



U.S. DEPARTMENT OF
ENERGY

Office of
Science

**Preparing a Competitive Application
Package for Graduate Support:**
*DOE Office of Science Graduate Student Research
(SCGSR) Program*

Webinar to **Louis Stokes Midwest Center of Excellence**
(LSMCE)
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Office of Science
U.S. Department of Energy

Outline

- Financial Aspect of Graduate Education
 - How to Pay for Graduate Studies
 - Federally Sponsored Graduate Programs

- SCGSR Program
 - Goal/Scope, Review, and Selection
 - Application Requirements and Application System
 - Strategies and Tips



How to Pay for Graduate Studies (U.S. News)

- **Get your boss to pay (investment return to the company)**
- **Secure a scholarship/fellowship/internship/training grant (merit based)**
- **Work for school (Assistantships, RA/TA)**
- **Borrow smart (federal loans for low-income student):** visit Department of Education website for more information, using keyword “FAFSA”
- **Take your credit (up to \$2,000 tax deduction annually):** find details at IRS website, using “Federal Lifetime Learning Tax Credit”



Scholarship/Fellowship/Internship/Training Grants for Graduate Studies

- **University endowed**
 - University Office on graduate financial aid on campus
 - Department level: graduate advisor, graduate program coordinator, Chair
- **Private foundations: Kauffman, Sloan, Hertz**
- **Professional Societies: may require the membership**
- **National Consortium for broadening participation**
 - GEM (National Consortium for Graduate Degrees for Minorities in Engineering and Science)
 - Southern Regional Education Board (SREB-State Doctor Scholars)
- **Federally Sponsored Grant/Award Programs for graduate students**
 - NSF, NASA, NIH, Department of Defense (Army/Navy/Air Force), Department of Education, Department of Energy, Department of Agriculture, Department of Transportation, National Oceanic and Atmospheric Administration (NOAA), Department of Homeland Security, Department of Labor, etc.



Federally Sponsored Graduate Programs

STEMGradStudents.science.gov

A search portal for both students and universities to discover Federally-sponsored science, technology, engineering, and math (STEM) education training and funding opportunities.

.Students – *can search the site for opportunities they can apply to directly, such as research internships and fellowships*

.Universities – *can search the site for federal funding opportunities to establish innovative training programs for undergraduate or graduate students*

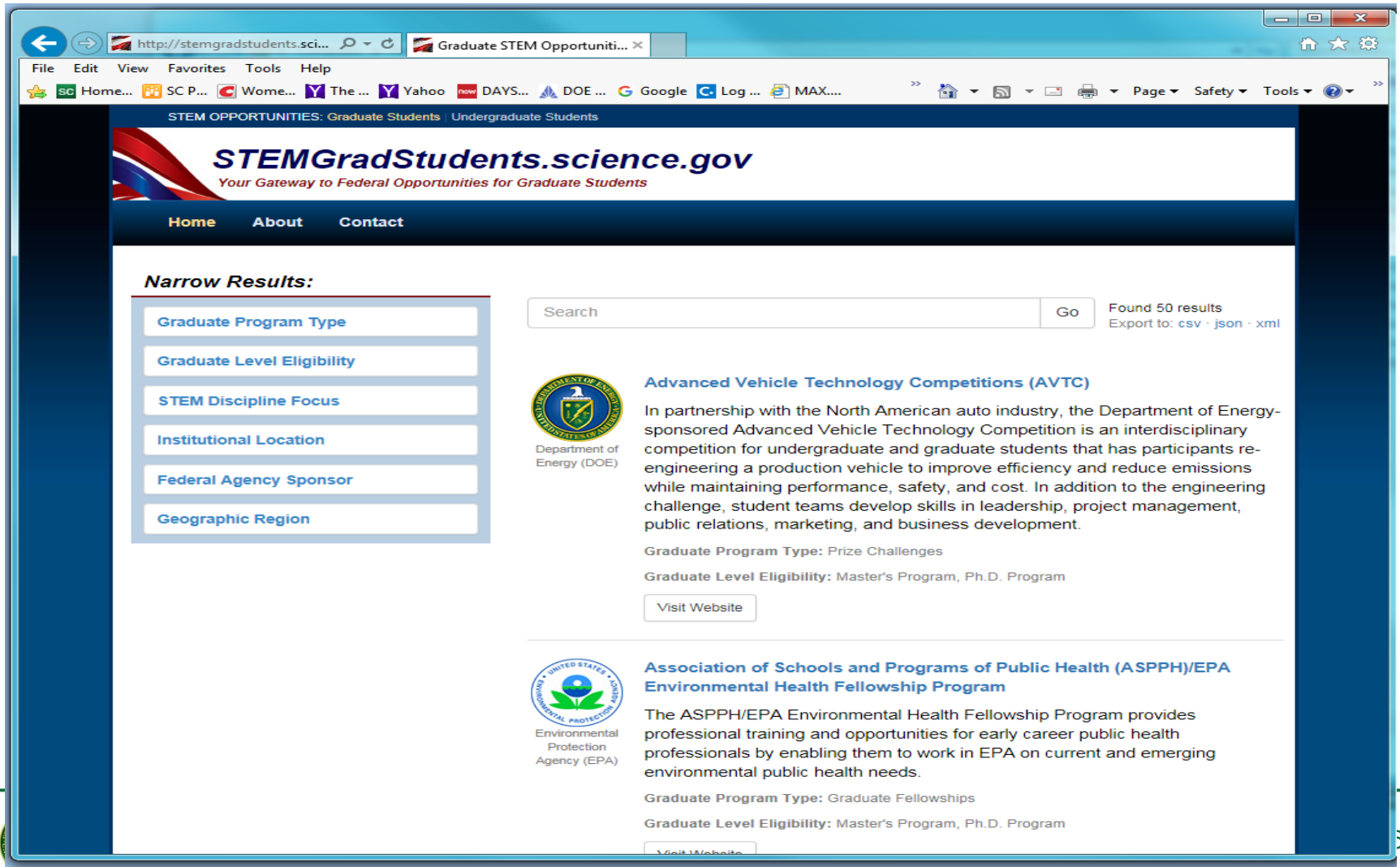
- ✓ Users can search the site through faceted searching capabilities for characteristics such as program type STEM discipline, institutional location, Federal sponsor, and eligibility; or search through the open text option.
- ✓ Users are directed to the Federal sponsor's program website for the official information such as eligibility and how to apply.

