NSSC FELLOW AND AFFILIATE GUIDE

Welcome to the Nuclear Science and Security Consortium!

What is the NSSC?

The Nuclear Science and Security Consortium (NSSC) is a multi-institution initiative established by the National Nuclear Security Administration (NNSA) Office of Defense Nuclear Nonproliferation R&D to train the next generation of nuclear security experts while conducting research in support of the nation's nuclear nonproliferation mission. Originally established in 2011 and now in its third performance period (2021-2026), the NSSC is comprised of eleven universities with five US DOE National Laboratory partners.

The University of California at Berkeley (UCB) is the lead institution, joined by the Air Force Institute of Technology (AFIT), George Washington University (GWU), Michigan State University (MSU), North Carolina State University (NC State), Texas A&M University (TAMU), University of California Davis (UCD), University of Illinois Urbana-Champaign (UIUC), University of Nevada Las Vegas (UNLV), University of New Mexico (UNM), and University of Tennessee Knoxville (UTK), in collaboration with Los Alamos National Laboratory (LANL), Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), Oak Ridge National Laboratory (ORNL) and Sandia National Laboratories (SNL).

Headquartered at UCB, Dr. Jasmina Vujic, Professor in the Department of Nuclear Engineering, serves as the NSSC Director and Principal Investigator.

What does the NSSC do?

The NSSC performs research and development and provides educational opportunities in the fundamental and applied nuclear sciences support of the nation's nuclear security objectives. The NNSA nuclear security mission focuses on reducing global nuclear security threats through the innovation of technical capabilities to detect, identify, and characterize: 1) foreign nuclear weapons programs, 2) illicit diversion of special nuclear materials, and 3) global nuclear detonations. Proliferation detection includes the development of capabilities to detect special nuclear material and weapons production and movement, as well as for transparent nuclear reductions and monitoring. This may include supporting the development of technology to target the detection and characterization of foreign nuclear weapons program activities, including materials and weapons production, as well as development of novel, cross-cutting technologies like simulations, algorithms, and modeling applicable to national security more broadly.

To learn more about NNSA visit:
https://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/rd

The consortium conducts research in five focus areas organized by two main themes:

fundamental nuclear sciences, which includes nuclear physics and nuclear data, nuclear chemistry and radiochemistry, and nuclear materials science; and **applied nuclear science and engineering**, which includes radiation detection, nuclear chemical engineering and nuclear engineering. Linking these research focus areas are two crosscutting activities: computing and optimization for nuclear applications, and education in nuclear science, technology, and policy.

NSSC Fellows and Affiliates can expect to engage with national laboratory partners, working directly with a lab mentor, through in-residence research at the labs, lab-directed research projects, and/or participation in the education and training activities described below.

The goal of the NSSC is for our Fellows and Affiliates to find employment after graduation at one of the U.S. DOE National Laboratories or other government agencies in a nuclear-related field.

How do I contact the NSSC?

NSSC General Contact:	nssc_info@berkeley.edu
NSSC Office:	2150 Shattuck Avenue, Suite 230, Berkeley, CA 94704
Website:	www.nssc.berkeley.edu
Twitter:	*twitter.com/NSSConsortium*
LinkedIn:	*linkedin.com/in/nssc8/*

What does it mean to be a NSSC Fellow?

NSSC Fellows are partnered with national laboratory mentors to conduct cutting-edge research in fundamental and applied science supporting the nation's nuclear security agenda. Through your engagement with the NSSC, you will be working in close collaboration with our partner national laboratories on research that is relevant to the NNSA nuclear security mission.

Please note that due to funding restrictions the NSSC Fellowship program is only open to U.S. Citizens and permanent residents. You need to work with your academic advisor or NSSC main point of contact to verify citizenship.

As an *undergraduate research assistant*, this means that NSSC is paying your hourly wage. Please note undergraduate research assistants are not authorized for overtime when billing hourly. You must limit your work to up to 8 hours per day,and up to 40 hours per week when working full time. Undergraduate research assistants must be in their 3rd year of study or beyond.

As a *graduate student*, this means that you have been awarded an NSSC Fellowship to support your graduate research. The NSSC Fellowship covers payment of your tuition and/or a monthly stipend. Fellows will conduct research under one of the NSSC Focus Areas in collaboration with the national labs.

As a *postdoc*, this means that you have been awarded an NSSC scholarship to support your

postdoctoral research in collaboration with the national labs. Postdocs are required to complete the NSSC Laboratory Investigators Rotation, a 6-8 week assignment at one of our partner national laboratories.

As a *specialist*, the NSSC is paying all or a portion of your salary.

What does it mean to be a NSSC Affiliate?

NSSC Affiliates are principally funded by external sources and receive financial support from the NSSC in the form of travel and/or professional development monies. Affiliates engage with the NSSC community through access to NSSC-sponsored summer schools, webinars, and student sessions. NSSC Affiliates may also be asked to present their research at program review meetings and workshops.

