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Lecture: T/Th 3:30 – 4:45 am, ECCR 135  
Office Hours: T 9:00 am – 10:00 am, ECAE 115

### **1.1 Overview**

Extravehicular activity (EVA) is critical for human spaceflight to achieve tasks such as habitat construction, hardware repair, and planetary exploration. These activities are complex, requiring substantial preparation to be executed safely and successfully. EVA has enabled us to accomplish some of the greatest feats of the space program, such as the Apollo moonwalks and Hubble Space Telescope repair missions. Despite its many advantages, these activities are not without cost to the astronauts who perform EVA. Much of the technology used to perform EVA is based on heritage designs and proven technology, enabling an exceptionally high safety record despite the potential risks associated with EVA. As we transition back to EVA on the surface of celestial bodies, such as the Moon or Mars, advancements in EVA hardware and new paradigms in operations will be required.

This course is designed to expose students to all aspects of EVA (see 3. Topics Covered). Although not a traditional academic topic, this course will draw upon the academic elements of design, engineering, technology development, physiology, operations, human-machine interaction, and geology to provide an interdisciplinary look at this topic. The primary learning objectives are:

- Develop a historical perspective on EVA to enable an understanding of current capabilities and technologies.
- Distinguish between the requirements, needs, and challenges for performing EVA in all anticipated environment regimes.
- Create solutions to address current needs in EVA.

### **2.1 Assessment**

Table 1 outlines the material by which student performance will be assessed. The primary evaluation component of the course will be a team-based design project. Distribution of the project assessment is shown in Table 2. This course will have 2 exams, but we will not use the time-slot assigned during finals week. Additional details on timeline and due dates can be found in the course schedule document.

Exams (2)	30%
Homework (3)	30%
Design Project	30%
In-Class EVA Presentation	5%
In-Class Participation	5%

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Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, if you need accommodations for an observance, please let me know at least 2 weeks prior to the date and I will work with you to come up with a reasonable solution.

academic materials, clicker fraud, resubmission, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code Council ([honor@colorado.edu](mailto:honor@colorado.edu); 303-735-2273). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code Council as well as academic sanctions from the faculty member. Additional information regarding the academic integrity policy can be found at the [Honor Code Office website](#)