These sites were developed through a collaboration between the participating agencies of the White House National Science and Technology Council's Committee on STEM Education (CoSTEM) and the Science.gov Alliance.



Find Programs that meet your needs

- **Factors: Scholarship/Fellowship/Traineeship/Internship, level (Ph.D. M.S.), disciplines Focus, location/region, federal agency, etc.**



The screenshot shows a web browser window displaying the website <http://stemgradstudents.science.gov>. The page title is "Graduate STEM Opportuniti...". The website header includes the logo "STEMGradStudents.science.gov" and the tagline "Your Gateway to Federal Opportunities for Graduate Students". Navigation links for "Home", "About", and "Contact" are visible. A "Narrow Results:" sidebar on the left lists filters: "Graduate Program Type", "Graduate Level Eligibility", "STEM Discipline Focus", "Institutional Location", "Federal Agency Sponsor", and "Geographic Region". A search bar with a "Go" button is present, showing "Found 50 results" and "Export to: csv · json · xml". Two search results are displayed:

Advanced Vehicle Technology Competitions (AVTC)
In partnership with the North American auto industry, the Department of Energy-sponsored Advanced Vehicle Technology Competition is an interdisciplinary competition for undergraduate and graduate students that has participants re-engineering a production vehicle to improve efficiency and reduce emissions while maintaining performance, safety, and cost. In addition to the engineering challenge, student teams develop skills in leadership, project management, public relations, marketing, and business development.
Graduate Program Type: Prize Challenges
Graduate Level Eligibility: Master's Program, Ph.D. Program
[Visit Website](#)

Association of Schools and Programs of Public Health (ASPPH)/EPA Environmental Health Fellowship Program
The ASPPH/EPA Environmental Health Fellowship Program provides professional training and opportunities for early career public health professionals by enabling them to work in EPA on current and emerging environmental public health needs.
Graduate Program Type: Graduate Fellowships
Graduate Level Eligibility: Master's Program, Ph.D. Program
[Visit Website](#)

Narrow Results:

Graduate Program Type

- Graduate Fellowships
- Graduate Scholarships
- Graduate Traineeships
- Research Internships
- Research Collaborations
- Scientific Meetings - Conference Presentation/Travel
- Graduate Thesis Research Awards
- Supplemental Graduate Research Awards
- Prize Challenges
- University/Institutional-based Awards for Graduate Programs

