

Q1: We started a project for detecting craters on Mars using artificial intelligence.

We were wondering if we could continue this project under the items mentioned – autonomy, operations, decision-making, event recognition?

A1: This is a mission of NASA interest, although we try to avoid purposely directing specific fields. The purpose is to engage more universities beyond those that UNP has involved in the past and allow them to get a hands-on understanding of how to design, test build, launch and operate a CubeSat. So, anything that is Mars-related or Moon-related, growing plants in space, ISRU, or anything else that has “NASA flavor,” we will be open to it.

Q2: Can you let us know what assistance is available if you have a description of what we want to do?

A2: We will come together - you bring your mission ideas, and we will run teams of professors and students through variations of presentations, exercises, and classes. The goal is to develop a thorough mission concept – taking it from an idea to the high-level requirements, feasibility studies, early design budgets, higher level analyses. At the end of the summer, you should have an early-phase preliminary design review level of development. Some idea of the hardware you want, and form factor it will fit in, but you have determined it is a feasible mission, you’ve scoped it through systems engineering process, into something realistic for a university team to complete. From a high-level mission-specific standpoint, DOD is interested in most things and NASA is interested in science.

The full UNP process is a much bigger effort, which we are hoping this can lead into. Diving straight into a full satellite build (like the full UNP process) is challenging with a lot of resources needed. Especially for teams that have never done this before, there’s a large learning curve for creating a feasible concept that has meaning. The goal of this summer is helping teams understand the systems engineering processes and develop their concept into something realistic.

Q3: Do you foresee an issue with two different PIs in different organizations within our institution?

The current PI for the summer opportunity may be in the Aerospace College. However, once the concept is fully developed and if we were to be selected for the full UNP, the PI would shift to the Engineering College.

A3: That’s not a problem at all.

While a lot of the motivation is to help teams develop their concepts, there is no tie between this program and the full UNP or CSLI. We will encourage teams to apply but there is no guarantee. As far as crossing departments, many teams have multiple co-PIs. Getting expertise from a variety of professors can be beneficial and it is certainly good to draw students from various departments.

Q4: How involved are the faculty over the summer?

A4. It varies widely. Please note that this summer program is new to all of us, and some pieces are still in development. The current vision is that we will offer all of the student exercises to the professors. Students with more professor involvement tend to do better in this process, so we encourage it.

We would love to have professors at the kickoff event at NASA Kennedy Space Center, as well as a one-day closing event before the SmallSat conference in Albuquerque. We will also offer all of these events on Zoom but in-person would be great for these two specific events. We also very much encourage participation in the full SmallSat conference.

Commented [OJCUAA1]: Was this the question? Seems somewhat nonsensical

Q5: We have two ideas for missions, one is more mature than the other. Do you have any advice?

A5: Having two ideas folded into a submission is not an issue. We are not opposed to teams arriving with multiple ideas since this effort will analyze mission concepts and determine what works best. In general, a question to ask is the relevance and mission-need. For an idea that has multiple satellites, the complexity goes very high for university teams, so we encourage a single system. For the full UNP, the feasibility within the technical proposal is part of the evaluation—but for this Mission Concept-1 the goal is to help develop these mission ideas.

Q6: Are we required to address things like facilities, equipment, and senior personnel in our proposal?

A6: This information is requested but not required.

We included those details to get a general sense of where your university is at. A PI should definitely be involved, and we would like to know of other faculty members who are interested as well as other support from the school. Having a laboratory or equipment is not a requirement, we wanted to get a base point of where you are in the process so we can better help grow your capability.

Q7: Should we have a summary project narrative and then repeat with details later?

A7: You're most welcome to have a brief summary at the top and go into details below. To submit the cover page with all of the information, there is one portion (abstract) that has a word limit. You can use that abstract in the beginning portion as a generic snapshot of what you want to accomplish and then later go into full detail throughout the proposal.

Q8: Should we have a specific section on DEI and how much this process will help our institution, or should we focus on the technical section?

A8: Addressing how this will help your university is very beneficial, because we want to help your university be more competitive. The evaluation criteria, noted in the RFP, includes university impact.

Q9: Can we have PIs from other universities join us?

A9: You can certainly partner with other universities, but the total funding per mission will not change.

Q10: How much more than \$50k can one extend the budget?

A10: For right now the funding will be in that \$50k range. The reason for the "minimum" language is that sometimes we may get additional funding. There are also funding streams that cover the student internships as opposed to the amount directly to the university.