SCGSR Program: Goal and Key Elements

The goal of the Office of Science Graduate Student Research (SCGSR) program is to prepare 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.

- The SCGSR program provides supplemental awards to graduate students to spend 3 to 12 consecutive months conducting part of their graduate thesis research at a DOE lab in collaboration with a DOE laboratory scientist.
- The purpose of the SCGSR program is to prepare 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/Facilities.
- The research opportunity is expected to advance the graduate student's overall doctoral thesis while providing access to the expertise, resources, and capabilities available at the DOE laboratories/Facilities.

2019 Solicitation 2 – Applications Due November 14, 2019, 5:00PM ET

Full details, requirements, FAQs, and link to application at: https://science.osti.gov/wdts/scgsr/

Program Management and Budget

The SCGSR program is managed by the DOE Office of Science's Office of Workforce Development for Teachers and Scientists (WDTS) in collaboration with 6 SC research program offices and 17 participating DOE national laboratories plus GA/DIII-D. Oak Ridge Institute of Science and Education (ORISE) provides support for program administration.

Fiscal Year (Budget)/Solicitations		Awards
FY 2014 ($2.0M appropriated), 1 Solicitation		65
FY2015 ($2.5M appropriated), 2 Solicitations	2015 Solicitation 1	47
	2015 Solicitation 2	52
FY2016 ($2.5M appropriated), 2 Solicitations	2016 Solicitation 1	43
	2016 Solicitation 2	55
FY2017 ($2.5M appropriated), 2 Solicitations	2017 Solicitation 1	52
	2017 Solicitation 2	60
FY2018 ($2.5M appropriated), 2 Solicitations	2018 Solicitation 1	47
	2018 Solicitation 2	70
FY2019 ($3.5M appropriated), 2 Solicitations	2019 Solicitation 1	~50 estimated
	2019 Solicitation 2	~70 estimated
FY2020 ($2.6M requested, 2 solicitations)		

SCGSR Research Project Related to SC User Facilities

- **All 27 SC User Facilities (https://science.osti.gov/user-facilities/) can participate.**
  - An opportunity for training and recruiting highly skilled workforce of DOE national laboratories/facilities.
- **An SCGSR application is NOT a user facility proposal. Applications proposing to use an SC user facility must apply for user facility time separately.**
  - The graduate research opportunity provided by the DOE SCGSR program is expected to advance the graduate students' overall doctoral thesis while providing access to the expertise, resources, and capabilities available at the DOE laboratories/facilities.
- **Based on 9 completed cycles (since 2014), 40-50% of all SCGSR applications and awards proposed research projects related to the SC User Facilities. The projects primarily aim at:**
  - Using SC user facilities to do science in an SCGSR priority area identified by SC Program Offices (ASCR, BES, BER, FES, HEP, NP). See a list of the priority areas for SCGSR 2019 Solicitation 2 cycle on the next slide.
  - Contributing to the R&D activities to advance the capabilities of facilities
    - Graduate students' extended residence at a user facility, instead of short, periodic visits through a user proposal;
    - Dedicated focus on research problems of mutual interest, to both graduate student's doctoral thesis and to the user facility at a host DOE national laboratory;
    - Staff scientists at user facilities (for instance, Instrument or Beamline Scientists) may serve as a *Collaborating DOE Laboratory Scientist*, who provides supervision and research mentorship to graduate students. https://science.osti.gov/wdts/scgsr/information-for-collaborating-doe-laboratory-scientists-and-thesis-advisors/

SCGSR Program 2019 Solicitation 2 – Priority Research Areas

Convergence Research Topical Areas
- (a) Microelectronics (ASCR, BES, HEP)
- (b) Data Science (ASCR, BES, BER, FES, HEP, NP)
- (c) Fundamental Symmetries (BES, HEP, NP)
- (d) Accelerator Science (ASCR, BES, BER, FES, HEP, NP)

Advanced Scientific Computing Research (ASCR)
- (a) Applied Mathematics
- (b) Computer Science

Basic Energy Sciences (BES)
- (a) Accelerator and Detector R&D
- (b) Nuclear Chemistry and Radiochemical Separations
- (c) Neutron Scattering Research and Instrumentation
- (d) Predictive Materials Science and Chemistry
- (e) Fundamental Electrochemistry related to Energy Transduction, Storage, Chemical Conversion, and Corrosion
- (f) Crystal Growth
- (g) Ultrafast Materials and Chemical Sciences
- (h) Electron and Scanning Probe Microscopy Research and Instrumentation
- (i) Basic Geosciences
- (j) Gas Phase Chemical Physics
- (k) Radiation Effects in Materials
- (l) Catalysis Science with NMR Spectroscopy, Neutron Scattering, and X-ray Absorption Spectroscopy Techniques
- (m) Highly Ionizing Radiation in Chemistry
- (n) Energy Transfers in Large Proteins and Protein Complexes
- (o) Quantum Information Science for Experimental Condensed Matter Physics
- (p) Quantum Information Science for Theoretical Condensed Matter Physics
- (q) Data Science Applications to Chemical Transformations Research

Biological and Environmental Research (BER)
- (a) Computational Biology and Bioinformatics
- (b) Biomolecular Characterization and Imaging Science
- (c) Plant Science for Sustainable Bioenergy
- (d) Soil Microbiology
- (e) Environmental Systems Science
- (f) Atmospheric System Research
- (g) Earth System Modeling

Fusion Energy Sciences (FES)
- (a) Burning Plasma Science & Enabling Technologies
- (b) Discovery Plasma Science

High Energy Physics (HEP)
- (a) Theoretical and Computational Research in High Energy Physics
- (b) Advanced Accelerator and Detector Technology Research and Development in High Energy Physics
- (c) Experimental Research in High Energy Physics

Nuclear Physics (NP)
- (a) Medium Energy Nuclear Physics
- (b) Heavy Ion Nuclear Physics
- (c) Low Energy Nuclear Physics
- (d) Nuclear Theory
- (e) Nuclear Data and Nuclear Theory Computing
- (f) Isotope Development and Production for Research and Applications
- (g) Accelerator Research and Development for Current and Future Nuclear Physics Facilities?