Graduate Level Eligibility

- Master's Program
- Ph.D. Program
- Technical Certification Program

STEM Discipline Focus

- | | |
|---|--|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Mathematics |
| <input type="checkbox"/> Biology | <input type="checkbox"/> Nanoscience |
| <input type="checkbox"/> Chemistry | <input type="checkbox"/> Natural Resources Sciences |
| <input type="checkbox"/> Computer Sciences | <input type="checkbox"/> Oceanography |
| <input type="checkbox"/> Earth Science | <input type="checkbox"/> Physics |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Social, Behavioral and/or Economic Sciences |
| <input type="checkbox"/> Engineering | |
| <input type="checkbox"/> Environmental Sciences | |
| <input type="checkbox"/> Material Sciences | |

Institutional Location

- University - Graduate School

Institutional Location

- University - Graduate School
- Federal Research Lab or Center
- Federal Field Site
- Federal Agency Office (Headquarters or Regional)
- Industry or Private Company
- Non-profit Company

Federal Agency Sponsor

- Department of Defense (DoD)
- Department of Energy (DOE)
- Department of Homeland Security (DHS)
- Department of Transportation (DOT)
- Environmental Protection Agency (EPA)
- Federal Bureau of Investigation (FBI)
- National Aeronautics and Space Administration
- National Institutes of Health (NIH)
- National Oceanic and Atmospheric Administration (NOAA)
- National Science Foundation (NSF)
- Smithsonian Institution
- U.S. Census Bureau
- U.S. Department of Agriculture (USDA)
- U.S. Geological Survey (USGS)

Geographic Region

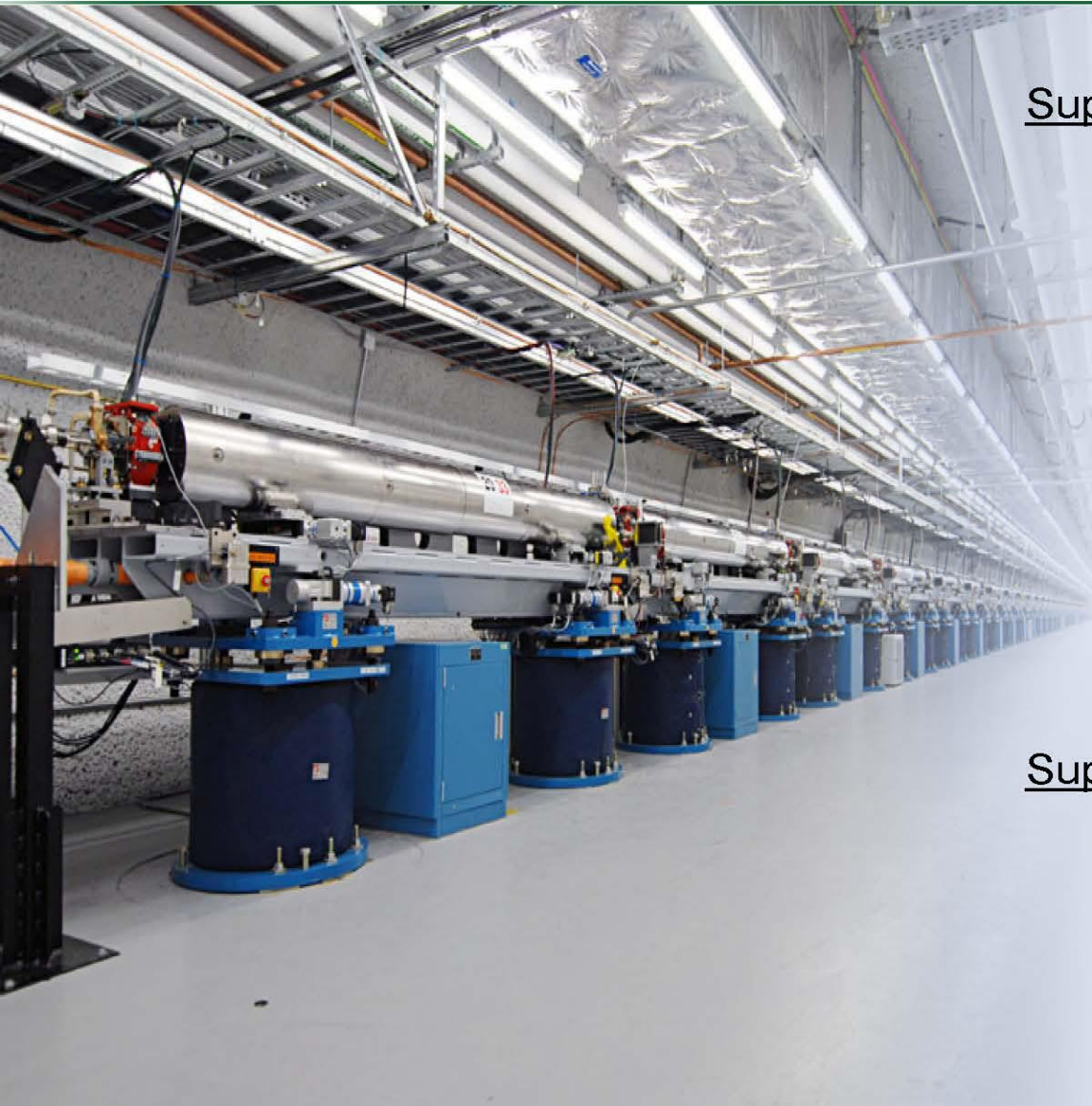
- Mid-Atlantic U.S.
- Northeast U.S.
- Midwest U.S.
- Southeast U.S.
- Southwest U.S.
- Northwest U.S.
- South Central U.S.
- U.S. Territories
- International



