

USC ASTE-523 -- Spring, 2025
The Design of Low-Cost, Responsive Space Missions
A Near-Term, Income-Generating, Commercial Lunar Settlement
Homework #1 -- Background Information -- Due 1/23/25

Please note:

Background information (this set of questions) should be turned in to both bravikum@usc.edu and wertz523@smad.com

All Subsequent Homework Sets should be turned in only to the grader (bravikum@usc.edu)

This is simply information that we would like to collect about your background and interests and what you would like to get out of the course.

Please provide the following background information:

1. Your name?
2. Your BS degree (where, in what, and when)?
3. Are you currently enrolled as a student somewhere?
4. Degree you're currently working on?
5. Is the school you're currently attending USC or elsewhere? If elsewhere, what school are you attending?
6. Full-time student or employed?
7. If employed, where and what do you do?
8. What are you most interested in about the lunar settlement?
9. Would you like to spend a few months living on the Moon? If so, what would you like to do there?
10. Is there anything specific that you would like to get out of this course?
11. NASA has an ongoing competition called RASC-AL. A short summary is below. Would you like to join the RASC-AL activity? If a report is submitted for the competition, that can count as your final report for this class.
12. There is a possibility of starting up a student program to create a model of a lunar enclosure out of simulated lunar regolith. If that occurs, would you be interested in joining? This would not be a part of the course.
13. Several participants have asked about contacting others in the class to exchange notes and ideas. If you would like to be on the list of participants distributed to the class, please give us the E-mail address that you would like to have on the list. If you don't want to be on the list, please say so. Thanks.

Note that your 3 class participation questions are due by Saturday night and should also be sent to both bravikum@usc.edu and wertz523@smad.com.

NASA RASC-AL competition: Creating an International Lunar University and Living and Working on the Moon in the Near Term

NASA RASC-AL Competition

NASA's RASC-AL (Revolutionary Aerospace Systems Concepts Academic Linkage) program is sponsoring a graduate/undergraduate student competition that is now underway and requires a report to be submitted by Feb. 24, 2025. One of the three current competition topics is "Sustained Lunar Evolution – An Inspirational Moment." The project summary below has been submitted for this year's competition. The USC team will work on background information at present and will dive in more strongly at the start of the Lunar Colonization course in the Spring, 2025, semester. (You don't have to take the course to join the competition or join the competition to take the course.). If you would like more information or would like to join the competition, please send an email to Julie Jackson at jjackson@smad.com or call 310-539-2306.

USC Project Summary

Research suggests that we should be able to create a profitable, income-generating lunar settlement and an international lunar university that would allow graduate students, faculty, entrepreneurs, and tourists to live, work, and vacation on the Moon in the next 5 to 10 years at moderate cost. This needs to be a commercial activity – selling products, vacations, real estate, sponsored research, and other commercial elements and activities and making a rather large profit. Of course, that profit comes in part from advertising on the Earth for the product or information that you are developing on the Moon. Unfortunately, traditional astronautics professionals know zero (or less) about marketing and commercial activity.

Clearly we know how to land people on the Moon, but it has been more than 50 years since we have done so. Therefore, it will also clearly require significant changes to make living and working on the Moon and the International Lunar University (ILU) happen in the near term. It is our intent to build on the work of NASA, the International Space University (ISU), and others to show how this can happen. This includes the construction of a near-term large lunar structure to house this activity.

The goal of the research project is fivefold:

1. Summarize the evidence that the colony can be achieved in the near term
2. Outline the potential construction of the first lunar structure and colony
3. Create a plan to build and test a sample lunar enclosure out of simulated lunar regolith
4. Summarize the goals of the first lunar colony and the ILU (on the Moon and the Earth)
5. Outline the preliminary goals and prospects of a long-term lunar colony and ILU