

ASEN 5018/6028: Graduate Projects

Location and Time:

Lecture (Section 800): AERO 111, Tuesday, 4:00 – 4:50 pm

Lab: Varies by section. Check classes.colorado.edu.

Course Coordinator:

Robert Marshall: robert.marshall@colorado.edu, AERO 419

Course Teaching Facilitator:

Shubhakriti Gupta: shubhakriti.gupta@colorado.edu

Lab Sections:

Section 801: Stuart Tozer; stuart.tozer@colorado.edu. MW 8:30 – 10:20 am

Section 802: Zoltan Sternovsky; zoltan.sternovsky@colorado.edu. MW 8:30 – 10:20 am

Section 803: Jade Morton; jade.morton@colorado.edu. MW 8:30 – 10:20 am

Section 804: Scott Palo; scott.palo@colorado.edu. MW 3:00 – 4:50 am

Office Hours:

Will be posted on Canvas.

Some Important Dates: ([Full List](#))

Sept. 4, 2025, 11:59 pm: Last Day to Drop a Class Without Penalty

Sept. 18, 2025, 11:59 pm: Last Day to Withdraw with 40% Tuition Assessment & W Grade

October 27, 2025, 11:59 pm: Last Day for Class Withdrawal (100% tuition, W Grade)

1 Overview

Graduate Projects is a two-semester course sequence designed to expose graduate students to aerospace engineering projects through project management, systems engineering, and subsystem-level design and testing. Students work on complex, hands-on projects related to the focus areas in the Aerospace Engineering Sciences department: Autonomous Systems; Astrodynamics and Satellite Navigation Systems; Bioastronautics; Fluids, Structures, and Materials; and Remote Sensing, Earth and Space Sciences. Students completing this course series will find themselves better prepared to engage in *and lead* the type of project work and team dynamics they will encounter in government, national labs, academia, and industry.

Graduate Projects is an option for MS students who choose to complete two semesters of work on an aerospace engineering project rather than write a thesis or conduct Independent Study to satisfy graduation requirements, and for PhD students who value this type of project experience to meet their coursework requirements.

2 Course Objectives

The goal of Graduate Projects is for students to develop skills and knowledge in the following areas:

- Project Management and Systems Engineering
- Working on complex, interdisciplinary teams
- Detailed requirements definition and design

- Formal presentations and design reviews
- Build, test and verification of an aerospace system
- Entrepreneurial possibilities for starting a company
- Intellectual property and technology transfer

Note that not all topics may be covered in ASEN 5018; some topics may be covered in 6028, depending on the Fall / Spring breakdown of lecture topics and the semesters in which students enroll.

3 Prerequisites & Enrollment

Prerequisite: Permission of lab section instructor.

Recommended: Completion of, or current enrollment in, one of the following courses as related to the specific lab project of interest is highly recommended: ASEN 5158 Space Habitat Design, ASEN 5148 Spacecraft Design, ASEN 4138 Aircraft Design.

Completion of, or current enrollment in, ASEN 5188 Space Systems Engineering is also recommended.

Enrollment: Enrollment in Graduate Projects I (ASEN 5018) is managed by the AES department enrollment team at aes-enrollment-help@colorado.edu. Students should email the project advisor with their interest in the project, and cc aes-enrollment-help@colorado.edu. Once permission is granted by the project advisor, the enrollment team will complete the enrollment process for the student.

4 Course Structure

Lecture Section: The lecture section (800) is required for all students. Lectures occur once per week on Tuesdays at 4 pm. Lectures will cover topics of project management, systems engineering, and much more, and include a series of guest lectures and in-class activities.

The lecture component of the course is led by the Course Coordinator. The lecture component includes graded components that contribute to 15% of the overall grade in the course (see grading breakdown below).

Lab Section: Most of students' time in this course will go to the lab section (801–804). Each student should be enrolled in one lab section. Lab sections are led by Project Advisors. Lab sections meet twice weekly at times and locations listed on Canvas. The lab section involves team meetings; regular project work, as defined by the Project Advisor and distributed amongst the team; graded presentations twice each semester; final documentation submitted at the end of the semester; and other components as determined by the Project Advisor.

5 Reading Materials

Required reading materials for this course are:

- Curtis R. Cook, *Just Enough Project Management*, McGraw-Hill, 2005
- The NASA Systems Engineering Handbook, 2024
- The NASA Risk Management Handbook, 2024

The two NASA documents are free PDFs that will be posted to Canvas. Hard copies can be ordered from NASA for a nominal fee.

The Course Coordinator may assign other reading material throughout the semester and necessary documents will be posted to Canvas.

6 Logistics

1. **Office Hours:** Office hours will be posted on Canvas for the Course Coordinator. Office hours for section advisors will be presented in section meetings.
2. **Assignments:** Assignments for the Lecture section (800) will be posted on Canvas. Completed work should be uploaded to the linked Gradescope site. Assignments will receive full credit if submitted on time; a 15% penalty per day will be imposed for late submissions.
3. **Collaboration:** The course includes a number of individual and team graded components. Project Advisors or the Course Coordinator will specify whether student can collaborate on individual components.
4. **Communications:** Please use Canvas for course-related non-private questions. Project teams may set up their own communications channels using Slack or other tools. For questions / issues of a personal nature, please reach out directly by email to the Project Advisors or Course Coordinator as needed.
5. **Section Requirements:** Each project section will have different requirements and expectations set by the Project Advisor. The Project Advisor should provide a separate syllabus for that section, or delineate requirements and expectations during the first week of classes.

