Math 203: LINEAR ALGEBRA

Section C Summer 2022

Syllabus

Instructor:	Shraddha Rajpal	**Email:**	srajpal4@emory.edu
Lecture:	MTWR 4.30 PM-6.00PM	**Location:**	HORIZN 5018
Office Hours:	TWR 3:00PM - 4:00PM	**Location:**	Exploratory Hall, Room 4310

General: Linear algebra is a cornerstone in any mathematics curriculum for two important reasons:

1. Since the theory of linear algebra is well understood, a first step in many areas of applied mathematics is to reduce the problem into one of linear algebra.
2. Vector spaces and linear operators studied in linear algebra are found in many different areas of mathematics, science and engineering.

Agreement: The aim of this course is to offer a meaningful, rigorous, and rewarding experience to every student; you will build that rich experience by devoting your strongest available effort to this class. You will be challenged and supported. Please be prepared to take an active, patient, and generous role in your own learning and that of your classmates.

Learning Objectives: Upon successful completion of the course, students will be able to:

1. Solve system of linear equations, perform matrix operations, find the inverse of a matrix, check vectors for linear independence.
2. List the vector space properties for , give examples of subspaces, find bases for subspaces, find its dimension, find orthogonal bases for subspaces, identify linear transformations.
3. Find eigenvalues and eigenvectors, determinants, characteristic polynomial, perform diagonalization of a matrix.
4. Give examples of vector spaces, check for linear independence, find bases, dimension, identify linear transformations and find matrix representation for linear transformations.

At the end of the course, you will understand The Linear Algebra Behind Google.

Textbook: Our required course textbook will be *L*inear Algebra and Its Applications, by David C. Lay, 6th Edition. We will be using an online homework platform called *MyMathLab (MML)*, which is linked specifically with our book. Access to the MyMathLab platform must be **PURCHASED**.
Since a MyMathLab subscription is required, and it *already brings a copy of the e-book*, **I encourage you to just obtain the MyMathLab subscription**.Unless you're particularly fond of having the physical textbook, it will save you considerable money to simply purchase the MyMathLab subscription. Again, the subscriptions includes the e-book and MyMathLab access code will be provided to you.
Of course, not everything in class will be found in the text, and not everything in Lay' will appear in class. Thus, your class notes are extremely important and should be considered the main textbook. Do not let them idle in your backpack: they are meant to be read again later.

Course Website: `https://mymasonportal.gmu.edu/ultra/courses/_445383_1/cl/outline`

Communication: Blackboard is the preferred way of communication for this course. I will share relevant course announcements using Blackboard. Students should subscribe to those announcements. Personal questions/comments/concerns should be emailed to me and will be answered within one business day (if not, please assume I did not receive your initial email and send a follow-up).

Homework: Doing your homework with diligence and enthusiasm is the key to success in this class. There will be one homework in a week and will be due in a week. Homework will be submitted through the online homework platform *MyMathLab*. Homeworks are due Thursdays an at 11.59 pm (EST), and **no late work will be accepted**. It is your responsibility to visit the website periodically to make sure you are aware of any new homework assignments. You are encouraged to work together and discuss problems with classmates. **At the end of the semester the one (1) lowest homework scores will be dropped.**

Quizzes: There will be three (3) quizzes throughout the term. Quizzes will be online, and done through MyMathLab. You'll have thirty (40) minutes to work through each quiz. Once you start a quiz, the timer cannot be paused, so make sure to allot the appropriate time and headspace for it. Quizzes will become available on Fridays at 10 a.m (EST), and will stay up for a full 48-hour period, until Sunday at 10 a.m (EST). **There will not be make-up quizzes**. **At the end of the semester the one (1) lowest quiz scores will be dropped.**

In-person Exam: There will be one test throughout the term (see Date below). Unlike the quizzes, exams will be in-class.

If you must miss an exam due to extended illness, emergency, or other compelling reason require documentation. Travel plans, oversleeping, etc. are not adequate excuses. An unexcused absence on a test day will result in a score of 0. **There will not be make-up tests**. The test dates are subject to change and you will be given a notice of any changes:

- Exam 1: July 11, 2022

Final Exam: The final exam is cumulative. The final exam date below is subject to change and you will be given at least a week's notice of any changes:

- Final Exam: July 29, 2022

More information about the test taking conditions will be provided closer to the Final Exam date. **Failure to take the final exam will result in a failing grade for the semester, regardless of current standing in the class.**

Grade Distribution:

- Homework: 20%
- Quizzes: 20%
- In-class Exam : 30%
- Final Exam: 30%

Course Grade: Maximum cut-offs for letter grades are at the standard half-closed/half-open intervals:

- A: [93,100]
- B+: [87,90)
- C+: [77,80)
- D+: [67,70)
- F: [0,60]
- B: [83,87)
- C: [73,77)
- A-: [90,93)
- B-: [80,83)
- C-: [70,73)
- D: [60,67)

Code of Conduct and Attendance: Fostering an active and welcoming learning environment is crucial. Attendance is not required, but strongly encouraged. Avoid using phones, computers during the lectures or leaving in the middle of a lecture.

Extra Help: Do not hesitate to come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course. Additionally, GMU offers **free** Math 113 tutoring and support through The Math Tutoring Center, located in the Johnson Center Room 344. For more information, see https://science.gmu.edu/academics/departments-units/mathematical-sciences/math-tutoring/tutoring-center-hours-and

(Caveat: Tutoring Centre is not a part of the Math 113 course, and tutors are subject to availability. We do not have control over that availability or scheduling)

Note: You are welcome to (and encouraged) discuss anything that will affect your academic performance with me. I wish all the students to succeed in this class and will be happy to do what is in my capacity as an instructor to help you learn better.

Academic Integrity: Students must avoid both the fact and the appearance of academic dishonesty. Cheating on class work, homework, the midterm, or the final exam is strictly prohibited and will result in serious consequences. Notes, textbooks, or any other review materials are not allowed during tests or quizzes. Additionally, calculators and/or computing devices are not allowed during tests or quizzes, and the use of the internet for anything other than the MyMathLab platform during these assessments is strictly forbidden. Students should familiarize themselves with the Mason honor code which can be found at:

https://oai.gmu.edu/mason-honor-code/full-honor-code-document/

Diversity/Inclusion Statement: George Mason University welcomes and values individuals and their differences including race, economic status, gender expression and identity, sexual orientation, ethnicity, national origin, first language, religion, age, and ability status.

Accommodation: You have a right to receive accommodations for a disability (e.g. mental health, attention, learning, vision, hearing, physical or systemic). If you have a disability and anticipate barriers related to the format or requirements of this course, we encourage you to the Office of Disability Services. All academic accommodations must be arranged through that office. