

Faculty Competition

2018-2019

Higher Education: Curriculum Development &
Hands - On - Training



Announcement for faculty at:

University of Nevada, Las Vegas; University of Nevada, Reno; Nevada State College; College of Southern Nevada; Great Basin College; Truckee Meadows Community College; Western Nevada College;
Desert Research Institute

Applications must be received by:

Monday, March 12, 2018; 5:00 pm PT



National Aeronautics and Space Administration (NASA)
Space Grant College and Fellowship Training Program
Cooperative Agreement #: NNX15AI02H



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Funding Information for CD and HOT

In anticipation of receiving a one-year funded extension of Nevada's current Space Grant award, NVSGC seeks to fund 2-3 projects with a maximum federal contribution of \$25,000 each. Due to requirements of the Space Grant program, a 1:1 institutional match is required on all awarded funds. The total maximum budget amount with match per proposal therefore is \$50,000 (maximum \$25,000 federal + maximum \$25,000 institutional match). The number of awards and funding level are contingent on the availability of funds, which will not be known until June 2018. Proposed activities may occur during the fall 2018 semester through spring/summer 2019.

- **Student participation is strongly encouraged and can be included in your overall budget.**
- Partnership with other Space Grant supported projects, NASA Centers or scientists and business/industry will be reviewed favorably.
- Diversity and inclusion are integral to the mission success of NASA and we are tasked with funding a diverse cohort of student and faculty researchers that reflect NV demographics.

Eligibility:

- Faculty at any Nevada System of Higher Education institution may apply.

Curriculum Development (CD):

The primary focus for this Curriculum Development program is to establish new and/or revised courses and materials that infuse NASA-related content within NSHE institutional curricula.

We plan to support projects that include development of interdisciplinary classes utilizing or implementing NASA mission directorate content as well as senior design courses and senior research projects. The goal is to provide college students with NASA science and engineering course content that they would not otherwise receive, which will lead to improved opportunities for careers with NASA. Curricula development projects should have a clear progression from initiation, to classes/content being offered on an ad hoc basis, to becoming part of the institution's curricula. The NVSGC will place emphasis on those courses and curricula that target topics within space/planetary exploration, aeronautical engineering, off-grid habitation and utilization of NASA-specific assets (e.g., satellite data) for climate change evaluation and adaption topics.

Hands - On - Training (HOT):

The primary focus of this program is to firmly establish new STEM hands-on-training activities that utilize NASA related interdisciplinary content within higher education curricula. Proposals should include authentic, hands-on student activities in NASA-related STEM disciplines. Examples of topic areas that are being targeted include but are not limited to: space/planetary exploration, aeronautical engineering, off-grid habitation and utilization of NASA-specific assets (e.g., satellite data) for climate change evaluation and adaption topics and other NASA relevant topics. Proposals may include the development of teams to compete in science and engineering challenges relevant to NASA.

For both the **CD** and **HOT**, the current grant has identified the following topics as key areas of interest for Nevada:

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STEM topics relevant to NASA goals;
Small Unmanned Aircraft Systems (sUAS); and
High Altitude Ballooning.

Proposals areas of interest should address one or more of the following:

- Will develop programs and new curriculum to provide students with a knowledge base leading to successful employment in at a NASA Center or a NASA-related industry
- Provide engaged, interdisciplinary learning by integrating state-of the art facilities and equipment (e.g. 3d printers, panoramic displays and immersive individual displays)
- Incorporate faculty workshops, web posts, newsletters and other media that broaden the information provided to NSHE institutions about successful higher education content developed with Space Grant funding
- Enhance outreach efforts to recruit more students representative of Nevada's diversity to enter STEM programs
- Explore current grant focus topics, including: small unmanned aircraft systems (sUAS) in areas such as engineering, software development, policy and flight operations or topics related to high altitude ballooning OR any NVSGC focus topic related to any of the following: aeronautics; astrobiology; astrochemistry; astrophysics; big data analytics; climate change; hydrologic impacts; new satellite data systems; planetary geology; remote sensing; STEM education; and sustainability. For HOT proposals, one option is the development of teams that engage or participate in NASA-relevant engineering design challenges (such as: NASA Student Launch Program, CanSat competition, Human Exploration Rover Challenge, the Mars Societies University Rover Challenge, etc.).
- Create Programs that train multiple participants about how to access and utilize unique NASA assets for climate change research.
- Develop college- or university-industry partnerships that train multiple higher education students (including pre-service teachers) in aerospace science and engineering topics
- Engage multiple participants in hands-on activities or research workshops
- Engage multiple participants in summer training workshops for in-service or pre-service teachers enrolled in higher education programs that enhance their abilities to train students in STEM fields through hands-on activities
- Create STEM summer orientation workshops for undergraduates
- Lead to or support faculty externships in aerospace industries or NASA centers that are then used to enhance higher education curricula and hands on training programs

NOTE: Collaboration with other NSHE faculty is encouraged, but not required. If you have questions about this, please contact Lynn Fenstermaker at lynn.fenstermaker@dri.edu

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Proposal Guidelines

As a single PDF file, submit the following documents (1-5):

1. Cover Page Form (identify this as a CD or HOT application.) All Forms are available at:

<https://nasa.epscorspo.nevada.edu/nevada-nasa-space-grant-consortium/for-faculty/forms-resources/>

2. Results of Prior Nevada NASA Space Grant Consortium or Nevada NASA EPSCoR support

(maximum of 600 words): If any faculty on the project has received NVSGC or Nevada NASA EPSCoR award(s) in the past five years, information on the award(s) is required.

