

ASEN 5018/6028: Graduate Projects Syllabus
Ann and H.J. Smead Aerospace Engineering Sciences
Spring 2023

Course Coordinator: Chris Koehler / AERO 219 / aesgraduateprojects@colorado.edu
Teaching Assistant: Aneesh Balla Aneesh.Balla@colorado.edu

Lecture Section: ASEN 5018–800 / 6028-800 / AERO 111
Monday 4:30 – 5:20 PM MT

Lab Section: ASEN 5018–802 / 6028-802, ADCS for Astrophysics Applications
Section Adviser: Mr. Brian Marotta / AERO 250 / Zoom
/ Brian.Marotta@lasp.colorado.edu Tuesday, Thursday 3:00 – 4:50 PM MT

Lab Section: ASEN 5018-803 / 6028-803, Human Spaceflight
Section Adviser: Col. Jim Voss / AERO N232 / jim.voss@colorado.edu
Tuesday, Thursday 11:30 AM – 1:20 PM MT

Lab Section: ASEN 5018–804 / 6028-804, CubeSats
Section Adviser: Prof. Scott Palo / AERO 114 / palo@colorado.edu
Monday, Wednesday 1:00 – 2:50 PM MT

Lab Section: ASEN 5018–805 / 6028-805, FLARE (Space Drop Sonde)
Section Adviser: Dr. Tomoko Matsuo / AERO 302 / tomoko.matsuo@colorado.edu
Tuesday, Thursday 11:30 AM – 1:20 PM MT

Lab Section: ASEN 5018–806 / 6028-806, HERD (ECLSS)
Section Adviser: Dr. Stuart Tozer / AERO N250 / Stuart.Tozer@Colorado.edu
Monday, Wednesday 9:00 – 10:50 AM MT

Lab Section: ASEN 5018–807 / 6028-807, SURGE (UAV-Based GNSS Remote Sensing)
Section Adviser: Dr. Jade Morton / AERO N250 / jade.morton@Colorado.edu
Tuesday, Thursday 3:00 - 4:50 PM MT

Course Text (ASEN 5018 Only): Curtis R. Cook, Just Enough Project Management, McGraw-Hill. 2004

Course Text (ASEN 6028 Only): Gary Keller, The ONE Thing: The Surprisingly Simple Truth About Extraordinary Results, Bard Press, 2013

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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 course is a two-semester sequence designed to expose graduate students to project management and systems engineering disciplines while working on a complex aerospace engineering project as part of a project team. This engineering project work will include project management, systems engineering, and subsystem-level design, build, and testing. Hands-on projects are 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 sequence will be better prepared for the many types of project work and team dynamics they will encounter in government and industry career positions.

Course Objectives: Students will participate in and engage in the following five objectives:

1. Project Management and Systems Engineering
 2. Formal presentations, design reviews, and project documentation
 3. Hands-on contribution to complex engineering project
 - a. Design, Build, Test, and Verify
 4. Leadership and skill development
 - a. Technical Leadership, SE, or PM roles
 - b. Presentation/Public speaking skills
 5. Career exploration in academia, industry, government, and entrepreneurial opportunities
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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*

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

- 1) Participation (5%)
 - Documentation
 - Time sheet submissions
 - Attendance
- 2) Public Speaking Evaluation (6%)
 - Project Presentation
 - Spring Symposium
 - End of Semester Video
- 3) Book Quiz and Other (4%)

Additional Lecture Section Details: The lecture section (800) will consist of lectures from both the coordinator and guests, project presentations, project interaction activities, and project presentations. Each student is expected to participate in the lecture each week and the activities in (and outside) the classroom. For Spring 2023 this includes the optional recruiting event on March 15, 2023 and the required Aerospace department research symposium on April 21, 2023. The coordinator strives to make each lecture applicable and valuable to both the student and the project that student works on, however this is not possible for every student all the time.

Attendance Policy: Attendance is required for Lecture Section (800) and lab sections (801 - 808). Any correspondence concerning attendance should be sent to aesgraduateprojects@colorado.edu AND your project advisor. If you have questions or concerns about the attendance policy, please contact Chris Koehler. If you are sick and are unable to attend the live lecture, send an email stating that you are sick before class time in order to be excused. You DO NOT need to include details as to your illness in your email. Emails about sick absences received after the missed class will not be accepted. Absences related to official CU programs (athletics, clubs, marching band, ROTC, etc.) will be excused as long as you provide Chris a letter from that organization, including your name and class dates that will be missed, two weeks prior to the absence. Other absences (e.g. family emergency, jury duty, car accidents, etc.) will be excused on a case by case basis as long as an email is received with sufficient information. Examples of absences that will not be excused are but not limited to: club participation, work schedule, and/or busy with another class. Students missing two or more lectures in a row are recommended to seek assistance from Student Support & Case Management at <https://www.colorado.edu/sscm> for support in developing a plan. In all cases, students missing lecture and project meetings, shall also communicate these absences (not necessarily the reasons for the absences) with their team.

University-wide Syllabus Statements **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 [classroom behavior](#) policy, the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

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. CU Boulder currently requires COVID-19 vaccination and boosters for all faculty, staff and students. Students, faculty and staff must upload proof of vaccination and boosters or file for an exemption based on medical, ethical or moral grounds through the MyCUHealth portal.

The CU Boulder campus is currently mask-optional. However, if public health conditions change and masks are again required in classrooms, students who fail to adhere to masking 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.

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).

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.

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, 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 (honor@colorado.edu); 303-492-5550). 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. 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. University policy prohibits sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, protected-class discrimination and harassment, and related retaliation by or against members of our community on- and off-campus. These behaviors harm individuals and our community. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who believe they 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 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 any issues related to these policies regardless of when or where they occurred to ensure that individuals impacted receive information about their rights, support resources, and resolution 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, *if you have a religious obligation, please notify me via email of your schedule conflict at least two weeks before the obligation.* See the [campus policy regarding religious observances](#) for full details.

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.