Prepare a Competitive Application

- **Online application is usually required, and submitted materials in an application are the sole basis for evaluation**
- **A competitive application package invites opportunities and opens doors**
 - Official transcripts or formal credentials for academic background
 - At least two recommendation letters
 - Awards/Honors, Publications, Research Experiences
 - Essays (goals, expectations, preparation, impact)
 - Doctoral Level usually requires a project proposal or statement

Office of Science



Support for Researchers

- Supports about 22,000 Ph.D. scientists, graduate students, undergraduates, engineers, and support staff at more than 300 institutions.
- Provides 47% of Federal support of basic research in the physical sciences and key components of the Nation's basic research in biology and computing.
- Supports research that led to over 100 Nobel Prizes during the past 6 decades—more than 20 in the past 10 years.

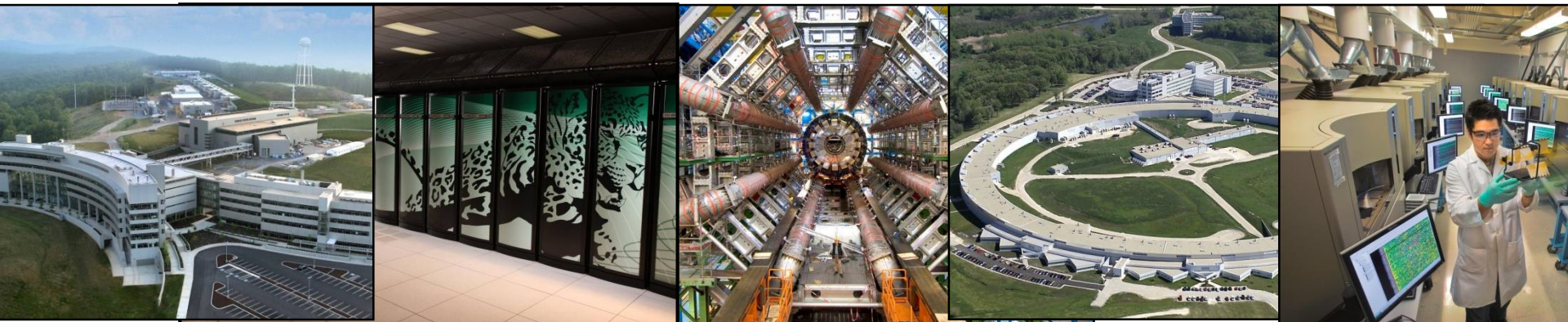
Support for Scientific User Facilities

- Provides the world's largest collection of scientific user facilities to nearly 28,000 users each year.



21st Century Tools for Science: National Scientific User Facilities

- Advanced computational resources – terascale to petascale computing and networks for open science
- Five light sources, and one next-generation light source under construction
- Three neutron sources for scattering
- Particle accelerators/colliders/detectors for high energy and nuclear physics
- Fusion/plasma facilities, including ITER which seeks to demonstrate a sustained burning plasma
- Five Nanoscale Science Research Centers – capabilities for fabrication and characterization of materials at the nanoscale
- Joint Genome Institute for rapid whole genome sequencing
- Environmental Molecular Science Laboratory – experimental and computational resources for environmental molecular sciences
- Atmospheric and Environmental Facilities – capabilities for cloud and aerosol measurement and for carbon cycling measurements



DOE Labs Employ ~32,000 S&E Staff



A DOE asset leveraged for workforce development opportunities when addressing mission workforce needs.



