COE 2001: Statics, Summer 2025
GT Europe
Preliminary Syllabus (Assignments subject to change)

Instructor: Dr. David "Alpha" Smith
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Textbook: Meriam, J.L., Kraige, L.G., and Bolton, J.N., *Engineering Mechanics: Statics, 9th Edition*, Wiley, 2018. **You will need the WileyPLUS version of this resource**

Support Videos: Coursera MOOCs: Whiteman, W., *Introduction to Engineering Mechanics* and *Applications in Engineering Mechanics*. Viewable at www.coursera.org.

Prerequisites: MATH 1552 (minimum C), PHYS 2211 (minimum C)

Course Description: This is the class where you learn about static equilibrium of rigid bodies and structures in 2D and 3D. This is also one of the first classes where you get a chance to apply math and physics to engineering problems.

Course Objectives: You will be able to determine the forces and moments in static structures.

Topics

    Welcome, Course overview, Introduction, Static Equilibrium
    1D/2D Statics of Particles, Vectors, Free Body Diagrams
    Rigid Bodies in 2D, Line of Action, Concurrent Forces
    Moments and Couples in 2D, Static Equilibrium of a 2D Rigid Body
    Resultant Forces and Moments in 2D, Static Equivalence, Components
    Statically Determinate Structures
    Plane Trusses (joints)
    Plane Trusses (sections), Planar Frames and Machines
    Distributed Forces, Centroids
    3D Static Equilibrium, 3D Trusses
    3D Frames and Machines
    Internal Forces and Moments, Friction

Communication

    Communications related to this course will be sent via *Canvas*. Make sure that your notifications are configured so that it reaches you. I will also set up a *Piazza* discussion board so that questions can be posted and answered publicly.

Preparation, Attendance, and Participation

Class preparation, attendance, and participation are essential for you to learn the material. **You should expect pre-class questions for each class day.** These will be completed via the *Canvas* courseware system and will be due by the start of each class. Because these are specific to each class, they may not be submitted late. The answers to the pre-class questions (PCQ's) will not be graded for accuracy, but your **participation** in completing the PCQ's will be part of your grade. You may miss up to three (3) PCQ's with no penalty.

Skills Homeworks, Problem Sets, and Design Problems

Learning happens when you attempt to perform the work yourself, not when you hear it in class. To provide you with the necessary experience, there will be three types of out-of-class assignments. *Skills Homeworks* will be aimed at 'skills' practice, *Problem Sets* will provide more usual types of homework problems via the WileyPLUS problems from the textbook, and *Design Problems* will be aimed at more general situations. Completing these assignments is critical to your understanding, so they make up a significant portion of your grade. Based on feedback from earlier classes, the Skills Homeworks are split into five sections (a–e) so that you can focus on particular types of problems.

Due to the accelerated pace of the summer session, you should, on average, **expect to spend 5–8 hours on homework per week** in this class. Those who are less comfortable with Trigonometry and Vectors should be prepared to spend **even more** until they become comfortable with these pre-requisites.

To help you manage your schedule (classes, work, travel, etc.), you may drop one (1) Skills Homework grade (five subparts, taken from any assignment), and one (1) Problem Set grade. However, **neither Design Problem can be dropped**. Unless otherwise indicated, **all out-of-class assignments are due by 11:59 pm on Thursday** of the week they are due.

For all out-of-class work, you may discuss solution strategies with classmates. However, **all submitted work must be your own and all work for this course is governed by the Georgia Tech Honor Code.** As a guideline, if you are working independently from someone else, you will not both be looking at the same piece of paper or computer screen.

Exams

There will be two exams: a midterm and a final. To maintain consistency, it is not generally possible to make up an exam or take it at another time. In extreme cases, however, be prepared to present an institute-approved excuse well in advance, (for Georgia Tech official activities) or as soon as you can (for health issues). **In those cases, your final exam score will also count for the affected exam**.

For the exams, the only electronic device permitted is one calculator, which **must** be on the list of calculators approved by the NCEES for use on the Fundamentals of Engineering Exam as of Fall 2024. The acceptable types are: TI-30X, TI-36X, Casio fx-115, Casio fx-991, HP 33s, and HP 35s. I will intend to have a few of these available, but **no other types of calculators will be allowed**, so please plan accordingly. Exams are **Closed Book, Closed Notes**, but I will provide a formula sheet as part of the exam.

Late Policy

Unless announced otherwise, out-of-class assignments must be turned in via $Canvas$ (PDF format) as a single file. **Assignments received after they are due are late**. Each day that your work is late reduces the earned score by 10% of the maximum grade ($i.e.$, 1 point per day for a 10 point assignment). To work with $Canvas$, a 'day' means 24 hours from the initial time it was due, so late penalties will increase **daily** at the 'due' time. Please keep this in mind if you are intentionally spending the extra time to do your work. You should also be aware that no work will be accepted (even with penalty) after midnight on the final instructional day of the semester.

While submitting an assignment late will always limit the maximum score you can earn, it is a **judgment-free** penalty. Do not hesitate to come to office hours or send an e-mail if you have questions about a late assignment. The rather slow point loss rate is to encourage you to do the assignment, even if your other commitments prevent you from turning it in on time.

Grading Policies

Your grade in the course will be determined by your mastery of the subject, not by your relative performance with your peers. That is, it is possible for everyone to get an 'A' in the course or for everyone to fail it. Your **minimum** grade in the class will be according to the following scale (for a grade of x):

A $90\% \leq x \leq 100\%$
B $80\% \leq x < 90\%$
C $70\% \leq x < 80\%$
D $60\% \leq x < 70\%$

In general, student performance depends on many factors, including details of the assignments and grading rubrics. As a result, I do take the grade distribution into account when grading. Under no circumstances will this lower your letter grade.