

Fall 2021 Math 4211/6211 Optimization

Instructor

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

Course Website

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

Course WebEx

<https://gsumeetings.webex.com/meet/xye>

Office Hours and Location

Tuesday 9:00–12:00 PM on WebEx or by appointment.

Class Time and Location

MW 2:00–3:15 PM, Aderhold Learning Center 431. Lectures will also be live-streamed via WebEx during this time.

Textbook

Introduction to Optimization, 4th edition, Edwin K.P. Chong and Stanislaw H. Zak, Wiley.

Prerequisites

Either MATH 3030 or both MATH 2641 (Formerly MATH 3435) and MATH 2215 with grades of C or higher, and the ability to program in a high-level language (e.g., MATLAB or Python).

Course Topics and Learning Outcomes

Basics of numerical optimization; Gradient method, (quasi) Newton's method, Conjugate Gradient; Linear programming, duality, simplex method; Constrained optimization, KKT conditions.

Attendance and Administrative Drop Policy

Attendance to lectures in-person or via WebEx is required. If you have difficulty attending lectures in either form due to the impact of pandemic, please contact the instructor to work out a different arrangement ahead of time. Students who do not attend lectures regularly may be warned or administratively dropped.

Homework

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

- All homework are due electronically on iCollege at <https://icollege.gsu.edu>.
- Closely follow the homework submission guide on <https://math.gsu.edu/xye/course/hwpolicy.html>.
- *Late homework is not accepted and receives zero credit.*

Exams

There are two midterm exams and one final exam.

- Midterm and final exams are held virtually via WebEx. Camera must be on and showing face and workspace during the exams. Exams are closed book/notes.
- *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 original scheduled time.
- Students in 4000- and 6000-level sessions will be given different questions for some problems.
- 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): 1:30–4:00 PM (150 minutes).

Grading Policy

Homework (20 pts) + Midterm exams (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

The lectures progress at a fast pace. Lecture slides are available for download on the course website. Paying close attention and taking additional notes during lectures are of great importance. 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.*

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.

Academic Honesty

All materials submitted for grading must be completed independently without help from any other persons or resources (including but not limited to solution manual and online solution websites.) *Cheating and plagiarism are strictly forbidden.* A first occurrence will result in a grade of zero 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/>.

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/>.

Withdrawal

Withdrawal on or before Semester Midpoint Day (see **Important Dates** below) will result in a grade of "PW". Hardship withdrawal after the Midpoint Day will result in a grade of "WF".

Alternative Lecture and Exam Arrangement Policy

If the University is closed due to inclement weather or health crisis, the lecture and exam will be arranged in an alternative format and announced through iCollege.

Sharing of Instructor-generated Materials

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.

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 23
Registration close	August 27
Labor day (No class)	September 06
Midterm exam 1.....	September 22
Semester midpoint day	October 12
Midterm exam 2.....	October 27
Thanksgiving break (No class).....	November 22–27
Class ends	December 06
Final exam	December 08
Grade available online at 5PM	December 17

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.