U.S. DEPARTMENT of ENERGY | Office of Science

Office of Science Graduate Student Research (SCGSR) Program
SCGSR Research Proposal Guidelines

The key component of an SCGSR application is a proposal that describes the scope of research that the applicant plans to conduct at a host DOE National Laboratory/facility in collaboration with a DOE National Laboratory scientist. The proposal must be co-developed by the applicant and the DOE scientist in consultation with the applicant's PhD thesis advisor. The proposed research must be approved by the PhD thesis advisor and must be an integral part of the applicant's overall doctoral thesis project. To confirm approval, the PhD thesis advisor needs to write and submit a Letter of Support as part of the application.

Proposal Format

The SCGSR research proposal can only be submitted as a PDF document (designated as "filename.pdf") by uploading it to the SCGSR online application system. Pages must have margins of one inch around the text (top, bottom, left, right), and use a sans serif font (*e.g.*, Calibri, Arial, Helvetica, etc.) 11 points or larger, single-spaced. Page numbers must be indicated in the bottom right margin.

The length of the SCGSR research proposal is limited to a total of three (3) pages. Any page beyond this limit will not be considered for the review. References do not count towards the three-page limit and can be provided in one (1) separate page.

General information associated with the applicant's SCGSR research proposal, such as the proposal abstract, proposed start and end dates, host DOE National Laboratory/facility, and name and contact information of the collaborating DOE laboratory scientist, is requested separately in the "Research Proposal Information" section of the SCGSR online application and does not need to be repeated in the SCGSR research proposal document. The information submitted in the "Research Proposal Information" section of the application does not count toward the three-page limit on the research proposal document.

The research proposal must address the aims stated in at least one of the SCGSR Priority Research Areas of the ongoing application cycle. Applicants are encouraged to read the program information on how SCGSR applications will be evaluated, including the Merit Review Criteria that applications will be reviewed against, to help guide the content of their SCGSR research proposal.

Required Elements

a. Proposal Title

The first line of the SCGSR research proposal should include the proposal title. The title should be identical to the one submitted under "Title of SCGSR Proposed Research Project" in the "Research Proposal Information" section of the SCGSR application.

b. Applicants First and Last Name

c. Body

The body of the proposal should cover the following items:

1. **Overall Goal:** Clearly and concisely indicate what is the problem, fundamental question, or critical barrier that the proposed research will address, and why is it relevant to the field of research. What will be the major contribution of the proposed research if it is successful, how will the proposed project enhance scientific understanding or overcome technical limitations in the area.

2. **Background:** Provide the context for the proposed SCGSR research project. How does the project relate to your doctoral thesis and to the current understanding or technical limitations of the field? Set the stage to answer the questions: "What is innovative in the SCGSR research proposal?" and "How does it contribute to my overall doctoral thesis?"
   - Specifically indicate one or more areas where there are gaps in the current state of knowledge and/or understanding and how your proposed SCGSR research will address at least one of these areas.
   - Describe any of your *prior work*, including preliminary research results, that are related to, or that may have led to your proposed SCGSR research project.
   - Identify *connections of the proposed SCGSR research to the research activities of the collaborating DOE National Laboratory scientist*, and/or how relevant facilities, instrumentation or capabilities that will be accessed at the DOE National Laboratory will uniquely enable the proposed research.

3. **Specific aims:** Concisely define detailed objectives that will contribute to (or result from) reaching the overarching goal of your SCGSR proposal (item **1.**). Each objective should relate to a specific task or set of tasks to perform in your SCGSR project (see item **5.**), and reaching it should represent a milestone in your project. Briefly describe how accomplishment of these aims will advance your doctoral thesis.

4. **Approach and expected results:** Describe the *overall strategy* of the proposed research and the specific methodologies you plan to conduct at the DOE National Laboratory/facility. Reviewers should have a clear idea of what exactly you will be doing once you start working at the lab.

   Provide a *rationale for the major steps* of the work. Describe the theoretical and/or experimental design that will enable meeting the specific aims of the project. Explain how you plan to acquire and process data to reach robust, unambiguous, and unbiased conclusions.

   Identify what parts of the research may have *potential problems*, and what strategies could be adopted to overcome them.

   Outline the results and the specific scientific accomplishments you expect over the duration of the proposed project. Explain how the research expertise, facilities or capabilities at the host DOE National Laboratory/facility will be utilized to achieve these accomplishments.

5. **Timeline:** List the major tasks to be conducted in the project and the approximate time you expect they should take. The timeline can be provided in the form of narrative, as bullet points, or as a table. If milestones or benchmarks can be identified, list them.

6. **References:** These do not count towards the three-page limit and can be provided in one separate page (do not exceed one page of references). The references should be cited in the proposal as needed by inserting superscripts with consecutive numbers. The references should then be ordered according to the same numbers in the reference section. Each reference in the reference section must include the names of all authors (in the same sequence in which they appear in the publication), the article title, journal or book title, year of publication, volume number, page or article numbers, and DOI. Publications with more than 8 authors can be cited listing the first author followed by the term "*et al*".

Additional notes

Project descriptions may contain embedded figures, but the entire proposal should be legible when printed in black and white (*i.e.*, color figures that are not clear in black and white should be avoided) and the inclusion of figures must not result in exceeding the page limit.

Successful proposals will be those that effectively communicate the innovation, timeliness, and excitement of the ideas for the proposed research.

Proposal Submission

- Proposals must be submitted by uploading the PDF file into the SCGSR online application system.
- If a proposal (excluding the 1-page reference section) contains more than three pages, the additional pages will not be included as part of the application.
- It is the responsibility of the applicant to coordinate with their collaborating DOE National Laboratory scientist and PhD thesis advisor in the development of the proposal, and to ensure that both individuals have approved the final PDF file being uploaded. The collaborating DOE National Laboratory scientist and PhD thesis advisor will receive an email notification when the proposal has been uploaded.
- Collaborating DOE National Laboratory Scientists may be from any of the participating DOE National Laboratories/facilities listed at the SCGSR program website.