We offer an array of internships to undergraduates and recent college graduates who are interested in a career in science, medicine or health-related communications and marketing.”

* URL: <https://www.fredhutch.org/en/education-training/undergraduate-students.html>
* Location: Seattle, WA
* Duration: 9 weeks
* Academic standing and eligibility:
	+ Must be in final summer before graduation from undergraduate program
1. American Association of Medical Colleges (AAMC)

“Listing of summer programs for undergraduates interested in pursuing careers in medical research.”

* URL: <https://students-residents.aamc.org/choosing-medical-career/article/summer-undergraduate-research-programs/>
1. National Institutes of Health –

“Summer programs at the National Institutes of Health (NIH) provide an opportunity to spend a summer working at the NIH side-by-side with some of the leading scientists in the world, in an environment devoted exclusively to biomedical research.”

* Several programs including the Summer Internship Program in Biomedical Research (SIP) and more
* URLs: <https://www.training.nih.gov/programs/sip> and <https://www.training.nih.gov/other_summer_programs_at_the_nih>

**Virginia Tech:**

1. Fralin Summer Undergraduate Research Fellowships (SURF)

“The Fralin SURF program is a 10-week training program designed to give motivated Virginia Tech undergraduates the opportunity to engage in full time (approx. 40 hrs/wk) research and related professional development activities that mirror graduate training.”

* URL: <https://fralin.vt.edu/Students/SummerUndergraduateResearchFellowships.html>
* Location: Blacksburg, VA
* Duration: 10 weeks
* Academic standing and eligibility:
* All Virginia Tech undergraduates considering a career in life science research are encouraged to apply.
* Preference will be given to:
	+ - Rising second and third year undergraduates
		- Students with a cumulative GPA of 3.0 or higher,
		- Students who have yet to engage in a full-time summer research experiences
1. VTCRI Molecular Visualization Summer Undergraduate Research Fellowship

“The Fralin Biomedical Research Institute Molecular Visualization SURF program is a 10-week long summer program that gives students the opportunity to participate in hypothesis-driven independent research using cutting edge imaging technologies at Fralin Biomedical Research Institute at VTC in Roanoke, Virginia.”

* URL: <https://wp.vtc.vt.edu/molecularvis/>
* Location: Roanoke, VA
* Duration: 10 weeks
* Academic standing and eligibility:
	+ Must be a rising sophomore, junior, or senior attending a U.S. university
	+ Must be a U.S. citizen or a permanent resident of the United States
	+ Must possess a cumulative GPA of at least 3.0
	+ Must have completed introductory courses in biology, chemistry, or physics
	+ Must be able to devote yourself to full-time research for the duration of the 10-week program
1. VT Fralin Biomedical Research Institute: Translational Neurobiology Summer Undergraduate Research Fellowship

“The FBRI neuroSURF program is a 10-week long summer program that gives students the opportunity to participate in hands-on, hypothesis-driven independent research in an area of translational neurobiology at the Fralin Biomedical Research Institute at VTC in Roanoke, Virginia.”

* + URL: <https://wp.vtc.vt.edu/neurosurf/>
	+ Location: Roanoke, VA
	+ Duration: 10 weeks
	+ Academic standing and eligibility
* Must be a rising sophomore, junior, or senior who attends a university in the United States
* Must be a United States citizen or permanent resident of the United States
* Must possess a cumulative GPA of at least 3.0
* Must have completed introductory courses in biology, chemistry, physics, or psychology
* Previous coursework in neurobiology is not required
* Must be able to devote yourself to full-time research for the duration of the 10-week neuroSURF program (May 28-August 2)
* Applicants who express commitment to careers in science will be preferred
* Previous independent research experience is not required
* Students from underrepresented groups (including, but not limited to, ethnic minorities, first generation college students, students from low income areas, students with disabilities, LGBTQ, etc.) are strongly encouraged to apply
1. SOURCE Undergraduate Research Blog

“A resource blog for undergraduate research by Virginia Tech's Undergraduate Research Ambassadors”

* URL: <https://ourvatech.wixsite.com/source>
* Sponsored by the Virginia Tech Office of Undergraduate Research
1. Virginia Tech *Research and Extension Experiential Learning Program (VT-REEL)*

“The Research and Extension Experiential Learning Program (VT-REEL) is for undergraduate students who are interested in applying their education in life sciences to solving today's agricultural and food supply issues.”

* URL: <http://www.securingourfoodsupplysurf.org>
* Location: Blacksburg, VA
* Duration: 10 weeks
1. Training Future Leaders to Solve Resource Challenges at the Confluence of Water & Society Program

“This program will catalyze interactions between students from widely varying disciplines by focusing on research questions that address critical, complex water resources issues and require innovative approaches to scientific collaboration and data visualization, as well as communication to and engagement with an array of local stakeholders.”

* URL: <https://vtconfluence-reeu.weebly.com>
* Location: Blacksburg, VA
* Duration: 9 weeks

**NIH Postbaccalaureate Intramural Research Training Awards (IRTA) Program** (not a summer program)

URL**:** <https://www.training.nih.gov/programs/postbac_irta>“The NIH Postbac IRTA program (CRTA, Cancer Research Training Award, in the National Cancer Institute) provides recent college graduates who are planning to apply to graduate or professional (medical, dental, pharmacy, nursing, or veterinary, etc.) school an opportunity to spend one or two years performing full-time research at the NIH.”