



WASHINGTON NASA SPACE GRANT CONSORTIUM SUMMER 2020 RESEARCH INTERNSHIPS

Awards

Students may apply for summer internships, paid at an hourly rate over 10 weeks totaling up to \$5,200, to pursue guided research in Science Technology Engineering and Mathematics (STEM) or STEM education. Mentor faculty will receive an award of \$750 to cover incidental expenses. Up to six internships will be awarded for summer 2020. Availability of these awards is subject to funding from the Washington Space Grant Consortium, a grantee of the National Aeronautics and Space Administration (NASA).

Eligibility

The awards are open to undergraduate, post baccalaureate, or graduate students in good academic standing who are enrolled in, or plan to pursue, one of the following:

- A major in a Science, Technology, Engineering, or Math (STEM)-related field with applications to space/aerospace science or engineering, *and/or*:
- A teacher preparation program (elementary or secondary) with a STEM teaching specialty.

To be eligible for either, applicants must express an interest in a STEM major or teacher preparation program but need not be enrolled in a specific program at the time of application. Students must propose a basic or applied STEM or STEM education research project that address one or more of NASA's research priorities, and must have a plan to carry out research plans under close guidance of a WWU faculty member. No previous research experience is necessary, and students proposing new research projects are encouraged to apply, under the guidance of a faculty mentor.

Expectations

Successful applicants will be expected to: (1) carry out their research over summer quarter 2020, (2) work with other awardees to plan and facilitate a STEM outreach event at WWU or another location involving school-aged children over summer quarter 2020, and (3) present their research during Scholars Week in spring 2021. Questions regarding eligibility of student research projects should be directed to Dr. Emily Borda, Emily.Borda@wwu.edu, SL 250D, 360-650-3637.

Application Details

Students must apply to either the STEM major track or preservice teacher track. Up to three internships will be awarded for each track. The following materials should be sent to Lori.Tores@wwu.edu by **March 6, 2020**:

- An application form (included in this announcement) along with an unofficial transcript.
- A 2-page (references excluded) essay that includes: (1) a description of the research goals and significance of the research, (2) a research plan, (3) a justification for how the proposed work directly supports one or more of NASA's research priorities (listed below), either through basic or applied research, or through education research aimed at improving student understanding of those priorities, and (4) a summary of the student's interest in either pursuing a STEM-related career (STEM major track) or pursuing a teaching career with a STEM specialization (preservice teacher track).
- A letter of recommendation from the WWU faculty member who will serve as the mentor for the research project. This letter should contain a statement about the student's potential to make progress on and to learn from their research, as well as a statement of the faculty member's availability for mentoring during Summer 2020 and a description of resources available to support the project.

Application Review

A committee will review each application, examining the student's essay for evidence of the nature, extent and quality of the proposed research, the role the student plays in the research, the benefits that he or she will gain from this research experience, the student's ability to carry out the project with faculty supervision and the available resources, alignment of the research with one or more of NASA's research priorities, and the student's interest in/commitment to a future STEM career or future teaching career with a specialization in STEM.

Awards will be announced by **March 20, 2020**. All applicants will be notified by email.

NASA research priorities

Students must link their research project to one or more of NASA's Mission Directorates, either through direct or applied research, or through education research intended to improve students' understanding of concepts related to NASA's priorities. Descriptions of NASA's Mission Directorates are provided below.

The **Science Mission Directorate (SMD)** expands the frontiers of Earth science, heliophysics, planetary science, and astrophysics. Using robotic observatories, explorer craft, ground-based instruments, and a peer-reviewed portfolio of sponsored research, SMD seeks knowledge about our solar system, the farthest reaches of space and time, and our changing Earth.

The **Aeronautics Research Mission Directorate (ARMD)** transforms aviation with research to dramatically reduce the environmental impact of flight, and improves aircraft and operations efficiency while maintaining safety in increasingly crowded skies. ARMD also generates innovative aviation concepts, tools, and technologies for development and maturation by the aviation community.

The **Space Technology Mission Directorate (STMD)** pursues transformational technologies that have high potential for offsetting future mission risk, reducing cost, and advancing existing capabilities. STMD uses merit-based competition to conduct research and technology development, demonstration, and infusion of these technologies into NASA's missions and American industry. This mission directorate is being refocused as a new Exploration Research & Technology (ER&T) organization to support exploration as a primary customer.

The **Human Exploration and Operations Mission Directorate (HEOMD)** leads human exploration in and beyond low Earth orbit by developing new transportation systems and performing scientific research to enable sustained and affordable human life outside of Earth. HEOMD also manages space communication and navigation services for the Agency and its international partners.