New Category - Convergence Research Topical Areas

- **Forward looking, reflecting SC emerging areas and strategic priorities, and trans-disciplinary research germane to SC and integral to the DOE laboratory complex are of interest.**

- **By nature, convergence research topics bring together people from different academic disciplines and/or different sub-areas represented in the Office of Science, and are formed for achievements possible only through such integration.**

- **The convergence research topical areas represent cross-cutting research themes and shared interests across Office of Science's research program offices.**
  - Applications submitted in this category must address research topic(s) of interest to at least two of the participating SC programs.
  - If applicants are not certain if they should submit an application to a convergence area or a non-convergence area under a single program office, it is recommended to submit it to the convergence area first.

Eligibility, Awards, and Application

- Graduate students must apply online through the online application system.
- The application requires a research proposal and letters of support from both the graduate student's thesis advisor and the collaborating DOE laboratory scientist.
- Student's research and proposed SCGSR project must be aligned with one of the identified SCGSR priority research areas defined by the SC Program Offices and specified in the solicitation (see the areas for 2019 Solicitation 1).
- Applications proposing to use an SC user facility must apply for user facility time separately.

Eligibility:

- U.S. Citizen or Permanent Resident
- Qualified graduate program & Ph.D. Candidacy
- Graduate research aligned with an SCGSR priority research area
- Establishment of a collaborating DOE laboratory scientist at the time of application

Award Benefits:

- A monthly stipend of up to $3,000/month for general living expenses
- Reimbursement of inbound/outbound travel expenses to/from the DOE laboratory of up to $2,000.

(Award payments are provided directly to the student.)

Application Requirements

All applications to the SCGSR program must be completed through the online application system. Only complete applications submitted by the deadline will be considered.

A Complete SCGSR Application includes:

- All required fields of the Online Application System, *including:*
  - Contact information of the graduate applicant, primary graduate thesis advisor, and collaborating DOE laboratory scientist
  - Academic information, including undergraduate and graduate study
  - Professional information, including scientific publications and awards, research experiences, etc.
  - Alignment of proposed research to one of the SCGSR Priority Research Areas https://science.osti.gov/wdts/scgsr/how-to-apply/priority-sc-research-areas/
- A **SCGSR Research Proposal** (*3-page maximum including references, full guidance provided*). https://science.osti.gov/wdts/scgsr/how-to-apply/research-proposal-guidelines/
- Official graduate transcripts and proof of Ph.D. Candidacy. https://science.osti.gov/wdts/scgsr/how-to-apply/graduate-transcripts/
- Two Letters of Support, one by primary graduate thesis advisor, and the other by collaborating DOE laboratory scientist. https://science.osti.gov/wdts/scgsr/how-to-apply/letters-of-support/

Merit Review Criteria

1. Scientific and/or Technical Merit of the Proposed Research*

a. **Is the proposed research well-conceived, and does it demonstrate a clear understanding of the scientific and technical challenges involved?**

b. **Is the proposed method and approach for the proposed research appropriate?**

c. **Is the applicant (graduate student) sufficiently well prepared to conduct the proposed research?**

d. **Are the DOE laboratory resources adequate? If applicable, has the necessary access to a scientific user facility been secured by the DOE laboratory collaborating scientist?**

2. Relevance of the Proposed Research* to Graduate Thesis Research and Training

a. **Does the proposed research have the potential to make a significant contribution to the applicant's (graduate student's) thesis research project?**

b. **Will the proposed research enhance the applicant's graduate training and research skills?**

* Research proposed is explicitly the scope of the research proposed to be conducted by the applicant (graduate student) at the DOE Laboratory/Facility.

Key Dates for 2019 - 2020

At the submission deadline (shown in red), the online application system will close after which no additional materials will be accepted.

The online application system closes at 5:00 PM Eastern Time.

	2019 Solicitation 1 (Most Recent)	2019 Solicitation 2 (Ongoing)	2020 Solicitation 1*** (Upcoming)
On-line Application Opens	February 14, 2019	August 22, 2019	February 2020
Applications Due (including all letters of support)	**May 9, 2018 5:00 PM ET**	**November 14, 2019 5:00 PM ET**	**May 2020**
Offer Notification Period *Begins on or around*	August/September 2019	April/May 2020	August/September 2020
*Earliest** Start Date for Proposed Project Periods	October 28, 2019	June 15, 2020	November 2, 2020
*Latest*** Start Date for Proposed Project Periods	March 2, 2020	October 5, 2020	March 1, 2021

**Proposed project periods may not begin before this date, and may be 3 to 12 consecutive months in duration.*
*** Proposed project period must begin no later than this date, and may be 3 to 12 consecutive months in duration.*
**** All Dates are tentative.*