Please note that due to funding restrictions the NSSC funding is only available to U.S. Citizens and permanent residents. You need to work with your academic advisor or NSSC main point of contact to verify citizenship.

What are the opportunities afforded to NSSC Fellows and Affiliates?

As an NSSC Fellow or Affiliate, you will be provided with a number of opportunities for research, educational advancement, networking, and training:

- Participate in NSSC workshops, summer programs, and research meetings, including the annual University Program Review Meeting (UPR)
- Receive opportunity emails from NSSC regarding research, fellowships or scholarships, and training programs
- Connect to the NSSC national laboratory network and academic community
- Attend (in-person or virtually) NSSC webinars

What are the requirements of an NSSC Fellowship?

Programmatic

- NSSC Fellows at all levels (undergraduate, graduate, and postdoctoral) are required to be **US citizens or permanent residents**
- Fill out the NSSC onboarding form.
- Participate in the annual University Program Review Meeting if your research is nominated for a poster or oral presentation. If this meeting is held locally, all local Fellows will be required to attend.
- Attend one NSSC working session or seminar per semester

Research

- Conduct research under your PI and a national laboratory mentor from one of our 5

partner laboratories. Every NSSC Fellow is required to have an academic advisor and a mentor at a national laboratory. If you do not currently have a lab mentor, email nssc_info@berkeley.edu immediately and we will work with you to facilitate this connection.

- The national laboratory mentor must be identified at the beginning of your work. This lab mentor does not have to remain the same person for the duration of the NSSC engagement.
- Include the NSSC acknowledgements in your research publications and presentations (see below).

Education & Training

- For NSSC Graduate Fellows: Attend **two** mandatory funded summer programs, a national laboratory internship and a summer school. (One summer program is typically completed per year during the first two years of fellowship support; The two programs must be completed within the multi-year fellowship; *Optional for undergrads, postdocs, specialists*)

  1. National Laboratory Internship: Attend one 8-week summer internship designed to provide hands-on orientation to research critical to the nuclear security mission. - You have the following options to fulfill this requirement:[1]
     a. NSSC-LANL Keepin Nonproliferation Science Summer Program - This on-site program at LANL provides a survey of the national laboratory activities and mission space, focused research projects with a strong connection to nonproliferation science and technology, and a companion symposium series linking nuclear security science, technology, and policy. https://nssc.berkeley.edu/events/nssc-lanl-summer-program/
     b. NSSC-LLNL Summer Experience - This on-site program at LLNL provides opportunities for research and development through new and established projects at the laboratory with strong connection to nonproliferation science and technology.
     c. SNL Summer Internship - This program provides in-residence research opportunities in cooperation with the Keepin Program at SNL's New Mexico and California sites addressing our nation's most challenging national security problems.
     d. NSSC-ORNL Technical and Professional Summer Internship - Oak Ridge National Laboratory (ORNL) offers unique resources and mentorship for graduate students to enhance their knowledge of science, technology, engineering, and math; encourage careers in science and technology; and improve scientific literacy.
  2. Summer School: Attend one NSSC-organized summer school designed to provide

[1] In special circumstances, an alternate in-residence research opportunity may be substituted. For example, (i) an in-residence research experience that lasts *at least 8 continuous weeks* at an NNSA lab (LLNL, LANL, or SNL) focused on any project or (ii) *at least 8 continuous weeks* at a DOE/SC laboratory (LBNL or ORNL) in support of a DNN-funded project fulfills the fellowship requirement. To request an exception, contact nssc_info@berkeley.edu.

in-depth training on topics important for the nuclear security professional.[2] *With prior approval*, externally organized summer schools in your primary field of study may be used to fulfill this requirement:

a. Nuclear Data Summer School - Hosted by UCB, UTK, and LANL. Leveraging battle-tested software engineering and data management curricula in The Carpentries, the School will provide an overview of all functions that make up the nuclear data pipeline, from measuring and modeling through compilation, evaluation, validation, and uncertainty quantification.
b. Radiochemistry Summer School - 6-week summer school to prepare students for hands-on research experiences in radiological and nuclear facilities. Students will leave the program with basic safety training, radiological worker certification, as well as the foundational technical knowledge needed to contribute to mission-specific research. Students will work in the UCB radiochemical laboratory refining the techniques and skills of a trained nuclear chemist. Students will also visit facilities at LBNL and LLNL and attend lectures by faculty from the consortium and expert collaborators from partner labs.
e. Public Policy and Nuclear Threats Boot Camp (PPNT) - In La Jolla, CA and in cooperation with the Institute on Global Conflict and Cooperation, this 10-day program covers historical, technical, legal, ethical, and policy aspects of nuclear weapons issues. The Boot Camp consists of lectures, discussions, simulations, practicums, and lively debate on a range of nuclear security and nonproliferation issues. https://ucigcc.org/training/ppnt/

- For NSSC Postdocs: Postdocs are required to participate in the NSSC Laboratory Investigators Rotation, an assignment at a partner laboratory for a period of 6-8 weeks with the goal of initiating new research collaborations, facilitating existing ones, and deepening University-Lab connections. The Rotation will also feature facility tours, lectures and opportunities for research communication and networking.

