

## ASEN 6316: Extravehicular Activity

Allison Anderson

AERO N303

303 492 8511

[apanders@colorado.edu](mailto:apanders@colorado.edu)

Lecture: T/Th 2:30 – 3:45 pm, AERO N240

Office Hours: M 8:00-9:00, W 4:00 – 5:00 pm

Zoom: ; pw: 1969. The same zoom room will be used for both Lecture and Office Hours.

### ***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.
- Investigate solutions to address current needs in EVA.

This course will be offered in person, and through virtual formats (synchronously or asynchronously) this semester. Lectures will be recorded via lecture capture, but if



- Nicholas de Monchaux, Spacesuit: Fashioning Apollo. MIT Press, 2011.
- Thomas J. Kelly, Moon Lander. Smithsonian Books, 2001.
- Dave Mindell, Digital Apollo. MIT Press, 2008

## 5. Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

## 6. Requirements for COVID-19

There will be no in-person elements associated with this class. As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements, and public health orders in place to reduce the risk of spreading infectious disease. For more information, see the policies on [COVID-19 Health and Safety](#) and [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please see the “Accommodation for Disabilities” statement on this syllabus.

All students who are new to campus must complete the [COVID-19 Student Health and Expectations Course](#). Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home. In this class, if you are sick or quarantined, please let me know. The aforementioned accommodations should enable you to successfully complete all course deliverables, but I appreciate you communicating your situation early with me.

## 7. Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or \_\_\_\_\_

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absence of such updates, the name that appears on the class roster is the student's legal name.

#### 9. Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code ([honor@colorado.edu](mailto:honor@colorado.edu)); 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the [Honor Code Office website](#).

#### 10. Sexual Misconduct, Disciplinary Sanctions (Adhering) Hosvars

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