SCGSR Program Goal

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.

This research opportunity is expected to advance the graduate students' overall doctoral thesis while providing access to the expertise, resources, and capabilities available at DOE laboratories.

- Full program details, including eligibility and application requirements:

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

- Online application system:

<https://apps.orau.gov/SCGSR/Account/Login>



Two Solicitations Annually

Key Dates for FY2016 -2017

| | 2016 Solicitation 1 | 2016 Solicitation 2 | 2017 Solicitation 1*** |
|--|------------------------------------|---|------------------------|
| On-line Application Opens | February 16, 2016 | August 30, 2016 | February 2017 |
| Applications Due | May 11, 2016 5:00 PM ET | November 21, 2016 5:00 PM ET | May 2017 |
| Offer Notification Period <i>Begins on or around</i> | September 2016 | April 2017 | August/September 2017 |
| <i>Earliest*</i> Start Date for Proposed Project Periods | November 1, 2016 | June 1, 2017 | October 31, 2017 |
| <i>Latest**</i> Start Date for Proposed Project Periods | February 28, 2017 | October 2, 2017 | February 28, 2018 |

*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.

<http://science.energy.gov/wdts/scgsr/key-dates/>



SCGSR Program: Priority Research Areas (2016 Solicitation 2)

Advanced Scientific Computing Research (ASCR)

- (a) Applied Mathematics
- (b) Computer Science
- (c) Next Generation Networking for Science
- (d) Research and Evaluation Prototypes

Basic Energy Sciences (BES)

- (a) Accelerator and Detector R&D
- (b) Heavy Element Radiochemistry
- (c) Neutron Scattering Research and Instrumentation
- (d) Predictive Materials Science and Chemistry
- (e) Fundamental Electrochemistry related to Energy Transduction, Storage, 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

Biological and Environmental Research (BER)

- (a) Computational Biology and Bioinformatics
- (b) Biological Imaging - Mesoscale to Molecules
- (c) Plant Science for Sustainable Bioenergy
- (d) Environmental Systems Science

Biological and Environmental Research (BER) – cont'd

- (e) Atmospheric Systems Research
- (f) Earth System Modeling
- (g) Regional and Global Climate 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 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

SCGSR Program Key Elements

The SCGSR Program provides supplemental awards to outstanding graduate students to spend 3 to 12 months conducting part of their doctoral thesis/dissertation research at a DOE laboratory in collaboration with a DOE laboratory scientist.

- 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.
- Applications proposing to use an SC user facility must apply for user facility time separately.

Award Benefits:

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

(Award payments are provided directly to the student.)

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

Merit Review and Criteria

Completed applications submitted to the SCGSR Program before the application deadline is evaluated using the DOE Office of Science's standard merit review processes.

- **Scientific and/or Technical Merit of the Proposed Research**
 - Is the proposed research well-conceived, and does it demonstrate a clear understanding of the scientific and technical challenges involved?
 - Is the proposed method and approach for the proposed research appropriate?
 - Is the applicant (graduate student) sufficiently well prepared to conduct the proposed research?
 - 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?
- **Relevance of the Proposed Research to Graduate Thesis Research and Training**
 - Does the proposed research have the potential to make a significant contribution to the applicant's (graduate student's) thesis research project?
 - Will the proposed research enhance the applicant's graduate training and research skills?



Application Requirements

All applicants must apply through the online application system.

A completed SCGSR Program Application package Includes:

- All required Fields of the Online Application System, *including*:
 - Contact Information
 - U.S. Citizenship or Legal Permanent Resident status
 - Academic Information, school, disciplines, courses taken, degree obtained, etc.
 - Professional Information, such as Scientific Publications, Awards/Honors, and Research Experiences
 - Graduate Thesis Advisor and Collaborating DOE Laboratory Scientist Contact Information
 - Alignment of proposed research to one of the SCGSR Priority Research Areas
<http://science.energy.gov/wdts/scgsr/how-to-apply/priority-sc-research-areas/>
- A **SCGSR Research Proposal**: jointly developed by the student and collaborating DOE laboratory scientist (*3-page maximum, full guidance provided online*).
<http://science.energy.gov/wdts/scgsr/how-to-apply/research-proposal-guidelines/>
- Official Graduate Transcripts and Proof of Ph.D. Candidacy.
- Two Letters of Support, one by primary graduate thesis advisor, and the other by collaborating DOE Laboratory scientist.