Reporting

- Complete NSSC Reporting Forms on a quarterly or more frequent basis. See NSSC Quarterly Reporting Guide for more details (available on the NSSC Website). Forms will be sent to you by the NSSC Program Manager.
- Respond to data surveys or requests for information from NSSC regarding your research, education, training, and/or experience as an NSSC-funded student.
- Notify NSSC of your career status upon completion of the program.
- Submit publications according to the NSSC Publications Guide (available on the NSSC Website)

Failure to comply with the requirements outlined above may result in loss of funding.

What are the requirements of an NSSC Affiliate?

[2] If you were a NSSC Fellow prior to Fall 2021, the GW Boot Camp on Nuclear Security Policy also fulfills this requirement.

Reporting

- NSSC Fellows at all levels (undergraduate, graduate, and postdoctoral) are required to be **US citizens or permanent residents**
- Fill out the NSSC onboarding form.
- Complete NSSC Reporting Forms on a quarterly or more frequent basis (see NSSC Quarterly Reporting Guide for more details). Forms will be sent to you by the NSSC Program Manager.
- Respond to data surveys or requests for information from NSSC regarding your research, education, training, and/or experience as an NSSC affiliate.
- Notify NSSC of your career status upon completion of the program.

What are the fellowship terms and conditions?

Continuation funding is contingent upon (1) availability of funds; (2) satisfactory progress towards meeting the objectives of the fellowship; (3) submission of required reports; and (4) compliance with the fellowship requirements, terms, and conditions.

If at any time you are employed by another source (e.g., summer employment, GSI opportunities, etc.), you are *required* to report this employment to NSSC. Your fellowship stipend is subject to adjustment.

Graduate Fellows at UC Berkeley must obtain California residency after completing the first year of study. Contact your student services advisor.

What is the timeline for NSSC program completion?

Financial support for NSSC Graduate Fellows is limited to four years. If additional time is needed in the completion of a degree program, requests will be considered on a case-by-case basis.

Prior to the end of the initial two-year period of the NSSC Fellowship, research progress and consortium involvement will be reviewed with annual funding extensions provided based on performance.

How do I acknowledge NSSC support of my research?

It is a requirement to include the following acknowledgements and disclaimer on any NSSC-supported work products (e.g., oral or poster presentation, publications, etc.).

For scholars supported by NSSC3 (2021-2026):

This material is based upon work supported by the Department of Energy National Nuclear

Security Administration through the Nuclear Science and Security Consortium under Award Number DE-NA0003996.

For scholars supported by NSSC2 (2016-2021):
This material is based upon work supported by the Department of Energy National Nuclear Security Administration through the Nuclear Science and Security Consortium under Award Number DE-NA0003180*.*

For scholars supported by NSSC1 (2011-2016):
This material is based upon work supported by the Department of Energy National Nuclear Security Administration through the Nuclear Science and Security Consortium under Award Number DE-NA0000979*.*

The disclaimer below must also be added in each case:

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or limited, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

You are also strongly encouraged to use the NSSC logo, which is available for download on the NSSC website:
https://nssc.berkeley.edu/resources-for-fellows-and-affiliates/

How do I request travel or supply reimbursement?

Your home institution may have funding available for travel related to your research, which may include visits to experimental facilities to conduct research or travel to present talks and posters at conferences. Please coordinate with the NSSC PI at your home institution for travel policies and reimbursements, as different institutions may have different procedures and policies. The main point of contact for your university is listed here:
https://nssc.berkeley.edu/people/faculty/

UC Berkeley students should refer to the UC Berkeley NSSC Student Travel Guide (available on the NSSC Website) and should direct any travel related queries to nssc_info@berkeley.edu. When requesting travel support, UC Berkeley students must provide the name of their faculty advisor.

T

What is the NSSC Code of Conduct?

NSSC students, postdocs, and research specialists should conduct themselves as professionals when attending conferences, research meetings, or other NSSC or non-NSSC professional events. This includes dressing in appropriate attire, refraining from engaging in inappropriate conduct, and adhering to institutional and laboratory conduct guidelines. Any personnel conducting research or visiting the national laboratories for NSSC summer schools, workshops, or other events should always be aware of and follow national laboratory guidelines and policies.

Where can I find additional NSSC guides and other resources?

URL https://nssc.berkeley.edu/resources-for-fellows-and-affiliates/

The following NSSC Guides and resources are available on our website:

- NSSC Travel Guide
- NSSC Publications Guide
- NSSC Quarterly Reporting Guide
- NSSC Acknowledgements and Disclaimer
- NSSC Logo