# Office of Graduate Fellowships

**Fellowship Opportunities in:**

# Bioengineering

This document outlines some of the major individual fellowship and grant opportunities for graduate students in bioengineering and related research fields.

The first section aims to familiarize the reader with major federal grant and fellowship opportunities for graduate students in STEM fields, and is organized by funding agency: NIH, NSF, DoD, DoE, and NASA.

The second section presents a list of other opportunities that may be of interest to students in Bioengineering and related fields, including some awards for specific areas of research (heart disease, autism, etc.) and some general graduate fellowship programs open to students in a wide range of disciplines. An appendix to this section names some major international and language training opportunities open to graduate student in STEM fields, including the Fulbright U.S. Student Program.

This is not intended as a comprehensive list, and students are encouraged to familiarize themselves with search tools and databases to locate funding opportunities specific to their area of interest.

A few notes on these awards:

- Many award programs, particularly federally funded programs, are limited to U.S. citizens (and in some cases permanent residents.) Opportunities for international students may exist, but are more limited.
- Most awards are designed to support the student at a specific stage of graduate study (early stage, dissertation, etc.) However, students should be mindful of the long time-line on graduate fellowship applications and plan far ahead. Many awards require you to begin working on the application a year or more before an award will be made.
- A few fellowship and grant programs require that the application be submitted on the student's behalf by GMU's Office of Sponsored Programs. If this is the case, be aware that OSP will set an earlier deadline.
- Students are urged to always work closely with their academic mentors in preparing grant and fellowship applications, and to discuss their plans with their advisor.
- The Office of Graduate Fellowships is available to provide advice in navigating the application process and proposal review after the advisor has vetted the proposal.

**The National Institutes of Health (NIH) supports research that advances its mission to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.**

A special note regarding NIH student grant programs: A major key to success with NIH student grant programs is the support of a faculty mentor with an NIH funding track record, and ideally past experience supervising/co-supervising students supported by these awards. NIH has very specific expectations not only of the student, but also of the faculty "sponsor" (usually the student's advisor or co-advisor), who is also responsible for completing part of the application package. The applicant will also be expected to propose an affiliation with a participating NIH institute and reach out to that institute to make sure it is a good match and seek their support for the application. The first step in considering these programs is identifying an appropriate faculty sponsor at GMU, who should then be able to assist the student in establishing contact with the desired NIH institutional affiliate and completing the application. If an appropriate faculty sponsor cannot be identified, the application has little chance of success.

It should also be noted that these programs (and the F31 in particular) have a high rate of rejection for first-time applicants. Applicants are encouraged to apply early in their graduate program (even before they believe they are ready) in order to gain experience and feedback while leaving time to reapply in a future cycle.

**NIH F31: Ruth L. Kirschstein National Research Service Award**
https://researchtraining.nih.gov/programs/fellowships/F31
Many institutes within NIH offer training fellowships for U.S. citizens and permanent residents pursuing doctorates on topics of priority interest for health research. This award, which is renewable up to five years, provides stipend and tuition support plus a small award to the institution to cover the costs of administration. The purpose of this program is to enable promising pre-doctoral students to obtain individualized, mentored research training from outstanding faculty sponsors while conducting dissertation research. The proposed research training is expected to clearly enhance the individual's potential to develop into a productive, independent research scientist. The NIH runs 3 competition cycles per year with deadlines in April, August, and December. This application must be submitted through the Office of Sponsored Programs. A useful guide to writing applications for this program is Andrew D. Hollenbach, *A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant*, Elsevier/Academic Press 2014.

**NIH R36: Dissertation Award**
https://researchtraining.nih.gov/programs/research-education/R36
These grants support dissertation research costs of students in accredited research doctoral programs in the United States pursuing doctorates in specific areas of priority for NIH (Aging Research, Drug Abuse, Mental Health Research, and Health Services Research.) The award provides stipend and tuition support, plus funds to support dissertation research costs. Application submission due dates vary by award category; see web site. This application must be developed in close cooperation with the dissertation supervisor and submitted through the Office of Sponsored Programs.

**The National Science Foundation (NSF) funds research and education in science, mathematics, and engineering, including most branches of the social sciences. NSF funding opportunities for graduate students are focused on making investments in promising early-career scholars, with an emphasis on basic (not applied) scientific research and discovery.**

A frequently-updated general listing of NSF opportunities for graduate students may be found at: https://www.nsf.gov/funding/education.jsp?fund_type=2

**Graduate Research Fellowship Program (GRFP)**
http://www.nsfgrfp.org/
The NSF Graduate Research Fellowship Program (GRFP) helps ensure the vitality of the human resource base of science and engineering in the United States and reinforces its diversity by funding outstanding graduate students in NSF-supported STEM and social science disciplines who are pursuing research-based master's and doctoral degrees at accredited United States institutions. The GRFP provides three years of support (which may be spread over 5 years), including a stipend, tuition/fees, and access to special research and training opportunities.

The competition is open to U.S. citizens and permanent residents who have completed LESS THAN twelve months of full-time graduate study at the time of application. For most students this means they can apply:

- In the fall semester of the year when they apply to their first graduate program, either as a graduating senior or a bachelor's degree holder with no prior graduate-level training.
- In the fall semester of the first or second semester of graduate study (including ALL post-baccalaureate study. The applicant may be a master's student at the time of application so long as their ultimate goal is the Ph.D.) Note that applicants who are already in a graduate program must choose whether to apply during the first or second year of eligibility – they are not allowed to apply both years.

In most cases, a student who already holds a Master's degree or who has completed more than 12 months of graduate coursework is NOT eligible. Exceptions are sometimes made for students returning to graduate study after a hiatus of 2+ years, however, these candidates must apply BEFORE re-entering a graduate program.

Application deadline falls in October annually for funding to commence in the subsequent academic year. This application is completed and submitted by the applicant and NOT through the Office of Sponsored Programs.

**The Department of Defense supports graduate study and research for candidates focused on topics of interest to the DoD.**

**National Defense Science and Engineering Graduate Fellowship (NDSEG)**
https://ndseg.asee.org/
As a means of increasing the number of U.S. citizens and nationals trained in science and engineering disciplines of military importance, the Department of Defense (DoD) annually awards approximately 200 new three-year graduate fellowships through the NDSEG program. These awards are offered to individuals in the early stages of graduate study who have demonstrated the ability and special aptitude for advanced training in science and engineering, including Biosciences. The award provides stipend and full tuition support for three years. The application is due annually in December for funding to begin in the subsequent academic year. At the time of application, applicants must have completed LESS THAN two full-time years of graduate study (or the part-time equivalent) in the discipline in which they are applying. For most students this means they can apply in the fall semester of the first or second semester of graduate study (including master's programs and all post-baccalaureate study. The applicant may be a master's student at the time of application so long as their ultimate goal is the Ph.D.) This application is completed and submitted by the applicant and NOT through the Office of Sponsored Programs.

**DoD SMART Scholarships**
https://smart.asee.org/
The SMART Program aims to increase the number of scientists and engineers in the DoD by supporting both undergraduate and graduate students in STEM discipline (including biosciences) whose research and career interests align with the mission of the Department of Defense. The program is particularly interested in supporting individuals that demonstrate an aptitude and interest in conducting theoretical and applied research. As such, the program primarily targets "hand-on-the-bench" researchers and engineers. Individuals applying to the program should have a strong interest in working for the DoD as a civilian research scientist or engineer after graduation, and be able to commit to mandatory paid summer internships in DoD-affiliated labs during the tenure of the award. The award provides stipend, tuition, paid research internships, and a research allowance for up to five year, plus post-graduation employment. Applicants must be U.S. citizens at the time of application. Students may apply to the SMART program at any point during their graduate studies. All DoD SMART scholars are paired with a DoD sponsoring facility. The list of sponsoring facilities in the biosciences (and other fields) may be viewed at the web site.

**NASA and the Department of Energy support graduate study and research for candidates focused on topics of interest to their mission.**

**NASA Learner Opportunities**
https://science.nasa.gov/learners/learner-opportunities
NASA offers fellowships and scholarships at the undergraduate, graduate, and postdoctoral levels. Opportunities change and vary both by year and by stage of education. An updated list can be found at the link provided.

