**NSF REU SUPPLEMENTS**

Excerpted from Research Experiences for Undergraduates (REU) Program Solicitation NSF 19-582

<https://www.nsf.gov/crssprgm/reu/reu_search.cfm>

**Synopsis of Program**

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. The solicitation features two mechanisms for support of student research: (1) REU Sites are based on independent proposals to initiate and conduct projects that engage a number of students in research. REU Sites may be based in a single discipline or academic department or may offer interdisciplinary or multi-department research opportunities with a coherent intellectual theme. Proposals with an international dimension are welcome. (2) REU Supplements may be included as a component of proposals for new or renewal NSF grants or cooperative agreements or may be requested for ongoing NSF-funded research projects.

Undergraduate student participants in either REU Sites or REU Supplements must be U.S. citizens, U.S. nationals, or permanent residents of the United States.

Students do not apply to NSF to participate in REU activities. Students apply directly to REU Sites or to NSF-funded investigators who receive REU Supplements. To identify appropriate REU Sites, students should consult the directory of active REU Sites on the Web at <https://www.nsf.gov/crssprgm/reu/reu_search.cfm>.

**Introduction**

Research Experiences for Undergraduates (REU) is a Foundation-wide program that supports active participation in science, engineering, and education research by undergraduate students. REU proposals are welcome in any of the research areas supported by NSF (see <https://www.nsf.gov/funding/aboutfunding.jsp>), including the [priority areas](https://www.nsf.gov/news/special_reports/big_ideas/index.jsp) and [cross-cutting areas](https://www.nsf.gov/funding/pgm_list.jsp?type=xcut) that NSF has identified.

The REU program seeks to expand student participation in all kinds of research--both disciplinary and interdisciplinary--encompassing efforts by individual investigators, groups, centers, national facilities, and others. It draws on the integration of research and education to attract a diverse pool of talented students into careers in science and engineering, including teaching and education research related to science and engineering, and to help ensure that these students receive the best education possible.

The solicitation features two mechanisms for support of student research: *REU Sites* and *REU Supplements*.

**Program Description**

Research experience is one of the most effective avenues for attracting students to and retaining them in science and engineering and for preparing them for careers in these fields. The REU program, through both Sites and Supplements, aims to provide appropriate and valuable educational experiences for undergraduate students through participation in research. REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program. REU projects feature high-quality interaction of students with faculty and/or other research mentors and access to appropriate facilities and professional development opportunities.

REU projects offer an opportunity to tap the nation's diverse student talent pool and broaden participation in science and engineering. NSF is particularly interested in increasing the numbers of women, underrepresented minorities, and persons with disabilities in research. REU projects are strongly encouraged to involve students who are members of these groups. (Underrepresented minorities are African Americans, Hispanics, American Indians, Alaska Natives, and Native Hawaiians or Other Pacific Islanders.) When designing recruitment plans, REU projects also are encouraged to consider students who are veterans of the U.S. Armed Services and first-generation college students.

Historically, the vast majority of REU participants have been junior- or senior-level undergraduates--students who have typically already committed to a major in science or engineering. So that the REU program can succeed in attracting students into science and engineering who might not otherwise consider those majors and careers, projects are encouraged to involve students at earlier stages in their college experience. Some REU projects effectively engage first-year and second-year undergraduates by developing partnerships with community colleges.

REU projects may be carried out during the summer months, during the academic year, or both. Three years is the typical duration for REU Site awards in most NSF directorates; however, a duration of up to five years may be allowed in some cases. New REU Sites are encouraged to apply for no more than three years of funding. Renewal REU Sites should discuss the project duration with the cognizant program officer prior to requesting support for more than three years. The term of an REU Supplement may not exceed that of the underlying research project.

REU Supplements

An REU Supplement typically provides support for one or two undergraduate students to participate in research as part of a new or ongoing NSF-funded research project. However, centers or large research efforts may request support for a number of students commensurate with the size and nature of the project. REU Supplements are supported by the various research programs throughout the Foundation, including programs such as Small Business Innovation Research (SBIR).

High-quality mentoring is important in REU Supplements, just as it is in REU Sites, and investigators should give serious attention not only to developing students' research skills but also to involving them in the culture of research in the discipline and connecting their research experience with their overall course of study.

Investigators are reminded that support for undergraduate students involved in carrying out research under NSF awards should be included as part of the research proposal itself instead of as a post-award supplement to the research proposal, unless such undergraduate participation was not foreseeable at the time of the original proposal.

A request for an REU Supplement may be submitted in either of two ways: (1) Proposers may include an REU Supplement activity as a component of a new (or renewal) research proposal to NSF. For guidance, contact the program officer who manages the research program to which the proposal would be submitted. (2) Investigators holding an existing NSF research award may submit a post-award request for supplemental funding. For guidance, contact the cognizant program officer for the NSF grant or cooperative agreement that would be supplemented.

**Award Information**

An REU activity may be funded as a standard or continuing grant (for REU Sites), as a supplement to an existing award, or as a component of a new or renewal grant or cooperative agreement. REU Sites and Supplements are funded by various disciplinary and education research programs throughout NSF, and the number of awards made varies across the Foundation from year to year, as does the amount of funds invested.

Three years is the typical duration for REU Site awards in most NSF directorates; however, a duration of up to five years may be allowed in some cases. The typical REU Site hosts 8-10 students per year. The typical funding amount is $80,000-$130,000 per year, although NSF does not dictate a firm upper (or lower) limit for the amount, which depends on the number of students hosted and the number of weeks.

The REU experience is a research training experience paid via a stipend, not employment (work) paid with a salary or wage. In this case, the student's training consists of closely mentored independent research. For administrative convenience, organizations may choose to issue payments to REU students using their normal payroll system. The funds received by students may be taxable income under the Internal Revenue Code of 1986 and may also be subject to state or local taxes. Please consult the [Internal Revenue Service](https://www.irs.gov/) (IRS) for additional information. Students might find the IRS's ["Tax Information for Education"](https://www.irs.gov/newsroom/tax-benefits-for-education-information-center) website to be particularly helpful.

**Request for REU Supplement**

Many of the research programs throughout the Foundation support REU activities that are requested either (1) as a component of a new (or renewal) research proposal or (2) as a post-award supplement to an existing grant or cooperative agreement. Specific guidance for the use of either mechanism is given in the last two paragraphs of this section (below).

Investigators are reminded that support for undergraduate students involved in carrying out research under NSF awards should be included as part of the research proposal itself instead of as a post-award supplement to the research proposal, unless such undergraduate participation was not foreseeable at the time of the original proposal.

Contacts: For guidance about preparing an REU Supplement request as a component of a new (or renewal) research proposal, contact the program officer who manages the relevant research program. For guidance about preparing an REU Supplement request for an existing NSF award, contact the program officer assigned to the NSF award that would be supplemented. Do *not* contact the list of disciplinary REU program officers at <https://www.nsf.gov/crssprgm/reu/reu_contacts.jsp> about REU Supplements.

Regardless of which mechanism is used to request an REU Supplement, the description of the REU activity should discuss the following: (1) the nature of each prospective student's involvement in the research project; (2) the experience of the PI (or other prospective research mentors) in involving undergraduates in research, including any previous REU Supplement support and the outcomes from that support; (3) the nature of the mentoring that the student(s) will receive; and (4) the process and criteria for selecting the student(s). If a student has been pre-selected (as might be true in the case of a supplement for an ongoing award), then the grounds for selection and a brief Biographical Sketch of the student should be included. (PIs are reminded that the student[s] must be a U.S. citizen, U.S. national, or permanent resident of the United States.)

Normally, funds may be requested for up to two students, but exceptions will be considered for training additional qualified students who are members of underrepresented groups (women, minorities, and persons with disabilities). Centers or large research efforts may request support for a number of students commensurate with the size and nature of the project.