About the Online Application System

A “smart” system with lots of useful features:

- error-adverse, real-time tips for preventing format violation (length of description, etc.)
- up-to-date indication about the submission status of all required materials and the application (letters of support, research proposal, completeness of application and required field, etc.)
- automatic prevention of accidentally submitting an incomplete application
- flexibility of changing the application and submission status before the deadline
- plenty of instructions and useful references/samples at the finger tip
- reminders and warnings for the closing date
- confirmation emails of submitted documents

Application Main Page

SCGSR
Office of Science Graduate Student Research

U.S. DEPARTMENT OF **ENERGY** | Office of Science

Instructions 1 Complete Your Application 2 Request Letters of Support 3 Verify & Submit 4 Check Your Status

The SCGSR Application will close in 26 days

Instructions

To apply for the SCGSR 2014, complete these four steps before the application deadline of 7/28/2014 12:00 AM Eastern Time:

- 1 Complete Your Application**
Provide all the required information in the [application form](#).
Important: As you complete each page of the application, you must click the “Save & Continue” button at the bottom of each page to save your entries and continue to another page of the application. Each page must be completed before it can be saved. If you navigate away from a page before completing and clicking “Save & Continue”, the information you have entered will not be saved. You will be prompted to confirm this choice.
[Complete Your Application](#)
- 2 Request Letters of Support**
Make [requests for letters of support](#) as soon as possible, then verify that they have been received on the [status page](#).
[Request Letters of Support](#)
- 3 Verify & Submit**
Verify that all information is complete and correct, then [submit your application](#). After submittal, you will be able to unsubmit and edit your application until the application deadline. If you unsubmit, you must resubmit your application before the deadline to be considered. After the application deadline, you will only be able to update your contact information in the applicant profile, but you can remove yourself from consideration completely by selecting “Withdraw” on the [status page](#).
[Verify & Submit](#)
- 4 Check Your Status**
After your information has been submitted, you can [check your status](#) at any time.

Online System: Required Fields

- **Must provide truthful, clear, complete answers to all required fields**
 - Self-reported answers will be verified before awards are finalized and become official
- **Automatic system check for eligibility related questions**
 - Answers indicating the violation of any eligibility requirements will result in a system lockout (U.S. Citizenship, full-time graduate enrollment, DOE host laboratory, past collaboration with collaborating DOE lab scientist, etc.)
 - System will ask you to confirm your answers before locking you out
- **Continue and Save feature**
 - Must complete all required fields on the current page and press “Continue and Save” button before navigating away from the current page
 - Otherwise, losing all the inputs



Online System: Official Graduate Transcripts

<http://science.energy.gov/wdts/scgsr/how-to-apply/graduate-transcripts/>

- **Official Transcripts**

- Usually ordered through the University Registrar's Office, bearing the Registrar's official signature
- Protect your Personally Identifiable Information (PII)
 - Transcripts must be redacted to remove any Social Security Number (partial or complete), dates of birth (partial or complete), Student ID, etc.

<http://science.energy.gov/wdts/scgsr/how-to-apply/graduate-transcripts/resources-for-handling-transcripts/#RemovingPIIPaper>

- Only need the official transcripts for the current graduate institution and make sure to include at least one back side to show your graduate institution's definition of the grading system
- Size limitation: no bigger than 10 MB

- **Official proof of the Ph.D. candidacy status**

- To be eligible, applicants must have obtained Ph.D. candidacy at their graduate institution, and have established a thesis topic
- If your official transcript for your current graduate institution does not explicitly indicate that you have achieved the Ph.D. candidacy, you must provide one of the alternative official forms of proof:
 - an official letter from your university/college Registrar's office, or
 - a signed official letter from the Chair of your academic department, clearly describing your institutions/program's requirements for Ph.D. candidacy, how well you have fulfilled the requirements, and the date of your candidacy.
- What makes an Official letter?
 - Speaking directly and specifically to the requirement (see above)
 - Formal, professional writing style
 - Using organization letter head, and Date
 - Official Title and Contact information of the letter writer
 - Signature of the letter writer



