

Request for Proposals: National Security, Science and Energy Research Experience for Undergraduates

National Laboratory Office and the USC Vice President for Research

The Office of the Vice President of Research & the National Laboratory Office (NLO) is pleased to announce support for Research Experiences for Undergraduates (REU) programs that are tailored towards research topics in national security, science and energy. It is expected that funding will become available to the NLO in the fall of 2024, so the first summer REU would be 2025. These programs are funded by the state of South Carolina through support from the SC Governor's Office and the SC legislature. The funding was provided to enhance the STEM workforce of South Carolina and the Savannah River National Laboratory.

The goals of this REU program are to:

- Increase enrollment of US citizens in graduate school at USC Columbia, through targeted STEM undergraduate research experiences.
- Enhance collaboration with the Department of Energy, Department of Defense and national laboratories and other Federally Funded Research & Development Centers (FFRDCs).
- Enhance USC faculty's participation in the NSF's REU program and other DOE/DOD workforce development programs.
- To the extent possible, involve South Carolina students in the research experience. Recruitment from the USC system and other institutions in the state is encouraged. Out-of-state students can be supported by this program.

Ideally, principal investigators applying to this REU opportunity should demonstrate existing collaborations with SRNL, DOE, DOD and/or other FFRDCs. However, investigators with a history of funding in areas related to DOE or DOD are welcome to apply. Investigators with NSF funding in energy and/or science should also consider applying. This USC program is based upon the NSF's REU program ([Research Experiences for Undergraduates \(REU\) | NSF - National Science Foundation](#)).

Interdisciplinary and/or cross departmental/college teams are highly encouraged. This program will support current USC undergraduates, as well as those from other universities. Both fundamental and applied research projects are eligible.

The NLO will support two kinds of REU initiatives. **I)** Departments and/or interdisciplinary teams may apply for support for a new, stand-alone NLO REU summer site. The NLO anticipates funding up to two stand-alone REU sites for up to two summers. **II)** Directors of active NSF REU sites may apply to the NLO for co-funding for up to three additional summer participants.

Eligibility:

The Principal Investigator/Director of a new, stand-alone NLO REU summer site should be a tenured/tenure-track faculty on the USC Columbia campus. Investigators at system campuses are eligible to serve as co-PIs or Senior Personnel. Research themes must be broadly relevant to the mission of the Savannah River National Laboratory. Additional reading and background is provided at the end of this document.

Due Dates

Concept Paper: Friday, June 28, 2024

Full Proposal Encouraged Notifications: Monday, July 22, 2024

Full Proposal Due Date: Tuesday, August 20, 2024

Concept Papers and Full Proposals will be submitted through USCeRA ([USCeRA - Office of Sponsored Awards Management | University of South Carolina](#)). In USCeRA, select Internal Request, Select Vice President for Research, and select NLO REU Program – Concept Paper.

Concept papers and full proposals will be reviewed by a selection panel convened by the VPR Office.

I. Concept Paper and Proposal Format and Instructions: New stand-alone REU sites

To minimize faculty workload, the NLO encourages submission of a concept paper before preparing a full proposal. The format is given below.

Concept Paper: A two-page Concept Paper (similar to an NSF Project Summary) should be submitted via USCeRA. A budget is not required for the Concept Paper. If invited for a full proposal, a budget template and further instructions will be provided. For planning, note that the yearly budget should not exceed \$116K. Faculty costs should not exceed \$14K/yr. Participant stipends are capped at \$6,200/participant. Trainee/participant costs for tuition, travel, and other costs (e.g., research materials) are covered by this program and suggested levels will be in the budget template. Principal Investigators/Directors should plan for no more than 10 students per REU site.

The concept papers will be reviewed by a selection panel convened by the VPR's office. Faculty are encouraged to review the latest NSF solicitation ([Research Experiences for Undergraduates \(REU\) Sites and Supplements \(nsf23601\) | NSF - National Science Foundation](#)), specifically Section V.A Project Summary on pg. 9.

Concept papers are to be no more than two pages in length. They should contain the project elements from the NSF REU solicitation; these are listed below along with additional guidance.

