

COE 3001 Syllabus

Deformable Bodies, Section I, Credits: 3.0

Fall 2026

Instructor Information

Instructor: Antonia Antoniou

Email: antonia.antoniou@me.gatech.edu

General Course Information

Description

This course builds on statics to explore how materials and structures respond to loads. You will learn how to analyze stress and strain in components such as beams, pipes, and pressure vessels, as well as how to predict deflection and buckling. Emphasis is placed on understanding structural behavior, making appropriate modeling assumptions, and applying equilibrium and deformation relationships to determine internal forces and stresses. By the end of the course, you will be able to analyze and begin designing structural and mechanical components with confidence.

Course Learning Outcomes

1. By the end of the course you should be able to address:
 - Stress and strain analysis applied to beams, vessels, pipes, and combined loading;
 - stress and strain transformations
 - beam deflection
 - column buckling.
2. Develop an ability to visualize and understand the fundamental behavior of structures and solids
3. Develop an understanding of assumptions and idealizations commonly used for analysis of structures and solids
4. Learn methods of computing stresses in several types of structural and machine components
5. Learn the fundamental approach for determining internal forces and stresses in indeterminate structures: use of equations of equilibrium, force-temperature-deformation relations, and expressions for the geometry of the deformations
6. Develop a basic knowledge of approaches to design of structural and machine components

Required Course Materials

Mechanics of Materials, 9th Edition, James M. Gere and Barry J. Goodno, Cengage, available at Georgia Tech Barnes and Noble Bookstore

Grading Policy:

Grades will follow the 90: 80: 70: 60: 50 scale for A:B:C:D:F.

Assignment Type	Percentage Worth
Pre-class content	15 %
In Class Problem Sets	25 %
Peer Feedback	8 %
Mini Project (s) (3)	12 %
Online Quizzes (8)	40 % (5% each)
TOTAL	100 %

Course Policies

Attendance and/or Participation

I will not be monitoring attendance. However, I find that students do better and have more fun if they consistently follow along with the class.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

[Core IMPACTS](#) is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated [career competencies](#). [This resource](#) developed by the

Center for Excellence in Teaching and Learning and Online Education at Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Pre- &/or Co-Requisites

COE 2001 Statics Prerequisite and Math 2552 Ordinary Differential Equations Corequisite.

Collaboration, Group Work, and Use of Generative AI

Any work you turn in must be written in your own hand. Pre-class videos, Quizzes, Projects are to be your own work. Online quizzes are open book and notes, and I will provide an equation sheet.