Online System: Letters of Support

<http://science.energy.gov/wdts/scgsr/how-to-apply/letters-of-support/>

- **Make sure to provide the accurate contact information of the Collaborating DOE laboratory Scientist and Primary Graduate Thesis Advisor**
- **Make sure to provide the program information and your accurate information to the letter writers, so they would speak specifically to the right program about your qualification, not others**
 - Keep in mind: at any given time, your letter writer may have been asked to write letters for more than one student
- **Once you start your application, do not wait, and send your requests for letters as soon as possible**
- **Heads up and follow up with your letter writers outside the online system (human contact beyond the virtual/digital world)**



Online System: Proposed Research Project at DOE Laboratories

<http://science.energy.gov/wdts/scgsr/how-to-apply/research-proposal-guidelines/>

A SCGSR research proposal describes the scope of research that the graduate student (the applicant) is proposing to conduct at a DOE laboratory in collaboration with a scientist at the host DOE laboratory. The proposal must address the stated aims in at least one of the SCGSR Priority Research Areas specified for a specific application cycle

Format Requirements

- no more than 3 pages, and the online application system will automatically cut off any materials beyond the 3 pages.
- Readability and Good Writing is very important.
- Clearly indicate Applicant full name, Proposal Title, page number at the header and footer section.
- page format comprises margins of one inch around the text (top, bottom, left, right) with the text being in a 12-point, single-spaced (12 point), Times, Times Roman or appropriate symbol font (for math script).

Important for the Online Application and Submission

- a required element for a completed application
- applicants must take the responsibility in communicating with advisor and scientist for any changes; an automatic message is generated by the online system to notify them whenever an updated version is uploaded to the application.
- the final version must be approved by both advisor and collaborating scientist.
- submitted online with the application before deadline, as a normal Adobe Acrobat PDF document



To Be, or Not To Be

- To Be the:
 - **Lead** Developer,
 - **Good** Writer, and
 - **Thoughtful** Coordinator



Being a Lead Developer

- **Take the ownership of your ideas because innovation/originality highly valued**
- **Read carefully the Merit Review Criteria and Make sure to fully understand the requirement for the application and the proposal**
- **Proactively communicate with the thesis advisor and collaborating DOE lab scientist about the application progress and proposal development**
- **Ask the SCGSR program for help in identifying a collaborating DOE laboratory scientist, particularly if you have never had worked with DOE office of Science or national laboratories before**
- **Make sure to have all required materials and information ready in the online system before the submission deadline**
 - check all uploaded documents once again to make sure they are the ones you intend to submit
 - complete all required fields, and do the best you can for providing the information for unrequired fields



Being a Good Writer

- **Focus on your idea/concept, what you are going to do about it, and tell your story with confidence**
- **Innovative ideas are highly valued, and good writing will make you stand out immediately**
- **Focus on what is essential and keep the answer/writing concise (extra contents exceeding the length limit will be cut off and not considered)**
- **Write as clear as you can and read it many times before the submission (changes can be made before the deadline)**
- **Ask for help to proofread your writing**



Being a Thoughtful Coordinator

- **Start the process early, and do not wait until the week before the deadline**
- **Do not assume that your advisor and the collaborating scientist will automatically know their expected actions for your application, including the deadline**
 - Explain the program requirements to them because you know the program better
 - Suggest for them to visit: <http://science.energy.gov/wdts/scgsr/how-to-apply/information-for-collaborating-doe-laboratory-scientists-and-thesis-advisors/>
 - Be specific about what is needed from them
- **Update the thesis advisor and collaborating DOE lab scientist with your proposal development and any changes**
- **Put a personal touch beyond the virtual/digital world**
 - do not completely rely on the online application system to do the communication
 - send a personal heads up note to the advisor and collaborating scientist
 - follow up to make sure that they have done their part (thank them if they do!)



Resources and Contact

Resources for Federally Sponsored Grant Programs (Graduate Level)

[STEMGradStudents.science.gov](http://stemgradstudents.science.gov)

Resources for Federally Sponsored Grant Programs (Undergraduate Level)

[STEMUndergrads.science.gov](http://stemundergrads.science.gov)

Resources at SCGSR Program Website

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

How to Apply: <http://science.energy.gov/wdts/scgsr/how-to-apply/>

Questions for SCGSR program?

sc.scgsr@science.doe.gov

