

ASEN 5018/6028: Graduate Projects
Department of Aerospace Engineering Sciences
Syllabus, Spring 2022

Course Coordinator: Dr. Nicholas Rainville / AERO 219 / 303 492-7814
nicholas.rainville@colorado.edu

Course Teaching Assistant: Kyle Johnson kyle.johnson-5@colorado.edu

Lecture Section: ASEN 5018–800 / 6028-800
Monday 17:30 – 18:20, AERO 120

Lab Section: ASEN 5018-807 / 6028-807, Human Spacecraft Design Section
Section Adviser: Col. Jim Voss / AERO 224L / jim.voss@colorado.edu
Tuesday, Thursday 11:30 – 13:20

Lab Section: ASEN 5018–802 / 6028-802, Satellite Timing System
Section Adviser: Prof. Penina Axelrad / AERO403 / penina.axelrad@colorado.edu
Tuesday, Thursday 9:00 – 10:50

Lab Section: ASEN 5018–803 / 6028-803, Cubesats for Space Science
Section Adviser: Prof. Bob Marshall / AERO 224L / robert.marshall@colorado.edu
Monday, Wednesday 13:00 – 14:50

Lab Section: ASEN 5018–808 / 6028-808, Maxwell and SWARM-EX Cubesats
Section Adviser: Prof. Scott Palo / AERO N250 / palo@colorado.edu
Monday, Wednesday 13:00 – 14:50

Lab Section: ASEN 5018–806 / 6028-806, ADCS for Astrophysics Applications
Section Adviser: Dr. Dan Kubitschek /Remote/daniel.kubitschek@lasp.colorado.edu
Tuesday, Thursday 15:00 – 16:50

Course Text: Curtis R. Cook, Just Enough Project Management, McGraw-Hill. 2005

Course Prerequisite: Permission of lab section instructor. Completion of, or current enrollment in, one of the following courses as related to the specific lab project of interest is encouraged: 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. Non-AES student enrollment is encouraged. Concurrent enrollment in ASEN 4018/28, Senior Design, is discouraged, but may be allowed with consent of the section instructor.

Course Purpose: The Graduate Projects two-semester course sequence is designed to expose graduate students to engineering project work through project management, systems engineering, and subsystem-level design and testing. Students will work on complex, hands-on projects related to the focus areas in the aerospace engineering sciences department: Aerospace

Engineering Systems, Astrodynamics and Satellite Navigation Systems, Bioastronautics, and Remote Sensing, Earth and Space Sciences. Students completing this course series will be better prepared for the type of project work and team dynamics they will encounter in government and industry.

Course Objectives: Students will participate in and be exposed to:

Project Management, Systems Engineering

- Formal reviews
- Project documentation

Technical contribution to complex engineering project

- Build, Test, Verify

Leadership (ASEN 6028)

- Technical Leadership, SE, or PM roles

Technical documentation

Presentation/Public speaking skills

Course Grading: The lab section advisor and course coordinator will split grading responsibilities as described below.

The lab section professor will determine 85% of the student's grade in the following areas:

- 1) Presentations - clear and concise content and delivery
- 2) Documentation - quality engineering writing, delivered in accordance with deadlines
- 3) Peer evaluations
- 4) Faculty evaluation
- 5) Section Participation

**more detailed grading rubrics for each section will be provided by the project advisor*

The course coordinator will determine 15% of the student's grade in the following areas:

- 1) Participation (5%)
 - Documentation/Timecard submissions (3%)
 - Attendance (2%)
- 2) Public Speaking Evaluation (5%)
- 3) Quiz – **ASEN 5018** (5%)
- 3) Peer Evaluation Feedback Quality – **ASEN 6028** (5%)

Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail 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, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Conduct & Conflict Resolution policies](#).

Requirements for COVID-19

As a matter of public health and safety, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policy on [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

CU Boulder currently requires masks in classrooms and laboratories regardless of vaccination status. This requirement is a precaution to supplement CU Boulder’s COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.

If you feel ill and think you might have COVID-19, if you have tested positive for COVID-19, or if you are unvaccinated or partially vaccinated and have been in close contact with someone who has COVID-19, you should stay home and follow the further guidance of the [Public Health Office](#) (contacttracing@colorado.edu). If you are fully vaccinated and have been in close contact with someone who has COVID-19, you do not need to stay home; rather, you should self-monitor for symptoms and follow the further guidance of the [Public Health Office](#) (contacttracing@colorado.edu). In this class, if you are sick or quarantined, notify the course coordinator (nicholas.rainville@colorado.edu) that you will be absent. You do **not** need to state the nature of your illness or provide a doctor’s note, but you are required to provide notification within 5 days of the lecture or project section absence.

Accommodation for Disabilities

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.

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.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: plagiarism, 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 the Honor Code (honor@colorado.edu; 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the [Honor Code website](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. The university will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against members of our community.

Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or email cureport@colorado.edu. Information about university policies, [reporting options](#), and the support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options. To learn more about reporting and support options for a variety of concerns, visit [Don't Ignore It](#).

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, you must let the instructors know of any such conflicts within the first two weeks of the semester so that we can work with you to make reasonable arrangements.

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