7 Grading

Grading will be based on the following course components:

Lecture Section (800)	Fraction (15% total)
In-class Assignment #1	4%
In-class Assignment #2	4%
Reading Quiz	3%
Lecture Section Presentations	4%
Project Section (801–804)	Fraction (85% total)
Participation / Timesheets	10%
Presentations	25%
Peer Reviews	10%
Individual Reports	10%
Project Documentation	30%
Total	100%

7.1 Lecture Section Grading

- **In-class Activities:** There will be two in-class activities each semester. These are designed to be conducted in small teams, which do not need to correspond with project teams. These activities can be completed within the lecture period and submitted on Canvas.
- **Reading Quiz:** A single graded quiz will be conducted on Canvas in the second half of the semester to assess comprehension of the assigned reading material.
- **Lecture Section Presentations:** Project teams will give short (10 minute) presentations on their projects at the end of the semester. These presentations are intended to be at a high-level to show the team's progress and celebrate their achievements during the semester.

7.2 Project Section Grading

- **Participation / Timesheets:** Students will be required to submit timesheets each week to account for their hours working on the project. Timesheets are meant to emulate the common practice in industry and government.
- **Project Section Presentations:** Students will give graded presentations in their project sections twice each semester. These may align with project reviews, or they may simply comprise status updates.
- **Peer Reviews:** Students will submit reviews of their project team members' performance twice each semester. Peer reviews are intended to provide valuable constructive feedback to team members.
- **Individual Reports:** At the start of the semester, students will complete a document outlining their goals for the semester. At the end of the semester, an individual report will document their accomplishments and assess their progress towards those goals.
- **Documentation:** Final documentation is the key deliverable for any project. Specific document requirements and expectations will be determined by the Project Advisor.

8 University Policies

8.1 Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure 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, marital status, political affiliation, or political philosophy.

For more information, see the [classroom behavior policy](#), the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

8.2 Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

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 DSinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

If you have a temporary illness, injury or required medical isolation for which you require adjustment, please notify the instructor as soon as possible so that appropriate accommodations can be made. If you are sick or require isolation please notify the instructor of your absence from in-person activities and continue in a completely remote mode, as you are able, until you are allowed or able to return to campus. Please note that for health privacy reasons you are not required to disclose to the instructor the nature of your illness or condition, however you are welcome to share information you feel necessary to protect the health and safety of others within the course.

8.3 Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and

pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

8.4 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 Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), 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 Student Conduct & Conflict Resolution: studentconduct@colorado.edu. Students found responsible for violating the [Honor Code](#) will be assigned resolution outcomes from the Student Conduct & Conflict Resolution as well as be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

8.5 Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner abuse (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who have been subjected to misconduct can contact OIEC at 303-492-2127 or email CUreport@colorado.edu. Information about university policies, [reporting options](#), and [support resources](#) including confidential services can be found on the [OIEC website](#).

Please know that faculty and graduate instructors must inform OIEC when they are made aware of incidents related to these policies regardless of when or where something occurred. This is to ensure that individuals impacted receive outreach from OIEC about resolution options and support resources. To learn more about reporting and support for a variety of concerns, visit the [Don't Ignore It](#) page.

8.6 Religious Accommodations

Campus policy requires faculty to provide reasonable accommodations for students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. Please communicate the need for a religious accommodation in a timely manner. In this class, students are expected to notify the instructor at least two weeks in advance of the conflict to request special accommodation. If possible, the due dates for homework will be adjusted, and quizzes or exams rescheduled to an alternate date. Students should be prepared for due dates or quiz / exam dates to fall on an *earlier* date than the scheduled date, if that turns out to be the most practical solution.

See the [campus policy regarding religious observances](#) for full details.

8.7 Mental Health and Wellness

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact [Counseling and Psychiatric Services \(CAPS\)](#) located in C4C or call (303) 492-2277, 24/7.

Free and unlimited telehealth is also available through [Academic Live Care](#). The Academic Live Care site also provides information about additional wellness services on campus that are available to students.

8.8 CU Community of Care

CU Boulder is committed to a community of care in which students are supported by faculty and staff throughout their college journey. You don't have to face academic challenges alone – CU and the college are here to help you learn and succeed in your coursework and campus life. Part of this community of care is your connection to faculty and staff across campus. Our college promotes and hopes you will connect with faculty or staff who may reach out during your educational journey at CU.

8.9 Course Alerts

This course participates in the CU Course Alert process to help connect you with support resources and identify your barriers to success (colorado.edu/engineering-advising/coursealerts). If you receive a course alert for this class, please reach out to schedule a meeting with the instructor to discuss resources and plans to help get you on track.