Two examples of acceptable links to NASA's research priorities are below:

- *My research proposal is aimed at understanding how students develop small particle models and how they connect observable phenomena with those models. This is related to NASA's HEOMD research priorities in the fields of biophysics, combustion science, complex fluids, and materials science, in that all of these areas require an understanding of, and ability to model, properties of materials at the atomic/molecular level.*
- *My proposed research aims to measure the extent of subnival vegetation (plants growing between the treeline and snowline) in the area around Mount Everest, and across the Himalayan region, to better understand the response of vegetation to climate change. The primary datasets for this study will be images from NASA's Landsat satellites, which provide a record of vegetation coverage from 1993 to 2018. This project directly supports the priorities of NASA's Science Mission Directorate (SMD) by using NASA mission data to seek knowledge about our changing Earth,*

Funding for these student awards is provided by NASA through the Washington Space Grant Consortium. The Washington NASA Space Grant Consortium is a statewide organization established and supported by NASA, with additional funds provided by state and private sources. The Consortium works to assure a productive future in space science and technology for Washington State and the nation. Our activities are designed to provide space-related education and research opportunities for the state's diverse population of pre-college, college, university and community learners.

WASHINGTON NASA SPACE GRANT CONSORTIUM

2020 SUMMER RESEARCH AWARDS

APPLICATION FORM – Deadline 5pm, March 6, 2020

First Name _____ Last Name _____ Student # _____

Local Address: Street _____

City _____ State _____ Zip _____

Local Phone _____ WWU E-mail Address _____ US Citizen Yes No

Estimated Graduation Month/Year _____ Major _____

Title of Research Project _____

Faculty Mentor: Name _____ Department _____

Select one track below. You need not commit to a teaching or STEM major/career at this time. If you are both a STEM major/premajor and interested in K-12 teaching, we recommend selecting the Teacher track.

Teacher (include a statement of interest in teaching in your essay)

STEM Major (include a statement of interest in STEM careers in your essay)

ESSAY

Describe your proposed research project, the progress you've made to date (if applicable) and your plans for the project period. Discuss your motivations for getting involved in research, how participating in research contributes to your education and to knowledge in your discipline. Summarize your research plan, including a timeline for activities (assume a 10-week quarter). Finally, include a statement of your teaching interests (if applying to the teacher preparation track) or STEM career interests (if applying to the STEM major track). Essays must be typed, single-spaced in 12-point font, and no longer than two pages, excluding references. Label each page with your name.

LETTER OF RECOMMENDATION

Have your faculty supervisor submit a signed letter of recommendation to accompany your application. Share the information on the next page with your faculty mentor.

SUBMISSION

Applications, including transcripts, must be submitted by **5pm, March 6, 2020** to Lori.Torres@wwu.edu.

EXPECTATIONS

If you are awarded an internship, you will be expected to work with other awardees to plan and facilitate an outreach event for school children during the award period. Upon completion of your project you will be expected to present your work in poster format during Scholars Week 2021. As part of the long-term assessment of this program, we also ask you to maintain a current address and student or employment status on file with the SMATE office. Your signature below signifies you understand these terms.

Student Signature _____ *Date* _____

WASHINGTON NASA SPACE GRANT CONSORTIUM 2020 SUMMER RESEARCH AWARDS FOR FUTURE SCIENCE TEACHERS

INFORMATION FOR FACULTY MEMBERS

This student is applying for a Washington Space Grant Consortium 2020 Summer Research Award to support her/his participation in research under your guidance. The intent of these awards is to provide support for future science teachers and/or STEM professionals, enabling them to learn research methods and explore current research questions and challenges in a variety of disciplines. You will receive \$750 for incidental expenses to support your mentoring.

FACULTY RECOMMENDATION LETTER

Please write a letter of recommendation addressing how this award will enhance the student's education and summarize their research skills, capability of completing the proposed project, and resources available to complete the project. Please submit a signed letter to Lori.Torres@wwu.edu with the student's name in the subject line by **5pm, March 6, 2020**.

CONTACT INFORMATION

Contact Emily Borda: 360-650-3637, Emily.Borda@wwu.edu with questions about the teacher track, Melissa Rice: 360-650-3592, Melissa.Rice@wwu.edu with questions about the STEM major track, or Lori Torres: 360-650-7605 or Lori.Torres@wwu.edu with questions about application process and award logistics. Thank you for providing this student the opportunity to participate in research and supporting his/her application.