

SPRING 2023 MATH 4620/6620 Numerical Analysis II

Instructor

Dr. Xiaojing Ye (E-mail: xye@gsu.edu).

Office Hours and Location

M 9:00–12:00 PM, <https://gsumeetings.webex.com/meet/xye>.

Class Time and Location

MW 2:00–3:15 PM, <https://gsumeetings.webex.com/meet/xye>.

WebEx Log-in Issue

Log in your own account in WebEx desktop/mobile app before entering the lecture and office hour link.

Textbook

Numerical Analysis (10th edition), Burden and Faires, Brooks/Cole (Cengage Learning).

Prerequisites

Grade of C or higher in Math 2215 Multivariate Calculus or equivalent and the ability to program in a high-level language (e.g., MATLAB and Python).

Course Topics and Learning Outcomes

Numerical techniques for ordinary differential equations: implicit methods and predictor-corrector schemes, Runge-Kutta methods, the Adams Families; Gaussian Elimination for linear systems, the LU factorization, stability, SPD matrices and Cholesky Decomposition, iterative methods for linear and nonlinear systems; Boundary-value problems for ordinary differential equations.

Attendance and Administrative Drop Policy

Attendance to all lectures are required and checked during the semester. Students who do not the class regularly will be warned or even administratively dropped.

Quizzes

There are a total of 6 quizzes (15 points each, lowest homework score is dropped. 75 points total) during the semester, approximately one quiz every 2 weeks. Concepts and techniques to solve quiz problems are covered in lectures.

- Quizzes are given and to be completed on iCollege using Respondus LockDown Browser and Respondus Monitor. Instructions to use them can be found at https://gsutech.service-now.com/sp?id=kb_article&sys_id=f9c2da0fdb889b00601b502bdc961930.
- Each quiz will be given a 5-day (120-hour) window. You can start any time within that window. Once started, you need to finish the quiz within 1-hour (60 minutes).
- *There is no make up quiz.*

Project

There is a project to implement several computer coding problems. The project is worth 25 points. Instructions, and assignment and due times will be announced in lecture.

Exercise Problems

Exercise problems from the textbook are given to help you practice the theory and techniques taught in lectures. They will not be due or accounted for your grades.

Grading Policy

Quizzes (75 pts) + Project (25 pts) = Total (100 pts).

Score	0–59	60–69	70–76	77–79	80–82	83–86	87–89	90–92	93–96	97–100
Grade	F	D	C	C+	B–	B	B+	A–	A	A+

Study Guide

Lecture slides/notes are available for download in advance. Paying close attention and taking good notes during the class are of paramount importance (write notes on printed slides during lectures are recommended). After the class read the book, the slides/notes, and do as many of the homework problems as you can prior to the next class. Try to get the remaining problems explained in the next class or during the office hours. *You are responsible for all material covered in class if you missed any class.*

Academic Honesty

All work submitted by a student for a grade must have been done without help from other persons. *Cheating and plagiarism are strictly forbidden.* A first occurrence will result in a grade of 0 on the assignment for all concerned parties as well as an Academic Dishonesty form being filed with the Dean of Students. A second occurrence will result in a grade of F for the course for the concerned parties and a second Academic Dishonesty form being filed. This course is conducted in a manner consistent with the university policy on academic honesty at <http://codeofconduct.gsu.edu/>.

Unauthorized Public Posting and Distribution

The selling, sharing, publishing, presenting, or distributing of instructor-prepared course lecture notes, videos, audio recordings, or any other instructor-produced materials from any course for any commercial purpose is strictly prohibited unless explicit written permission is granted in advance by the course instructor. This includes posting any materials on websites such as Chegg, Course Hero, OneClass, Stuvia, StuDocu and other similar sites. Unauthorized sale or commercial distribution of such material is a violation of the instructor's intellectual property and the privacy rights of students attending the class, and is prohibited. Failure to abide by these limitations constitutes a violation of the Policy on Academic Honesty and will be treated accordingly.

Disruptive Student Conduct in the Classroom or Other Learning Environment

The university's disruptive student policy applies and students should familiarize themselves with the relevant parts of the student code of conduct at: <http://codeofconduct.gsu.edu/>.

Absence Policy

GSU has a process for students seeking excused absences through the Dean of Students Office. Students submit documentation to <https://deanofstudents.gsu.edu/student-assistance/professor-absence-notification/>. Professors will then be notified by the Dean of Students of any excused absences.

Accommodation

Students who wish to request an accommodation may do so by registering with the Access and Accommodation Center (AACE). Students may only be accommodated upon issuance by the Access and Accommodation Center of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.

Withdrawal

Withdrawal on or before Midpoint Day will result in a grade of "PW". Hardship withdrawal after the Midpoint day will result in a grade of "WF".

Inclement Weather Policy

If the University is closed due to inclement weather, any exam that may have been scheduled for that date will be administered on the next available class date.

Remarks

- This course syllabus provides a general plan for the course; deviations may be necessary.
- Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take time to fill out the online course evaluation.

Important Dates

Class begins	January 09
Registration close	January 13
MLK Day (No class)	January 16
Semester midpoint day	February 28
Spring Break (No class)	March 13–19
Class ends	April 24
Grade available online at 5PM	May 04

COVID-19 Supplements

Supplemental Information for Attendance Policies

Students who want to do well in this course will attend class following the class attendance policy. You will need an excused absence due to illness. GSU has a new process for students seeking excused absences through the Dean of Students Office. Please submit documentation to

<https://deanofstudents.gsu.edu/student-assistance/professor-absence-notification/>

I will then be notified by the Dean of Students of any excused absences.

Should a student test COVID positive, any accommodations to the class attendance policy will be informed by evolving guidance from the CDC on quarantine. In most cases there will be no major change to mode of course delivery, so students will be responsible for collecting notes for missed classes and making up any work they miss during quarantine. Anyone who has a positive COVID test is encouraged to alert the university so that appropriate contact tracing can be conducted.

Wearing Masks in Class

You are encouraged to wear a face covering in all class meetings. I know that face masks may make some aspects of class more difficult. It will be harder for us all to project our voices and read each other's facial expressions. However, I am willing to sacrifice these elements since wearing a mask is one thing I can control to support the health and safety of our community. Be aware that wearing face mask is not required by GSU, so there is no penalty if you choose to not wear a mask. Our university community has a strong tradition of upholding the value of mutual respect, we therefore ask students to not engage in behavior that would be disruptive if your fellow students make a different choice about wearing masks. If you have concerns, please discuss them with me and I will work to the best of my ability to provide a comfortable environment conducive to student learning.