PROJECT ELEMENTS:

- Project title): "REU Site: ..."
- Principal Investigator: **List names of site director and all faculty participating**
- Submitting organization: **List Department in the university**
- Other organizations involved in the project's operation: For an interdisciplinary/team project, **List other departments or outside organizations here.**
- Location(s) (universities, national labs, field stations, etc.) at which the proposed undergraduate research will occur: **List all locations.**
- Main field(s), sub-field(s), and keywords describing the research topic(s):
- No. of undergraduate participants per year: **List expected number**
- No. of weeks per summer that the students will participate: **List expected number.**

- Name, phone number, and e-mail address of point of contact for student applicants:
- Web address (URL) for information about the REU site (if known): **List relevant faculty research websites.**

In the remainder of the Concept Paper, briefly describe the project's objectives, activities, students to be recruited, and intended impact towards increasing undergraduate US citizen involvement in national security, science, and energy research topics. Provide statements on the intellectual merit and expected relevance to DOE/DOD and/or FFRDC collaborations of the proposed activity.

Based upon a review of the concept papers, the VPR Office will notify the proposers as to whether the proposal will be encouraged or not. This program should target spring semester sophomores, juniors, and first semester seniors with GPAs sufficient to enter graduate school.

Full Proposal

Instructions for the full proposal will be provided to those who are invited to submit. Generally speaking, the format of a full proposal will follow NSF REU guidelines, and proposers should be familiar with the guidelines given at the NSF REU website ([Research Experiences for Undergraduates \(REU\) Sites and Supplements \(nsf23601\) | NSF - National Science Foundation](#)).

Proposers should plan for a two-year program; the first year will be funded, and continued support will be contingent upon a report and discussions with the NLO. Only the first year of costs need to be submitted for the proposal. The second year will be negotiated based upon the performance of the first year. Periodic communication (e.g. email highlights) with the NLO on REU activities will enhance the opportunity for a second year of funding.

Because this program is funded by the state of South Carolina, facilities and administrative costs (indirect costs) will not be provided or incurred by this program.

All REUs funded by this program are required to have a one-page website (after award) detailing the aspects of the proposed REU.

II. Concept Paper and Proposal Format and Instructions: Co-funding for active REU site

Concept Paper: To minimize faculty workload, we request submission of a concept paper before preparing a full proposal. Submit to USCeRA a single document comprising a two-page Concept Paper, following the instructions given in Part I above. Append to this Concept Paper the 1-page NSF Project Summary of the active REU site. The same due dates apply.

Full proposal: If invited for a full proposal, REU directors will submit their active NSF REU site proposal (Project Summary, Project Description, Current and Pending Support), plus an additional NLO-specific writeup as described below.

NLO-Specific Writeup. This writeup must not exceed page limits below. Note especially the section labeled "Student Engagement with National Laboratories."

(a) *Overview*. (2 pages) Begin with the two-page concept paper here, revised as needed. Provide potential research project details and identify the professors that will be involved.

(b) *The Research Environment*. (1 page) Identify the NLO-oriented faculty mentors and their current relevant DOE/DOD and NSF research.

(c) *Student Recruitment and Selection*. (1 page) This program is intended to recruit US citizens into USC's graduate program. Recruiting students from USC, the USC system, and other southeastern schools is encouraged.

(d) *Student Engagement with National Laboratories/DOE/DOD personnel* (1 page) Describe NLO-specific activities such as seminars given by national laboratory personnel, travel to national laboratories or travel to venues featuring national laboratory research (e.g., DOE energy office peer reviews).

(e) *Project Evaluation and Reporting*. Programs will be evaluated based upon the total number of papers produced where the student has collaborated on the research (e.g., student is a named author). Programs will also be evaluated based upon the total number of students who apply to USC's graduate school. (1/2 page)

Additional Reading

Prospective REU proposers are encouraged to be familiar with research and workforce priorities of SRNL, DOE, and DOE. Here are links to suggested reading. This list is not intended to be restrictive.

- [Savannah River National Laboratory \(srnl.gov\)](https://www.srnl.gov)
- <https://www.anl.gov/ai/reference/AI-for-Science-Energy-and-Security-Report-2023>
- [BES Reports | U.S. DOE Office of Science \(SC\) \(osti.gov\)](https://www.osti.gov/bes-reports)
- [NCWES-2023.07.31.pdf \(whitehouse.gov\)](https://www.whitehouse.gov/presidential-action/ncwes-2023-07-31)

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