



## **Office of Graduate Fellowships**

**Fellowship Opportunities in:**

**STEM Fields**

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

The first section aims to familiarize the reader with major federal grant and fellowship opportunities for graduate students in the sciences.

The second section presents a list of other opportunities that may be of interest, including some awards for specific subfields or areas of research 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. These search tools can be found at the Graduate Fellowships web site.

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 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.
- Some fellowship and grant programs require that the application be submitted on the student's behalf by GMU's Office of Sponsored Programs (OSP). If this is the case, be aware that OSP will set an earlier deadline, and that you will need to contact them to set up a meeting with a grants administrator early in the process.
- 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. Some competitions require nomination by the advisor, and some applications include components that must be completed or endorsed by the advisor.
- The Office of Graduate Fellowships is available to provide advice in navigating the application process and connecting with OSP. We also offer proposal review after the advisor has vetted the proposal.

## **National Science Foundation (NSF) Programs**

### **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 by funding outstanding graduate students in NSF-supported STEM and social science disciplines who are pursuing research-based master's and doctoral degrees. The GRFP provides three years of support, including a stipend, tuition/fees, and access to special research and training opportunities offered only to GRFP fellows. 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 first or second semester of graduate study. (Note that this includes ALL post-baccalaureate study, including Master's degrees. The applicant may be a master's student at the time of application so long as their ultimate goal is the Ph.D.) 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.

### **National Science Foundation (NSF) Dissertation Research Grants**

[http://www.nsf.gov/funding/education.jsp?fund\\_type=2](http://www.nsf.gov/funding/education.jsp?fund_type=2)

NSF offers grants to doctoral students for dissertation research in selected sub-divisions of the social, behavioral, and the biological sciences, as well as some interdisciplinary fields. Usually referred to as Doctoral Dissertation Research Improvement Grants (DDRIG) or Doctoral Dissertation Improvement Grants (DDIG), these grants typically offer grants of under \$20,000 to support costs such as travel, equipment, and other direct costs of research (not tuition or living stipend apart from research-related travel.) Applicant must be studying at a U.S. institution but need not be a U.S. citizen, meaning that international students are eligible to apply for these grants. Requirements and deadlines vary by field. For a list of fields in which these grants are currently offered (and relevant deadlines) see the web site. Please note that this application must be submitted through OSP. Contact the Office of Graduate Fellowships for more information.

### **East Asia and Pacific Summer Institutes for Graduate Students (EAPSI)**

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5284&org=NSF](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5284&org=NSF)

NSF and selected foreign counterpart science and technology agencies sponsor international summer research institutes in seven East Asia and Pacific locations for U.S. graduate students in NSF-supported fields. Applicants must propose a location, host scientist, and research project that is appropriate for the host site and duration of the international visit. An EAPSI award provides: 1) first-hand research experiences in Australia, China, Japan, Korea, New Zealand, Singapore, or Taiwan; 2) an introduction to the science, science policy, and scientific infrastructure of the respective location; and 3) an orientation to the society, culture, and language. It is expected that EAPSI awards will help students initiate professional relationships to enable future collaboration with foreign counterparts. The NSF award includes participation in the Pre-Departure Orientation, summer stipend of \$5,000, and round trip airfare to the host location. EAPSI partner agencies pay in-country living expenses during the Summer Institutes. U.S. citizens and permanent residents eligible. Apply in November for following summer.

## **Department of Defense Programs**

### **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 Chemistry. 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 disciplines (including chemistry) 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. 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 years, 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, and it is important for applicants to this program to identify and cultivate contacts with desired sponsoring facilities. The list of sponsoring facilities in chemistry (and other fields) may be viewed at the web site.

## **Department of Energy Programs:**

### **DOE Office of Science Graduate Student Research Program (DOE SCGSR)**

<http://science.energy.gov/wdts/scgsr/>

The Department of Energy's SCGSR program prepares graduate students for science, technology, engineering, or mathematics (STEM) careers critically important to the DOE Office of Science mission, by providing graduate thesis research opportunities at DOE laboratories. It provides supplemental awards 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 duration of the proposed research may range from 3 to 12 consecutive months. Priority focus areas are announced annually. Applicant must be a U.S. citizen working toward a PhD in an eligible field (including Chemistry) who has advanced to doctoral candidacy and has an approved dissertation topic at the time of application. The applicant must propose to do part of his/her thesis research in collaboration with a DOE national laboratory scientist in a priority research area. A \$2,000 travel allowance and \$3,000/month stipend is paid for the time the student will spend at the DOE laboratory. Application deadlines: April and December.

### **DOE Computational Science Graduate Fellowship (DOE CSGF)**

<http://www.krellinst.org/csgf>

The DOE CSGF is open to U.S. citizens or permanent residents who plan full-time, uninterrupted study toward a Ph.D. at an accredited U.S. university in fields related to computation science and high-performance computing, including engineering and the physical, computer, mathematical or life sciences. The fellowship provides four years of support, with a stipend of \$36,000 annually and other forms of support. Applicants must not have progressed beyond the first year of full-time graduate study (including study towards a master's degree.) Application deadline falls annually in January.

### **DOE Jefferson Labs JSA / JLab Graduate Fellowship Program**

<http://www.jsallc.org/IF/IndexGF.html>

The JSA/JLab program supports Ph.D. students conducting research related to the theoretical and experimental programs at [Jefferson Lab](#), including nuclear and related particle physics, accelerator physics, associated science and engineering, and free electron laser program. Eligible students must be enrolled full-time in a relevant doctoral program at a SURA member university (this includes GMU). Award consists of a \$10,000 supplement to regular GRA salary, plus \$2,000 research allowance and funds for conference travel. Students may apply at any stage of their graduate careers or while undergraduate seniors. Awards are limited to two years and students seeking second-year support must resubmit a complete application. Competition announced annually in December.

## **NASA Programs**

### **NASA Graduate Student Researchers Project (GRSP)**

[https://www.nasa.gov/offices/education/programs/descriptions/Graduate\\_Student\\_Researchers\\_Project.html](https://www.nasa.gov/offices/education/programs/descriptions/Graduate_Student_Researchers_Project.html)

The NASA Graduate Student Researchers Project awards fellowships to U.S. citizens for graduate study leading to master's or doctoral degrees related to NASA research and development, in the fields of science, mathematics and engineering. This 12-month award includes a required internship at the NASA center affiliated with the NASA-sponsored research. The award may be renewed annually, for a maximum of three years. Research opportunities are located at each of the nine NASA centers and the Jet Propulsion Laboratory. NASA updates research topics annually to complement its mission requirements. Research areas are in disciplines that lead to aeronautics and space careers.

### **NASA Earth and Space Science Fellowships (NESSF)**

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId=%7B3D09A726-3A1B-AE98-F96C-5139CDF43BCE%7D&path=open>

The NESSF program supports graduate research at the Master's or PhD level in four areas: Earth Science, Heliophysics, Planetary Science, and Astrophysics. The NESSF is open to all students enrolled full-time at accredited U.S. institutions; however, U.S. citizens and permanent residents will be given preference when two or more proposals are of equal scientific merit. Initial award is for one year, renewable for up to two additional years. The maximum annual award is \$30,000 / year, including a \$24,000 stipend and additional funds for tuition, fees, and research or conference travel support. Application deadline falls annually in February.

### **NASA Harriet Jenkins Pre-Doctoral Fellowships**

[http://www.nasa.gov/offices/education/programs/descriptions/Jenkins\\_Predocctoral\\_Fellowship\\_Project.html](http://www.nasa.gov/offices/education/programs/descriptions/Jenkins_Predocctoral_Fellowship_Project.html)

The Jenkins Pre-doctoral Fellowship Project, or JPPF, seeks to increase the number of graduate degrees awarded to underrepresented persons (women, minorities and persons with disabilities) in the science, technology, engineering and mathematics, or STEM, disciplines. The JPPF provides up to three years of support and includes a Mentor-Protégé Initiative, Fellows Orientation, a Technical Exchange Symposium and the competitive Mini Research Award Program. The latter project provides six weeks of hands-on research experience at a NASA center or the Jet Propulsion Laboratory. Up to 20 fellows are selected annually. With stipends, travel allowances and tuition offsets included, JPPF award packages currently start at \$24,500 per year. Both Master's and PhD students are eligible. Deadline: February.

