Announcement for Proposals (AFP) Related to University Capstone and Senior Design Projects for the Space Grant Program

Statement of Purpose

NASA is seeking proposals from Space Grant Program affiliates on a *no-exchange of funds basis* to better prepare cross-disciplinary undergraduate and graduate students for increasingly complex and challenging STEM career pathways by providing real-world collaborative research experiences. The purpose of this AFP is to coordinate requests from Space Grant Program affiliates for access to NASA scientific and technical expertise, data sets and mentoring in support of Capstone and Senior Design Projects led by affiliate universities that are already in the scope of current Space Grant awards. *This AFP is not intended to add new funding or scope to existing Space Grant awards.*

Capstone and Senior Design projects and classes are designed to allow students to explore independent research and demonstrate mastery of subject matter knowledge. Consistent with university requirements, students will either earn college credit for their participation in the opportunity or will otherwise contribute to their academic coursework. NASA will coordinate with university faculty to support the identification of relevant areas of research, issues, or problems that the student team can use to develop specific studies.

Background

NASA is committed to building the next generation of explorers by engaging students in its mission. NASA has a vested interest in attracting, engaging, and preparing future STEM professionals, and the national STEM ecosystem benefits from NASA's contributions to attract and retain students on STEM pathways. NASA's STEM engagement work is vital to ensuring the next generation of explorers have the technical skills needed to continue our nation's work in aeronautics and space into the future.

NASA will support this effort by identifying relevant areas of research, issues, or problems that the student team can use to develop specific studies. NASA will provide University Faculty and student teams with access of up to 12 hours time from NASA Engineers, Scientists and other technical staff and publicly available NASA data sets, imagery, and information. End products developed by the student team may include products like an analytical report and slide presentation.

Content Focus of Opportunities

Four organizations within NASA are contributing content in this AFP for university engagement. Specific, individual project concepts, research ideas and background information for each participating organization can be found in the NASA STEM Gateway system.

Aeronautics Research Mission Directorate

Building on a legacy of aeronautical research that can trace its origins to the earliest days of powered, heavier-than-air flight, NASA remains committed to transforming aviation by

dramatically reducing its environmental impact, improving efficiency while maintaining safety in more crowded skies, and paving the way to revolutionary aircraft shapes and propulsion that opens new possibilities for commercial air travel.

Space Technology Mission Directorate
Technology drives exploration and the space economy. NASA's Space Technology Mission Directorate (STMD) aims to transform future missions while ensuring American leadership in aerospace. As NASA embarks on the next era of space exploration with Artemis, STMD is advancing technologies and testing new capabilities at the Moon. Many of the same systems will prove critical at Mars. STMD's portfolio spans a range of discipline areas and technology readiness levels. STMD bolsters and funds diverse ideas from entrepreneurs, researchers, and innovators across the country. Space technology research and development occurs at NASA centers, universities, national labs, and small businesses. STMD leverages partnerships with other government agencies and commercial partners to quickly advance and demonstrate cross-cutting capabilities.

Glenn Research Center
Located near Cleveland Hopkins International Airport, Glenn's main campus, Lewis Field, has world-class facilities including wind tunnels, drop towers, vacuum chambers, and a research aircraft hangar. NASA's Glenn Research Center in Cleveland designs, develops, and tests innovative technology to revolutionize air travel, advance space exploration, and improve life on Earth.

Eligibility
This opportunity is only open to faculty at U.S. universities who are affiliated with NASA's Space Grant Program. To be considered, Capstone and Senior Design opportunities need to be aligned with and operate under the terms and conditions of an active Space Grant award. Capstone opportunities will be implemented in the '25-'26 academic year. Requests for funding will not be considered through this open call. The purpose of this call is to coordinate access to NASA subject matter experts to provide technical expertise on Capstone or Senior Design projects.

Instructions for Proposal Preparation
~~This request will be open for 45 days following the date of release of this announcement.~~ All proposals must be received by ~~June 27~~ July 31, 2025, to be considered.

