COE 3001-QUP – Mechanics of Deformable Bodies
Summer 2026

Instructor: Rudy Gleason
rudy.gleason@me.gatech.edu
Technology Enterprise Park, Room 216F
Office Hours: T/Th 2:40-3:40 (Teams Link will be provided via Canvas)

TA: TBD

Textbooks: No textbook required. In-class / all material will come from asynchronous lectures. *Mechanics of Materials*, JM Gere, Brooks/Cole, 9th Ed. is recommended as a reference text.

Grading:
80% Quizzes & Exams (quizzes, mid-term exam, the final exam worth)
20% Homework

A = 90+
B = 80-89
C = 70-79
D = 60-69

Exams: Exams will be administered on-line using Honor Lock and will be closed book and closed notes. Flexibility will be provided for your start time for the exam, but once you start, you will have a defined number of minutes to complete each quiz and exam.

No makeup exams (except for documented medical or family emergencies).

Homework: Assigned homework problems are due by the deadline specified on Canvas. **Late homework will not be accepted.**

Student-Faculty Expectations Agreement: Please review the expectations for students and faculty at: https://catalog.gatech.edu/rules/21/

Georgia Tech Honor Code:

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 and students are expected to abide by the GT Honor Code (www.honor.gatech.edu) at all times. The objective of the honor code is "to prevent any students from gaining an unfair advantage over other students through academic misconduct". Please adhere to this code and take it seriously; both instructors certainly do and have a zero-tolerance policy for code violations.

Examples of honor code violations include:

- Communicating with other students during a quiz, test or exam or otherwise behaving in a way that breaks the parameters of the assessment.

- Claiming other students' work as your own.
- Using notes of any kind during closed-book assessments.
- Making untrue claims/statements (of any sort) to the instructor regarding use of electronic resources (your personal laptop crashing, etc.)

For any questions involving these or any other Academic Honor Code issues, please consult your instructor or visit. Please review the Georgia Tech Honor Code, here: https://policylibrary.gatech.edu/student-life/academic-honor-code

Accommodations & Disability Services:

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404) 894-2563 or http://disabilityservices.gatech.edu, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. We fully support and recognize the need to make accommodations that improve teaching and learning for all students. Please also e-mail us as soon as possible to set up a time to discuss your learning needs.

Keys to Success:

There are several keys to success in this class.

- First and foremost, be excited to learn and be passionate about understanding the underlying concepts of tissue mechanics.
- Seek understanding, rather than just get the correct answer.
- Conduct course activities in a timely manner; complete outside-of-class activities (well) before the due date and take notes during the lecture, engage in the class examples and activities
- Review materials and problem sets (well) prior to quizzes, term tests, and exams. Go over the solutions carefully and understand the concepts behind the solutions, not just the steps and math to solve the problem.
- Ask questions! It is critical that you dialogue with your PSS group and the instructor and TA.

(Rough) Course Outline

1. **Stress, Strain, and Constitutive Behavior**
   - Introduction
   - Concept of Stress
   - Stress Transformations
   - Principal Stresses and Maximum Shear
   - Concept of Strain
   - Constitutive Behavior
   - Equilibrium
2. **Pressure Vessels**
   - Spherical Pressure Vessels
   - Cylindrical Pressure Vessels
3. **Axially Loaded Members**
   - Deformations Due to Extension
   - Statically Indeterminate Structures
   - Thermal Effects, Misfits, and Prestrains
   - Stresses on Inclined Sections
   - Strain-energy
   - Stress Concentrations, Saint-Venant's Principle
4. **Torsion**
   - Torsion of Circular Bars
   - Pure Shear
   - Statically Indeterminant Problems
   - Strain-energy in Torsion and Pure Shear
   - Torsion of Tubes
5. **Beams**
   - Shear Forces and Bending Moments
   - Stresses in Beams
   - Shear stresses in Beams
   - Composite Beams
6. **Deflection of Beams**
   - Introduction and Differential Equations
   - Methods for Finding Deflections
7. **Statically-Indeterminate Beams**
   - Types of Statically Indeterminate Beams
   - Analysis by the Differential Equations of the Deflection Curve
8. **Columns**
   - Introduction, Buckling, and Stability
   - Columns with Pinned Ends
   - Columns with Other Support Conditions
   - Columns with Eccentric Axial Loads
9. **Special Topics**