Course Description

This course provides a fundamental understanding of the human factors specific to space flight that must be taken into consideration in the design of spacecraft which incorporate human-in-the-loop control. Students will be taught how to design human factors experiments utilizing task analysis and user testing with quantitative evaluation metrics to develop a safe and high-performing operational space system.

Students will be responsible for creating a human factors test report to document the results of a semester-long design project.

Topics

- Human needs, capabilities, and limitations
- Task analysis and functional allocation
- Design of human factors experiments
- Situation awareness
- Workload
- Usability
- Space vehicle displays and controls
- Piloted spacecraft handling qualities
- Human error analysis and prevention
- Anthropometrics and astronaut safety
- Human supervisory control of automated systems

Prerequisites

- None

Required reading materials

- Lecture notes and publically available reading materials will be provided throughout the course.

Supplementary reading materials


Instructor

- Prof. Garrett Reisman, ASTE – gereisma@usc.edu  www.garrettreisman.com