Participation in this call for proposals is strictly voluntary, and NASA is not obligated to select any proposals submitted in response to the call. Please include a letter (email concurrence is acceptable) from your state's Space Grant Director confirming your eligibility along with your submission. *The purpose of this AFP is not to award funding to any Space Grant consortia or affiliate*. It is only to coordinate requests for technical support for planned Capstone and Senior Design experiences for existing Space Grant efforts.

Any questions regarding this AFP should be submitted via email to the identified point of contact. Submissions should be limited to no more than three (3) pages, double-spaced, 1" margins using a font that, when averaged across a solid block of text, shall not exceed 15 characters per horizontal inch including spaces (for example, Times New Roman or Helvetica 12-point type).

Topics for this announcement will appear as individual opportunity entries in NASA STEM Gateway. To be considered for the topic, you must submit a proposal to the appropriate topic entry or entries. When completing submission process, do not proceed beyond Proposal Upload page without uploading a proposal. Proposal submissions must be provided electronically as unlocked PDF format via NASA STEM Gateway (https://www.stemgateway.nasa.gov). Proposers must be registered in NASA STEM Gateway.

Proposers new to NASA STEM Gateway are encouraged visit and create an account early in the process. Submissions must be received no later than 11:59 pm Eastern time, on ~~June 27~~ July 31, 2025. Proposers who consider their submission proprietary should indicate on their submission. NASA will treat submissions as proprietary and will use them only for evaluation purposes under this announcement.

Proposals will:

1. Provide a plan for the implementation of NASA-themed capstone and/or senior design projects at the university that:
    - Describes and identifies the specific research topics to be addressed by student capstones and or/senior design – each research topic should be selected from the above focus areas and addressed separately. Outlines anticipated number of students participating in opportunities and identifies their associated academic disciplines.
    - Provides a schedule of measurable milestones for implementation and requested interaction points with NASA.
    - Identifies any anticipated student work products that will be created as a result of this effort.
2. Describe the proposed technical approach, innovation and/or unique facilities or expertise that students will leverage in this work. Describe the approach used by the university to monitor student work and provide guidance to teams of students.

Evaluation Criteria:
NASA evaluators will review the information provided in the proposal to make a determination as to how well it meets the following evaluation criteria:

1. Demonstrates an achievable plan to provide opportunities, leveraging NASA content to engage university students. Successful plans will:
    a. Align to focus areas identified in the announcement for proposals.

    b. Contain a schedule of milestones that is achievable and demonstrates alignment with the parameters of the program.
    c. State and provide reasonable evidence to support the anticipated number of students participating in the program, and that these students represent multiple academic disciplines.
    d. Clearly identified anticipated student work products (ie reports, simulations, presentations)
2. Provides a reasonable strategy to meet program goals and monitor project progress and completion.
    a. Proposed facilities, unique attributes or innovation have a reasonable likelihood of enhancing student efforts
    b. Identify dedicated faculty and staff to support student work and provide their qualifications.
    c. Provide a monitoring, evaluation, and reporting plan related to evaluating and guiding student work across the project timeline.
3. Contains a letter of support from the submitting institution's state Space Grant Director and confirms the submitting faculty members eligibility to participate in this opportunity as part of the Space Grant Program.

Each evaluation criteria are of equal weight. NASA evaluators will identify individual strengths and weaknesses for each proposal in accordance with the evaluation criteria contained above and the definitions contained in Appendix 1. Considering the attributes of each proposal, the evaluators will assign a final overall proposal color in accordance with the criteria in Appendix 2. Proposals that receive the highest color category will be more competitive than proposals in lower color categories.