Student stipends for summer projects are expected to be comparable to those of REU Site participants, approximately $600 per student per week. Other student costs include housing, meals, travel, and laboratory use fees and usually vary depending on location. Amounts for academic-year projects should be comparable on a pro rata basis.

Total costs for a summer--including all direct costs and indirect costs--are generally expected not to exceed $1,350 per student per week. However, projects that involve international activities, field work in remote locations, or other exceptional circumstances may exceed this limit.

Results from any REU Supplement activities must be included in the annual project report for the associated award. The term of an REU Supplement may not exceed that of the associated award.

A request for an REU Supplement as part of a proposal for a new or renewal grant or cooperative agreement should be embedded in the proposal as follows. Enter the description of the REU activity (namely, the information described above in the fourth paragraph under the subheading "REQUEST FOR REU SUPPLEMENT") in the section for Supplementary Documentation. Limit this description to three pages. Include the budget for the REU activity in the yearly project budget. Enter all student costs under Participant Support Costs. Indirect costs [F&A] are not allowed on Participant Support Costs. As part of the Budget Justification, provide a separate explanation of the REU Supplement request, with the proposed student costs itemized and justified and a total given for the items plus associated indirect costs.

If the intent is to engage students as technicians, then an REU Supplement is not the appropriate support mechanism; instead, support should be entered on the Undergraduate Students line of the proposal budget.

A request for an REU Supplement to an existing NSF award may be submitted if the need for the undergraduate student support was not foreseen at the time of the original proposal submission. Before preparing a request for supplemental funding, the PI should discuss it with the cognizant program officer for the award unless the PI is responding to a Dear Colleague Letter or other announcement that specifically calls for REU Supplement requests. The PI should prepare the request in FastLane in accordance with the guidelines found in the PAPPG. The following instructions supplement those found in the PAPPG. After logging into FastLane, choose "Award and Reporting Functions," and then "Supplemental Funding Request." Next, choose the award to be supplemented. In the form entitled "Summary of Proposed Work," state that this is a request for an REU Supplement. In the form entitled "Justification for Supplement," include the information described above in the fourth paragraph under the subheading "REQUEST FOR REU SUPPLEMENT"; limit your response to three pages. If an REU student has been pre-selected, you may place a brief Biographical Sketch in Supplementary Documents. Prepare a budget, including a justification of the funds requested for student support and their proposed use. All student costs should be entered as Participant Support Costs (Line F) in the proposal budget. (Indirect costs [F&A] are not allowed on Participant Support Costs.) After you have prepared the request for supplemental funding, forward it to your organization's Sponsored Research Office (SRO), which will submit the request to NSF.

**Merit Review Principles and Criteria**

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

* All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
* NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
* Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. Both criteria are to be given full consideration during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

* Intellectual Merit: The Intellectual Merit criterion encompasses the potential to advance knowledge; and
* Broader Impacts: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
   1. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   2. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

Reviewers will be asked to interpret the two basic NSF review criteria in the context of the REU program. In addition, they will be asked to place emphasis on the following considerations:

1. Appropriateness and value of the research and professional development experience for the student participants, particularly the appropriateness of the research project(s) for undergraduate involvement and the nature of the students' participation in these activities.
2. Quality of the research environment, including the facilities, the preparedness of the research mentor(s) to guide undergraduate research, and the professional development opportunities for the students.
3. Appropriateness of the student recruitment and selection plans, including those for involving students from underrepresented groups, from outside the host institution, and from academic institutions with limited research opportunities in STEM.
4. Quality of plans for student preparation and for follow-through designed to promote continuation of student interest and involvement in research.
5. Appropriateness and cost-effectiveness of the budget, effectiveness of the plans for managing the project and evaluating the outcomes, and commitment of partners, if relevant.
6. For renewals of previously funded REU Sites: effectiveness of the previous Site.