Each faculty member who has received funding must provide the following:

- a. The amount and period of support.
- b. Summary of the results, including tangible outcomes, which could include, but are not limited to: resulting publications; proposals; new collaborations or partnerships; thesis/dissertations; student successes; and engagement of underrepresented groups

3. CV (2 page maximum)

4. Summary of the proposed project (maximum 4 page narrative). Include the following:

Abstract: 500 words or less summarizing the proposed activity

Who: Roles and responsibilities of project participants and the anticipated number of faculty and student participants who will benefit from the project. Name all participants that are known at the time of submission.

What: 1. The objectives, methods and anticipated outcomes of the project.

2. A plan for sustained or additional institutional support of the project and results after the project end date.

3. Details regarding industry, other campus, or NASA-Center partners' involvement (this is highly encouraged).

4. Please state if this proposal is in collaboration with another proposal submission.

When: Provide a timeline for the proposed project listing all critical project steps.

Where: Campus(s) and department(s) where the curricula and/or project will be available.

How: 1. State how the activity will result in the enhancement of, or provide training, new materials, procedures, or coursework for your campus programs.

2. Provide an evaluation plan that will assess and demonstrate the effectiveness of the CD/HOT project.

3. Specify how this proposal is aligned with NASA's Strategic Plan 2014, missions or directorates (ARMD, SMD, SOMD), which can be found at:

https://www.nasa.gov/sites/default/files/files/FY2014_NASA_SP_508c.pdf

For your reference, ARMD, SMD, SOMD directorate information is provided at:

<http://www.nasa.gov/about/directorates/index.html>

5. Budget and Budget Justification: There is a 1:1 institutional match requirement. Please calculate unrecovered F&A, as applicable, as part of the institutional match. Please work with your campus Sponsored Programs Office/Business Officers to determine the institutional. SPM will not be provided for this solicitation by the NSHE SPO. A budget and budget summary are required and **must be completed using the template provided at:** <https://nasa.epscorspo.nevada.edu/nevada-nasa-space-grant-consortium/for-faculty/forms-resources/> Dollar amounts proposed with no

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explanation may reduce proposal acceptability.

Budget – A signed budget by your institutional representative (SPO, Grants, Contracts, etc.).

Budget Justification –Proposed travel should include the number of trips, destination, duration, etc. Student participants must be identified individually.

*All reasonable costs are allowable **with the following exceptions:***

- a. No foreign travel may be charged under this NVSGC award.
- b. No equipment may be purchased; this also includes computer equipment.
- c. Funds may not be used for construction or remodeling of facilities.

SUBMISSION GUIDELINES must be followed exactly.

- Proposals must be uploaded as one (1) complete PDF file (above mentioned documents 1-5) by your SPO, Grants & Contract, Business office, etc.at <https://nasa.epscorspo.nevada.edu/funding/2018-2019-cd-hot-faculty-competition/> by the deadline of: **Monday, March 12, 2018 at 5:00 pm, PT.**
- Incomplete proposals as well as proposals submitted after that date and time will not be reviewed.
- PDFs should be named: **NVSGC_CD** or **HOT_(your last name)**.

Evaluation and Award Criteria: The screening and selection process will include statewide representatives from NSHE institutions and will focus on the following areas:

- Clear, concise, well-written proposal.
- Articulate and clear plans for dissemination/outreach.
- Specific goals and objectives that have measurable outcomes.
- Alignment of the proposal with NASA’s national missions and goals.
- Anticipated effect on STEM education.
- Plan for engaging underrepresented groups.
- Plan for evaluating effectiveness of the proposed activities.
- Plan and potential for sustainability past the duration of the initial award.
- Student participation.
- Budget is appropriate for scope of work.

Diversity: Diversity and inclusion are integral to the mission success of NASA. To stay competitive in today’s global marketplace, we must have “an organizational culture and work environment where the best and brightest minds – employees with varying perspectives, education levels, skills, life experiences, and backgrounds – work together to achieve excellence and realize individual and organizational potential. NASA strives educate a more diverse American public on the need for robust space and aeronautics programs and their value in advancing the U.S. scientific, security, and economic interests. To do so, NASA will increase outreach efforts to encourage and motivate people, especially young people, from diverse and underserved communities.”

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With this in mind, proposals to NSHE for Space Grant Consortium Competitions should broadly aim to enrich and engage faculty and students that reflect the demographic diversity in Nevada.

Reporting: Reporting will be required for all funded proposals.

- Reporting is the responsibility of the principle investigator of each successful submission. PI's will be responsible for working with the NVSGC program office and all project participants to provide text and data through an online reporting form.
- Profiles/identifier information must be reported for all students receiving significant funding and/or significant engagement (≥ 160 contact hours) for all undergraduate, graduate, and or post-doctoral student participants. An online form is provided.
- Information to be furnished in the report includes:
 - o Project participants (i.e. Faculty, students, etc...) provide titles, roles, demographics;
 - o Highlights and results of the project activities (photos of activities are encouraged);
 - o Progress of the proposed activity(ies) as requested;
 - o Indirect and Direct Participants information: You will need to capture the total number of direct and indirect attendees reached via your activity(ies). *Direct participants are individuals who are direct beneficiaries of the activity (i.e. participants and/or attendees who may have registered for the activity) indirect participants are individuals who indirectly benefit from the NASA activity and/or can only be estimated (i.e. Students participating in revised courses that are developed);*
 - o Plans for program sustainability and follow-on work; and
 - o Publications, presentations, papers, reports, posters etc. Your information is used for required reporting to NASA Headquarters.

Contact Information:

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More information about NV Space Grant may be found at:
<https://nasa.epscorspo.nevada.edu/>