Proposers are encouraged to limit the amount of Proprietary Data (defined below) included in their Proposals and only include such information that is necessary to meet the proposal requirements listed in this announcement. Proposers must clearly mark any Proprietary Data in their Proposal. For purposes of this announcement, "Proprietary Data" shall mean information set out in the Proposal embodying trade secrets developed at private expense or commercial or financial information that is privileged or confidential, and that includes a clear restrictive notice, unless the information is (i) known or available from other sources without restriction, (ii) known, possessed, or developed independently, and without reference to such marked information in the Proposal, (iii) made available by the owners to others without restriction, or (iv) required by law or court order to be disclosed. With respect to such Proprietary Data, NASA shall:

a. Use, disclose, or reproduce such Proprietary Data only as necessary to evaluate the Proposal;
b. Safeguard such Proprietary Data from unauthorized use and disclosure;
c. Allow access to such Proprietary Data only to its employees requiring access for purposes of evaluating the Proposal;
d. Except as otherwise indicated in c., preclude disclosure outside NASA;

e. Notify its employees with access about their obligations under this announcement and ensure their compliance; and
f. Dispose of such Proprietary Data after evaluation of the Proposal has concluded.

Evaluation and Selection Process
Pre-screening: Proposals will be pre-screened for compliance to proposal requirements, including page limitations, eligibility requirements, and format. Proposals that do not conform to the standards outlined in this announcement may be declared non-compliant and rejected without further review.

NASA will evaluate each of the compliant proposals using the evaluation criteria listed above. NASA will rank the proposals according to an overall color for each of the individual proposals. If NASA determines in its discretion that due diligence discussions with a partner is needed, such discussions will be conducted via teleconferences and/or email with invited respondents that were the most highly rated. Not all highly rated proposals will require due diligence. If a teleconference is needed, the Proposer will be provided advance notice. NASA will provide the Proposer with a list of questions and/or obtain verbal clarification of information provided in their Proposal. Final proposal colors may be updated, if deemed necessary, based on the results of due diligence. At the conclusion of successful due diligence discussions, Proposers may be required to provide revised information.

After completing due diligence, NASA will present the results of the proposal evaluation to a designated NASA Selection Official. The Selection Official will consider the results of the technical evaluation as well as programmatic considerations, such as portfolio balance, proposed partnerships, and other programmatic considerations and either select or reject each of the individual proposals received. NASA reserves the right to select all, some, or none of the proposals received in response to this announcement. All Proposers will be notified of their selection status and provided feedback.

Inquiries must be submitted by email to:
Capstone@mail.nasa.gov

APPENDIX 1
Definition of Strengths and Weaknesses

Major Strength - A strength that significantly increases a proposal's suitability for selection.
Minor Strength - A strength that increases a proposal's suitability for selection, but not significantly. Multiple minor strengths together may be determined to be equivalent to a major strength.
Minor Weakness - A weakness that decreases a proposal's suitability for selection, but not significantly. For a weakness to be minor, it shall not significantly affect an appreciable portion of the proposed work or the final outcome.
Major Weakness - A weakness that significantly decreases a proposal's suitability for selection. A major weakness significantly affects an appreciable portion of the proposed work or the final outcome. Multiple minor weaknesses together may be considered a major weakness. A major weakness may be considered a fatal flaw. A fatal flaw is any single weakness or collection of weaknesses that would effectively prevent, in part or in whole, the proposed objectives from being accomplished or that otherwise may render the proposal unsuitable for consideration for selection.

APPENDIX 2

Color Ratings

	Basis for Evaluation
BLUE	A proposal/criteria of exceptional merit that significantly exceeds expectations.
GREEN	A proposal/criteria of high merit that exceeds expectations, whose positive attributes/strengths fully out-balance any negative attributes/weaknesses.
YELLOW	A proposal/criteria that meets expectations, whose positive attributes/strengths and negative attributes/weaknesses essentially balance each other.
RED	A proposal/criteria that does not meet expectations, whose negative attributes/weaknesses outweigh any positive attributes/strengths or is seriously flawed proposal/criteria having one or more major negative attributes/weaknesses and may constitute fatal flaws.