

CEE 6509 Syllabus

Structural Dynamics, Section A, 3 credits

Fall 2026

Instructor Information

Instructor: Yang Wang

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General Course Information

Description

This course is intended for first year graduate students in structural engineering, mechanics, and materials. We will teach vibration and dynamic response of structures to periodic and general time-dependent loads, with and without damping effects. Structural systems with both single- and multiple- degrees of freedom (SDOF and MDOF) will be presented.

Course Learning Outcomes

Students will demonstrate an ability to:

- Analyze the vibration properties of SDOF structural models and characterize their response to harmonic load
- Analyze the vibration properties of MDOF structural models and characterize their response to harmonic load
- Numerically evaluate the vibration response of both SDOF and MDOF structural systems due to loads with arbitrary waveform

Required Course Materials

Dynamics of Structures, 6th Edition. Anil Chopra, Pearson.

* Other versions of the books can be used as well.

Grading Policy:

Homework (35%) – including one due in the Final Instructional Class Days

Midterm (35%) – in class and date TBD around early November

Final project (30%) – MATLAB implementation of MDOF dynamics simulation

Description of Graded Components

Letter grade will be determined according to the following scale:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Course Policies

Attendance and/or Participation

Students are strongly encouraged to attend lectures in person. You should strive to turn your assignments in on time. The **late homework policy** uses a time-credit system. You are allowed up to SIX "late days" over the course of the semester. You may use them whenever you like, although no more than two late days per homework. Once you have used your allotted days, additional late assignments will not be accepted.

Note that you cannot use less than a day (meaning a calendar day, **NOT a "School Day" or a "Business Day"**); for example, if an assignment is one hour late it will be considered a full day.

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

(1) Graduate or BS/MS student in structural engineering with knowledge in structural analysis, with understanding of stiffness matrix; (2) MATLAB experience is strongly recommended. If you had little experience before, there are plenty of tutorial materials online (**please go through the Tutorials in the first two weeks of the semester**): http://www.mathworks.com/help/matlab/getting-started-with-matlab.html?s_cid=learn_doc.

Additional Course Policies

1. Please scan your homework submission into a **single PDF file with letter page size** (8.5" × 11"), and upload under Assignments in Canvas. Late submissions will be through Canvas as well. Free apps like **Genius Scan** allows your smartphone to generate a clean scan. Free software like **PDF Architect** allows you to organize pages, and combine multiple PDF files into one.
2. If you miss an exam without a documented excuse¹, you get zero points on that exam. For planning purposes, please provide me with written notice of your upcoming absence at least two weeks before the event, and ideally within the first two weeks of class. In these exceptional circumstances, the **makeup exam** may be given after the normal exam time.
3. The exam will be **closed-book** while allowing a one-page double-sided cheat sheet.

¹ A documented excuse includes an original document indicating the excuse (such as hospitalization, family emergencies, Institute activities, etc.). Please see <http://catalog.gatech.edu/rules/4/> for more information about receiving official notice from the Registrar on the nature and timing of your upcoming Institute-approved absence.

Campus Resources for Students

Graduate Student Academic and Professional Success Resources:

A list of resources for graduate students is given on the [Office of Graduate and Postdoctoral Education](#) website. Specific information for [current graduate students](#) includes

- [Academic Resources](#) such as the Communications Center, Language Institute, Library, Catalog, Registrar, resources for conducting research, Advocacy and Conflict Resolution resources, and how to manage unexpected situations that may impact your academic performance;
- [Student Resources](#) such as Campus Services, Child Care/Family programs, Health & Wellness, Career Services, and the Student Resource Guide; and
- [Professional Development](#) such as *the programming from the Career Center and other professional development resources and events*

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A [comprehensive list](#) of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being ([student-resource-guide \(gatech.edu\)](#)).