**DOE Office of Science Graduate Student Research (SCGSR) Program**
http://science.energy.gov/wdts/scgsr/
The SCGSR program provides supplemental awards (3-12 months) to outstanding U.S. graduate students to pursue part of their graduate thesis research at a DOE laboratory in areas that address scientific challenges central to the Office of Science mission. The research opportunity is expected to advance the graduate students' overall doctoral thesis while providing access to the expertise, resources, and capabilities available at the DOE laboratories. Applicants must be US citizens enrolled in a PhD program, and at the time of application have obtained PhD candidacy, with a defined graduate thesis project and graduate thesis advisor. Deadline: November

**DOE Technology Incubator Fellowships**
The following opportunities are lab-embedded post-doctoral fellowships for scientists and engineers in the field of energy technology. These "technology incubator" fellowships recruits newly emerging innovators in energy technology to turn their ideas into viable products while embedded and funded at DOE national laboratories.

**Cyclotron Road (Lawrence Berkeley National Laboratory, Berkeley, CA)**
http://www.cyclotronroad.org/

**Chain Reaction Innovations (Argonne National Laboratory, Argonee, IL)**
http://chainreaction.anl.gov/

**Innovation Crossroads (Oak Ridge National Laboratory, Oak Ridge, TN)**
https://innovationcrossroads.ornl.gov/

**Other Opportunities**

**For a general listing of current US Federal Government Fellowships in STEM fields, visit:**

- **http://STEMUndergrads.science.gov**
- **http://STEMGradStudents.science.gov**

**American Association of University Women (AAUW) Fellowships**
http://www.aauw.org/what-we-do/educational-funding-and-awards/
The American Association of University Women offers dissertation completion fellowships for women in all fields of study as well as fellowships for international women students.

**American Heart Association**
http://my.americanheart.org/professional/Research/FundingOpportunities/Funding-Opportunities_UCM_316909_SubHomePage.jsp
The AHA offers pre-doctoral and post-doctoral fellowships for Ph.D. candidates pursuing careers in cardiovascular and stroke research. The award is $23,000/year for up to two years. Open to non-U.S. citizens (list of accepted visas on web site.) Note that this award is administered regionally; George Mason University is in the mid-Atlantic region. Deadline: January.

**Autism Speaks / Dennis Weatherstone Predoctoral Fellowship Program**
http://www.autismspeaks.org/science/grants-program/grants-and-fellowships
This program offers two-year fellowships for pre-doctoral students from a wide range of academic disciplines interested in pursuing careers in autism research. Fellows work directly with mentors who are leading scientists in the field of autism research. $28,000 / year for two years. Deadline falls in November.

**CDC Fellowships**
http://www.cdc.gov/fellowships/
The U.S. Centers for Disease Control and Prevention offers a variety of fellowship opportunities, including research fellowships, professional development fellowships, and diversity initiatives for students and recent graduates seeing careers in public health and related fields.

**Christine Mirzayan Science & Technology Policy Graduate Fellowship Program**
http://sites.nationalacademies.org/pga/policyfellows/
Funds graduate students and recent graduate degree recipients to participate in a 12-week DC-based program focused on science and technology policy. Open to students in social/behavioral sciences, medical/health disciplines, physical or biological sciences, any field of engineering, law/business/public administration, or any relevant interdisciplinary field. Application deadline falls in September and fellowship term begins in January. Fellows are expected dedicate themselves full time to the fellowship during the spring semester.

**Cosmos Scholars Grants**
http://www.cosmosclubfoundation.org/scholars/grants-program.html
Small grant ($500-$4,000) in support of graduate level research in any field to graduate students at D.C. metro area universities. Deadline: November 1, annually.

**Ford Foundation Fellowship Program**
http://sites.nationalacademies.org/PGA/FordFellowships/index.htm
Pre-Doctoral, Dissertation, and Post-Doctoral awards for PhD students intending academic careers. This award is open to US citizens in most fields of study. It aims to promote diversity in higher education by funding candidates: (a) Who are a member of an under-represented minority, including Alaska Natives, Black/African Americans, Mexican Americans, Native American Indians, Pacific Islanders, and Puerto Ricans. (b) Whose career aims demonstrate a likelihood of using diversity as an educational resource in teaching and scholarship.

**National Society of Black Engineers**
https://connect.nsbe.org/Scholarships/ScholarshipList.aspx
NSBE's web site offers a list of scholarship opportunities, including scholarships offered by NSBE directly and external award programs.

**Paul and Daisy Soros Fellowship for New Americans**
http://www.pdsoros.org/competition/
Supports students who are recent immigrants (e.g. naturalized citizens of the U.S.) or the children of recent immigrants for graduate study in the United States. All fields are eligible, but student must not be beyond their second year of graduate study in their chosen field.

**PMF (Presidential Management Fellowships)**
http://www.pmf.gov/
The PMF Fellowship places graduating graduate students in a two-year paid position in the US federal government. U.S. citizens only. STEM applicants interested in leadership positions in government labs, institutes, and scientific policymaking positions.

**Society of Hispanic Professional Engineers (SHPE)**
http://scholarships.shpe.org/
SHPE offers scholarships (and links to external scholarship programs) for undergraduate and graduate students of Hispanic and Latino heritage who are pursuing engineering careers. See the web site for details on individual opportunities.

**Society of Women Engineers (SWE)**
http://societyofwomenengineers.swe.org/scholarships
SWE offers a wide range of scholarships for women in engineering fields, including bioengineering. The web site has a comprehensive list, and you can sign up for an email list that will alert you when scholarship opportunities are available.

**SREB-State Doctoral Scholars Program**
http://www.sreb.org/page/1074/doctoral_scholars.html
SREB (Southern Regional Education Board) is a regional award open to U.S. citizens and permanent residents who are members of a racial or ethnic minority and seeking an academic career. Please note applicants at GMU must be VA-domiciled. Two types of awards are offered: The Doctoral Award supports new Ph.D. students for 3-5 years. The Dissertation Award is a one-year award for students who are completing their dissertations. Open to most fields, with STEM fields particularly encouraged to apply. Prospective applicants must inform the Office of Graduate Fellowships if they intend to apply for this award program.

**If you are interested in international research and language training opportunities, the following nationally competitive programs support graduate students in STEM fields:**

**Boren Fellowships**
http://www.borenawards.org/boren_fellowship
Supports overseas study and/or research with an emphasis on language training and on research/career goals related to U.S. national security interests. Projects in Western Europe are NOT eligible; see web site for list of preferred countries/languages. Open to U.S. citizens in all fields. Fellows are required to work for the U.S. federal government (in most cases for 1 year) following graduation; the Boren program provides assistance with job placement. Special opportunities exist for African and South Asian languages. Deadline: Late January.

**Critical Languages Scholarships**
http://clscholarship.org/
CLS sends participants on fully funded overseas summer language programs in "critical" languages. Currently 14 languages are offered. For some, no background is required and students at all stages (including beginners) may apply. Others require some prior formal or informal study. U.S. citizens only; heritage speakers are considered so long as they require additional training to attain meaningful fluency. Open to undergraduate and graduate students in all fields of study (including STEM fields) who can demonstrate long-term commitment to the language and host culture. Applicants may apply to one language per year. Application deadline: November for subsequent summer.

**Fulbright U.S. Student Program**
http://us.fulbrightonline.org/
Fulbright grants support U.S. citizens who will hold a bachelor's degree (but not yet have received their Ph.D.) by the start date of the grant. (The name of the program notwithstanding, student status is NOT required.) There are two principle types of Fulbright grants available to U.S. students: "Research" grants allow students to engage in independent self-designed research and study projects overseas for one academic year. "ETA" grants fund students to assist in ESL classrooms at various levels around the world. In addition, some countries also offer other specialized types of Fulbright grants, including grants for students of business, public policy, public health, music, and other fields. Regular research and ETA grants are open to candidates in AL fields, including the Arts. Requirements vary by country. This award requires a campus-level review process; applicants must consult with the Director of Graduate Fellowships. Application is due September 15 annually.