**For additional opportunities through NASA:** <http://www.nasa.gov/audience/forstudents/stu-intern-current-opp.html>

## **Other Federally Funded Programs**

### **EPA STAR Graduate Fellowships**

<http://www.epa.gov/research-fellowships/star-graduate-fellowships>

EPA's Science To Achieve Results (STAR) graduate fellowship program supports masters and doctoral candidates working on topics related to environmental studies, with particular emphasis on research areas relevant to the EPA's mission. STEM fields are eligible. Benefits of an EPA STAR Fellowship include up to \$44,000 per year, which includes \$12,000 per year toward tuition and fees, \$27,000 per year in a monthly stipend, and an annual expense allowance of \$5,000. Masters level students can receive support for a maximum of two years. Doctoral students can be supported for a maximum of three years. This program is open to U.S. citizens and permanent residents. The application usually opens around August/September with a December deadline and notification in February/March (for the subsequent academic year.) Note that this program has experienced funding interruptions in recent years and may not be offered every year. Check the program web site and subscribe to the email notification list for updates on when the next competition cycle will open.

### **NIH F31: Ruth L. Kirschstein National Research Service Award**

<https://researchtraining.nih.gov/programs/fellowships/F31>

Through the F31 program, 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. The application requires the support of a faculty mentor (or co-mentor) with an NIH funding track record to serve as sponsor, plus a proposed affiliation with a participating NIH institute. This application must be submitted through OSP.

### **DOJ National Institute of Justice (NIJ) Graduate Fellowship Program**

<http://nij.gov/funding/fellowships/graduate-research-fellowship/Pages/welcome.aspx>

The NIJ Graduate Research Fellowship (GRF) program supports doctoral students engaged in research that NIJ's mission to increase the pool of scholars engaged in research that addresses the challenges of crime and justice in the United States, particularly at the state and local levels. The program has two tracks: (1) Social/Behavioral Science and (2) STEM. Requirements and deadlines vary for each track. See the web site for details. New solicitations for both programs are typically published in fall or early winter each year. Maximum award is \$32,000 in Social Science track, \$35,000 in STEM track, and may be used to cover a range of expenses, including both direct research costs and stipendary / salary support. No citizenship restrictions.

**NOAA Dr. Nancy Foster Scholarship Program**

<http://fosterscholars.noaa.gov/aboutscholarship.html>

The National Oceanic and Atmospheric Administration's (NOAA) Dr. Nancy Foster Scholarship Program provides support for master's and doctoral studies in oceanography, marine biology, maritime archaeology and all other science, engineering, social science and resource management disciplines involving ocean and coastal areas particularly by women and members of minority groups. Dr. Nancy Foster Scholarships may provide, subject to appropriations, yearly support of up to \$42,000 per student (a 12-month stipend of \$30,000 in addition to an education allowance of up to \$12,000), and up to \$10,000 of support for a 4-6 week program collaboration at a NOAA facility. Masters students may be supported for up to two years, and doctoral students for up to four years. Depending on funding, approximately three to four scholarships are awarded each year. Open to U.S. citizens and permanent residents. Application opens in October and closes in December annually.

## **Other Opportunities**

### **AFCEA STEM Majors Scholarships**

<http://www.afcea.org/site/?q=foundation/scholarships/stem-majors>

AFCEA scholarships support graduate students in STEM fields related to AFCEA's mission to enable military, government, industry, and academy to align technology and strategy. Applications will be accepted from current eligible students majoring in STEM fields to include Cyber Security, Intelligence and Homeland Security-related disciplines. A current overall GPA of 3.5 or higher in their current program is required. Award amount is \$3,000 toward tuition, fees, and books.

### **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.

### **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 to 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.

### **Explorers Club Exploration Fund Student Grants**

[https://explorers.org/expeditions/funding/expedition\\_grants](https://explorers.org/expeditions/funding/expedition_grants)

The Exploration Fund Grant is for graduate and early career post-doctoral students. It provides grants from \$500-\$5000 in support of exploration and field research for those who are just beginning their research careers. The Explorers Club considers research proposals in a wide array of disciplines, including: Climate Change, Geoscience, Paleoclimate, Marine Science, Marine Biology, Ocean, Fresh Water, Rivers, Lakes, Estuaries, Anthropology/Archeology, Plants and Molds, Animals, and Conservation Science. Application deadline: October.

### **Ford Foundation Fellowship Program**

<http://sites.nationalacademies.org/PGA/FordFellowships/index.htm>

Pre-Doctoral, Dissertation, and Post-Doctoral awards for PhD and Sc.D students intending academic careers as scholars and teachers. This award is open to US citizens in most fields of study. The award 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, Native Pacific Islanders, and Puerto Ricans. (b) Whose research and career aims demonstrate a likelihood of using the diversity of human experience as an educational resource in teaching and scholarship.



