

# Syllabus

## ASEN 3036 Introduction to Human Space Flight

This course introduces students to the challenges and rewards of human space flight. Historical and current space programs and spacecraft will be discussed, along with the motivation, cost and rationale for human space exploration. An overview of the space environment will be presented in the context of what is needed to sustain human life and health, including physiological and psychological concerns, in a space habitat. Current events including space research will also be highlighted. Students will learn about the astronaut selection and training processes. Finally, anomalies, mission operations and future program directions, with some insight into career planning, will be covered. The emphasis on learning will be to understand the way humans approach the exploration of space and how such a bold endeavor affects us individually and as humans. Students will be encouraged to explore through readings and research different perspectives of spaceflight to include political, scientific, historical, economic, cultural, and social as well as to consider the impact on our future.

**Instructor:** Jim Voss, Former Astronaut, Scholar in Residence, Roubos Chair

Email: \_\_\_\_\_

Office: Engineering Center, ECAE 101

**Prerequisites:** \_\_\_\_\_, open to all majors at any level

**Space Minor:** This class is one of the elective courses for the CU Space Minor that is open to any undergraduate student from any major. For more information on the CU Space Minor see: <http://www.colorado.edu/spaceminor/learn-more>

**Textbook:** Harrison, A., “

- Jones, T., \_\_\_\_\_, Harper Collins, New York, NY, 2006
- Mullane, M., \_\_\_\_\_, Scribner, New York, NY, 2006
- Any science fiction by H.G. Wells, Jules Verne, Isaac Asimov, Robert Heinlein, Arthur C. Clark

**Essay / Project / Case Study:**

Students will research and write about topics associated with human spaceflight and the social, political, and technical implications. Essays or case study format is used to explore complex human spaceflight issues to extend the students knowledge and allow detailed contextual analysis of specific topics or events. Students will be asked to write about current topics



## **ASEN 3036 Detailed Lecture Topics:**

### Introduction and Why space? (1 hour)

- Administration for the class, background information
- Philosophical perspective
- Reasons for going to space
- NASA and our national space policy

### History of human spaceflight (1 hour)

- People
- Programs
- Spacecraft

### Space environment (1 hours)

- Hazards
- Space operational medicine
- Countermeasures

### Physiological effects of spaceflight (1 hour)

- Human response
- Long term health
- Biomedical aspects

### Psychological and sociological aspects of human spaceflight (3 hours)

- Crew interactions and international crew aspec

Crew training  
Extra Vehicular Activity (1 hour)  
    Physiology of space walking  
    Space suit design  
Robotics (1 hour)  
    Human interface  
    Autonomous vs. controlled