Syllabus
MATH 4581-BG-BU
Classical Mathematical Methods in Engineering
Spring 2027

Lectures (in person only): TR 5:00pm-6:15pm ET in classroom: Skiles 255

Instructor: Xu-Yan Chen <xc4@gatech.edu> **Office Hours:** TR 3:30pm-4:30pm ET on Zoom 93606365872

Textbook: *Boundary value problems and partial differential equations,* by David L. Powers, sixth edition
- The GT Barnes & Nobles Bookstore, where our text is available
- Companion site by the publisher
- Errata compiled by XYC

Course Topics: We will discuss the following topics:
- Fourier series and integrals: formulas for the expansions, convergence properties and applications (Chapter 1);
- 1D Heat equation (temperature in a rod): derivation and solutions; separation of variables; Sturm-Liouville problems (Chapter 2);
- 1D Wave equation (vibrating string): derivation and solutions; separation of variables; D'Alembert's solution (Chapter 3);
- Potential (Laplace) equation in 2D regions; separation of variables (Chapter 4);
- Time permitting we will discuss also selected topics from Chapters 5 and 6: higher dimensional heat/wave equations, Laplace transform and applications.

Grading policy: There will be 8 homework assignments, 3 midterms, and a cumulative final exam. Your course score will be computed as follows:

Course score = 18% *(Homework) six better hw sets weighted equally, the lowest two sets dropped
+20% *(Best Midterm)
+20% *(Second Best Midterm)
+10% *(Lowest Midterm)
+32% *(Final)

The grading scale will be:

Course Score	90-100	80-89.999	70-79.999	60-69.999	0-59.999
Letter Grade	A	B	C	D	F
Pass/Fail Grade	S			F	

No make-up exams. If you have to miss a test for a valid reason (illness, emergency, or institute-sanctioned events) please inform the instructor as soon as possible. Contact also the Office of Dean of Students immediately.

Students who are absent because of participation in a particular religious observance will be permitted to make up the work missed during their absence with no late penalty, provided the student informs the course instructor xc4@gatech.edu of the upcoming absence, in writing, within the first two weeks of class, and provided the student makes up the missed material within the timeframe established by the course instructor.

Students with Disabilities and/or in need of Special Accommodations: Georgia Tech complies with the regulations of the Americans with Disabilities Act of 1990 and offers accommodations to students with disabilities. If you are in need of testing accommodations, please contact the ODS office. Please also make an appointment with the instructor to discuss your accommodation, if necessary.

Honor Code: All students are expected to comply with the Georgia Tech Honor Code. Please review the Student Code of Conduct.

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. See the Catalog > Rules and Regulations XXI for an articulation of some basic expectation 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.

STATEMENT OF INTENT FOR INCLUSIVITY: As members of the Georgia Tech community, we are committed to creating a learning environment in which all of our students feel safe and included. Because we are individuals with varying needs, we are reliant on your feedback to achieve this goal. To that end, we invite you to enter into dialogue with us about the things we can stop, start, and continue doing to make our classroom an environment in which every student feels valued and can engage actively in our learning community.

CAMPUS RESOURCES FOR STUDENTS: In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

Academic Support Georgia Tech Resources

- Academic Success & Advising (Office of Undergraduate Education & Student Success) http://success.gatech.edu
  - Tutoring https://www.success.gatech.edu/tutoring/
  - 1-to-1 tutoring https://www.success.gatech.edu/tutoring/1-to-1-tutoring/
  - Peer-Led Undergraduate Study (PLUS) https://www.success.gatech.edu/tutoring/plus/
  - Drop-In Tutoring/MathLab https://www.success.gatech.edu/tutoring/drop-in-tutoring/
  - Academic coaching https://advising.gatech.edu/academic-coaching
- Office of Undergraduate Education & Student Success https://oue.gatech.edu/
  - Learning Support https://undergradcurriculum.oue.gatech.edu/learning-support/
  - Office of Student Achievement https://achievement.gatech.edu/
- Communication Center https://www.communicationcenter.gatech.edu/
  - Individualized help with writing and multimedia projects
- Academic advisors for your major https://advising.gatech.edu

Personal Support Georgia Tech Resources

- The Office of the Dean of Students: https://studentlife.gatech.edu; 404-894-2565
  - Academic, Financial, Personal Assistance; Class Absence Verification; Referrals; ...
- Center for Mental Health Care & Resources: https://mentalhealth.gatech.edu/; 404-894-2575; Smithgall Student Services Building Suite 238
  - Services include testing and assessment, referral to support services, short-term individual counseling, group counseling, couples counseling, crisis intervention, as well as mental health workshops, and consultation for faculty and staff, family and friends of Tech students. Their website also includes links to state and national resources. Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at 404-894-2575.
  - **Students who are experiencing an immediate life-threatening emergency on campus, call the Georgia Tech Campus Police at 404.894.2500. If off campus, please immediately call 911.**
- Students Temporary Assistance and Resources (STAR): https://star.studentlife.gatech.edu/
  - Can assist with interview clothing, food, and housing needs.
- Stamps Health Services: https://health.gatech.edu; 404-894-1420
  - Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition
- Arts, Belonging, and Community: https://belonging.gatech.edu/studentsupport
- Veteran's Resource Center: https://veterans.gatech.edu/; 404-385-2067
- Georgia Tech Police: https://police.gatech.edu; 404-894-2500
