

## FALL 2022 MATH 4610/6610 Numerical Analysis I

### Instructor

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

### Course Website

<https://math.gsu.edu/xye/course/na.html>

### Office Hours and Location

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

### Class Time and Location

TR 11:00–12:15 PM, Classroom South 428.

### 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

Introductory concepts and calculus review; Root finding for nonlinear equations, fixed point theory; Interpolation and approximation theory; Numerical differentiation and integration. Refer to <https://www.mathstat.gsu.edu/document/course-content/> for learning outcomes.

### 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.

### Homework

There are a total of 6 homework assignments (4 points each, lowest homework score is dropped. 20 points total) during the semester, approximately one assignment every 2 weeks. Homework problems are taken from the exercises in the textbook, and the problem numbers and due time are announced during lectures.

- Preparation and submission instruction at <https://math.gsu.edu/xye/course/hwpolicy.html>.
- Homework must be submitted to iCollege at <https://icollege.gsu.edu> by the due time.
- You can submit your fully or partially completed homework to the homework folder on iCollege as many times as you wish (your newer submission will just replace the old one) by the due time.
- *Late homework and homework not following the instruction will not be accepted or graded. They receive 0 point.*

### Exams

There are two midterm exams and one final exam. All exams are held in the lecture room. Some exam problems are given in different versions to 4000- and 6000-level sessions.

- Exams are closed book/notes. Scratch papers are provided. Bring pen/pencil, Panther ID, basic calculator, and watch if needed. *Smartphones are not allowed throughout the test.*
- *Request for make-up exams must be approved by the instructor at least 10 days before an exam.* Unless in an extreme verifiable emergency, all make-ups must be worked out ahead of the time.
- Exam schedule (see exam dates in **Important Dates** section below):
  - Midterm Exam 1 (20 points): class time (75 minutes).
  - Midterm Exam 2 (20 points): class time (75 minutes).
  - Final Exam (40 points): see Important Dates below (150 minutes).

Please check for conflicts with your other finals in the first week of the semester.

### Grading Policy

Homework (20 pts) + Midterms (40 pts) + Final exam (40 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 (AAACE). 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 .....	August 22
Registration close .....	August 26
Midterm exam 1.....	September 29
Semester midpoint day .....	October 11
Midterm exam 2.....	November 03
Thanksgiving break (No class).....	November 21–25
Class ends .....	December 05
Final exam (10:45AM–1:15PM) .....	December 08
Grade available online at 5PM .....	December 15

## 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.