ASTE 562
Spacecraft Life Support Systems

Course Description

This course provides a fundamental understanding of the life support requirements that must be met for human spacecraft. After outlining the biological needs of humans in the space environment, students will be taught how to design and analyze the necessary systems to keep humans healthy during spaceflight activities.

Topics

- Living in the Space Environment
  - Including hazards to human health and performance
- Human environmental control and life support systems
  - Pressure control systems
  - Atmospheric revitalization systems
  - Thermal control systems
  - Water supply and recycling systems
  - Waste management systems
  - Spacesuit systems
- Extra-vehicular and Intra-vehicular Activity Space Suits
- Habitability and habitat design considerations
- Astronaut safety

Prerequisites

- ASTE 524

Required reading materials

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

Supplementary reading materials

- *Principles of Clinical Medicine for Space Flight,* Michael R. Barratt and Sam L. Pool, Ed., Springer, 2008, ISBN: 978-0-387-98842-9
- *Space Physiology,* Jay C. Buckey, Oxford University Press, 2006, ISBN 978-0195137255
- *Spaceflight Life Support and Biospherics*, Peter Eckart, Microcosm Press; Dordrecht ; Boston : Kluwer Academic, 1996, ISBN : 0792338898
- *The Space Environment and its Effects on Space Systems*, Pisacane, V. L., Reston, American Institute of Aeronautics and Astronautics, 2008.

Instructor

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