

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

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SPOCS: A NATIONWIDE OPPORTUNITY TO ENGAGE UNITED STATES UNIVERSITIES, K-12
STUDENTS, AND THE GENERAL PUBLIC IN SPACE STATION RESEARCH

Abstract

Student Payload Opportunity with Citizen Science (SPOCS) is a National Aeronautics and Space Agency (NASA)-led initiative, co-designed by Nanoracks, which provides payload integration and training, and its educational sister-company, DreamUp, which provides educational support. SPOCS has a mission to both enable university students to conduct research on the International Space Station, but also to significantly engage K-12 students and outreach to the general public.

The call for proposals for SPOCS was released on January 29, 2020, inviting United States student teams to propose microgravity research relating to two areas: bacteria resistance and sustainability research. To support students' proposal development, NASA hosted three webinars. The first provided an overview of SPOCS as well as Space Station research, the second webinar discussed bacteria resistance, and the third webinar focused on sustainability research. Letters of Intent were due on February 21, 2020, and proposals are due on March 27, 2020.

Proposals will be scored according to the following weights:

- 20 percent: Science
- 20 percent: Experimental Design
- 20 percent: Experimental Build
- 15 percent: Citizen Science Aspect
- 10 percent: Safety
- 10 percent: Outreach

With 25 percent of the proposals' scores constituting citizen science and outreach, submissions must propose strong plans to involve K-12 students, or a subset, as co-experimenters. This may include providing baseline data, sorting data, or comparing ground data to experimental data from the Space Station. Sole outreach will not be considered "Citizen Science." In addition, teams must plan to engage the general public throughout their SPOCS experience. Again, this requires a detailed and thorough plan, rather than "random activities."

This stringent requirement is based on lessons learned from similar contests launched by DreamUp and Nanoracks and in conjunction with space agencies. For example, in 2016, the German Aerospace Center (DLR) and DreamUp, working in conjunction with Nanoracks and its Space Act Agreement with NASA, launched Überflieger, a contest to engage German university students in microgravity research. A team from the University of Stuttgart, in particular, demonstrated the impact of successful outreach, through clever social media use as well as scientific presentations at conferences from build, during launch, and throughout post-flight analysis. It is expected that SPOCS teams will utilize similar strategies, ensuring

that the program's impact goes beyond the five student teams selected, but also to learners around the United States, inspiring them to pursue science, technology, engineering, and mathematics courses and careers and, ultimately, to reach for the stars.