### **IBM PhD Fellowships**

<http://www.research.ibm.com/university/awards/phdfellowship.shtml>

Fellowships support PhD students who have an interest in solving problems that are important to IBM. These include: computer science and engineering, electrical and mechanical engineering, physical sciences (including chemistry, material sciences, and physics), mathematical sciences (including analytics of massive scale data with uncertainty, operations research, and optimization), public sector and business sciences, and service science, management, and engineering (SSME). Additionally, IBM pays special attention to an array of focus areas, which are announced each year. Fellowships are for one year with the possibility of renewal for up to three years. Students must be nominated by a faculty member. The faculty member is encouraged to contact an IBM colleague prior to submitting the nomination to assure mutual interest. Award consists of a one-year stipend and paid internship opportunities. Application deadline: December.

### **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. The fellowship offers a STEM track for scientists interested in leadership positions in government labs, institutes, and scientific policymaking positions.

### **SREB-State Doctoral Scholars Program**

[http://www.sreb.org/page/1074/doctoral\\_scholars.html](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 plan to become a full-time college or university faculty member after earning the Ph.D. Please note that to hold this award at GMU the applicant 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.

### **Smithsonian Institution**

<http://www.smithsonianofi.com/>

The Smithsonian Institution provides a number of fellowships to support research and study in a variety of fields. The Smithsonian, located in Washington, DC, is the world's largest museum and research complex, consisting of 19 museums and galleries, the National Zoological Park, and nine research facilities.

### **Thermo Fisher Scientific – Pierce Graduate Scholarship Award**

<https://www.thermofisher.com/us/en/home/life-science/antibodies/thermo-fisher-scientific-antibody-scholarship-program.html>

The scholarship is offered to graduate student in biology, chemistry, biochemistry, and related life science fields. The scholarship is for one semester. In each cycle two awards of \$10,000 and two awards of \$5,000 will be made.

### **UNCF / Merck Graduate Science Research Dissertation Fellowships**

<http://umsi.uncf.org/>

Up to two years of support for doctoral level (Ph.D. or M.D.) research and degree completion in the sciences and engineering for African American candidates. Funding level varies according to length of award, up to \$53,500 plus mentorship by a Merck scientist or engineer. Candidate must be a citizen or permanent resident of the U.S. Undergraduate and post-doctoral awards also available.

### **Virginia Sea Grant Knauss Marine Policy Fellowship**

<http://vaseagrant.vims.edu/category/fellowships-internships/knauss-fellowship/>

The Sea Grant Knauss Marine Policy Fellowship provides a unique educational experience in the policies and processes of the federal government to graduate students who have an interest in ocean, coastal and Great Lakes resources and in the national policy decisions affecting these resources. Fellows are placed in various executive and legislative branch offices throughout Washington, D.C. The fellowship period is one year. Any student, regardless of citizenship, who is enrolled towards a degree in a graduate or professional program in a relevant field at a Virginia institution is eligible to apply through Virginia Sea Grant. Application deadline: February.

### **Zonta International Amelia Earhardt Fellowship for Women**

<http://www.zonta.org/WhatWeDo/InternationalPrograms/AmeliaEarhartFellowship.aspx>

Amelia Earhardt Fellowship is awarded annually to women pursuing Ph.D./doctoral degrees in aerospace-related sciences or aerospace-related engineering. The Fellowship of US\$10,000, awarded to 35 Fellows around the globe each year, may be used at any university or college offering accredited post-graduate courses and degrees in these fields. Women of any nationality pursuing a Ph.D./doctoral degree who demonstrate a superior academic record in the field of aerospace-related sciences or aerospace-related engineering are eligible. Applicants must be registered in a full-time Ph.D./doctoral program when funds are received. Application deadline: November.

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

#### **Boren Fellowships**

[http://www.borenawards.org/boren\\_fellowship](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.

#### **Chateaubriand Fellowship**

<http://www.chateaubriand-fellowship.org/>

The Chateaubriand Fellowship is a grant offered by the Embassy of France in the United States that allows doctoral students enrolled in American universities to conduct research in France for up to 10 months. A separate competition is held for STEM fields, with the goal of advancing scientific cooperation and enabling U.S. doctoral students to benefit from an experience in the best laboratories in France. French language not required. French citizens not eligible.

#### **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 a 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. Open to candidates in ALL fields. 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.