

Georgia Institute of Technology
AE 6100 A (CRN: 92031) - Structural Stability I
Fall 2026

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Course Description:

The concept of instability and buckling/postbuckling. Bifurcation, snapthrough, linear vs nonlinear (large deflection) analysis, imperfection sensitivity, single vs multiple degree of freedom systems, conservative vs non-conservative systems. Elastic buckling of columns, buckling of frames, the Southwell plot, transverse shear effects, energy-based methods. Plastic buckling and creep buckling.

Learning Outcomes: The ability to determine the critical (buckling) load of structures and the ensuing post-buckling behavior and associated imperfection sensitivity.

Required Texts:

None

Recommended Texts:

An Introduction to the Elastic Stability, **G.J. Simitses**, Krieger, 1986;
Fundamentals of Structural Stability, **G.J. Simitses and D.H. Hodges**, Elsevier, 2005.

Grades:

One mid-term exam 40% and the final exam 60%. Homework will be graded. Students who have an average that is borderline between two grades may have their grade raised based on the average grade from the homework problems.

Attendance:

This will be an active classroom, where you will be expected to participate. There is a definite correlation in exam performance between students who regularly attend class and those who do not.

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 the [Student Code of Conduct](#) and the [Academic Honor Code](#), especially [Appendix A: Graduate Addendum to the Academic Honor Code](#).

Any student suspected of cheating or plagiarizing 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.

Allegations of scientific or scholarly misconduct are handled in accordance with the procedures outlined by the [Policy for Responding to Allegations of Scientific or Other Scholarly Misconduct](#).

Accommodations for Students with Disabilities:

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter.

Student-Faculty Expectations:

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 [Expectations of Advisors and Advisees](#) articulates these basic expectations. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek.