

Prerequisites: APPM 1360 & PHYS 1110 or equivalent; CSCI 1300 or equivalent.

Corequisites: ASEN 2012; APPM 2350 or equivalent.

Course Objectives: Introduce the fundamental analytical tools for statics and structural analysis in the context of the physics of aerospace materials. Topics include force/moment equilibrium, truss analysis, beam theory, stress and strain, stiffness and strength of material, and aerospace structural design.

Major Course Topics

1. Introduction to basic concepts of structures and materials
2. Forces, moments, equilibrium
3. Internal loads, distributed loads
4. Stress and strain
5. Stiffness, strength, and failure of materials
6. Truss analysis, method of sections, method of joints
7. Beam analysis, shear force and bending moment diagrams
8. Centroids and moments of inertia
9. Deformation in bending, bending stress
10. Shear stress in beams

Exam dates:

Exam 1 (2/15/2024)

Exam 2 (3/14/2024)

Exam 3 (4/18/2024)

Final Exam

Since many of the topics covered in the first half of the course (statics) are directly applicable to what is covered in the second half (solid mechanics), the final exam is comprehensive. As we near the end of the semester, more details on specific exam topics will be given.

The final exam will take place during the university-scheduled final exam time, which is Saturday, May 4th, from 1:30 pm – 4:00 pm. Please mark this date on your calendars and plan your winter travels accordingly.

emergencies, and other reasons that prevent you from submitting a homework assignment. In situations where you miss submitting homework assignments more than twice, please, contact the instructor.

- Exams

- No makeup exams are given in this class. Three midterm exams are given during the semester, and the lowest exam score will be dropped. For example, if a student earns a score of 90% on Exam 1, 77% on Exam 2, and 81% on Exam 3, the grades of 90% and 81% are used in the computation of the overall course grade. In general, we will use this flexibility to allow for situations where students cannot take an exam due to an unavoidable schedule conflict or cannot take an exam due to illness or other emergency situations occurring on the exam date. If you miss more than one exam, please contact the instructor. If you have a schedule conflict with the final exam, please notify the instructor as early as possible, so that an appropriate course of action can be taken.

Regrade requests must be submitted to the instructor in writing within one week of the grade posting to Canvas. Submit a single pdf document assignment on Canvas with your original work, your hand-written CORRECT solution to the problem in question, and a page stating the problem number, grading issue, and what you believe the correct grade should be.

If you qualify for accommodations because of a disability, you will receive accommodations as determined by Disability Services. If you have received an email with accommodations instructions, there is no need to email us. We will receive the notifications automatically and contact you about how we provide accommodation. See also note on *Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation* below.

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, political affiliation, or political philosophy.

For more information, see the [classroom behavior policy](#), the

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:
honor@colorado.edu

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.