

AEROSP 495: CubeSat Flight Lab F22

LEARN TO DESIGN, BUILD, TEST, FLY AND OPERATE A PROTOTYPE SPACECRAFT.

Part 2 will be in W23.

Instructor: James Cutler

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Time: T/Th 1:30 pm–3:30 pm

Place: FXB 1012 (Tentative)



Objectives

In this class, students will operate, launch, test, build, and design an industry standard, prototype spacecraft, called a CubeSat. Students will operate ground communication stations to communicate with space missions, schedule commands, task the satellites, and analyze space-based data. The course includes an overview of best-practices in testing to characterize satellite performance and survivability in the space environment (vacuum, vibration, functional). Fabrication methods will be taught that include methods for clean room assembly of space-rated components. Design methodologies and program management techniques will be core aspects of the class where students learn to develop mission goals, derive requirements, conceive of architectures, create concept of operations, and simulate system performance. This course will develop the system engineering skills of students as they create and document complex space systems and work in intense team environments.

Prerequisites:

Hands on systems engineering, hardware, software experience through AEROSP 205 or equivalent class. Instrumentation course such as AEROSP 305 or EECS 215/216. Recommended space system courses such as SPACE 310 or AEROSP 483. All majors encouraged.

Students will operate satellite tracking systems to communicate with spacecraft (Peach Mountain Operations Facility).

F22 Notes:

F22 will include high altitude balloon flights and operations of orbiting spacecraft. A second class will be offered in W23 to continue space flight hardware work. Launch date to orbit is not yet determined.

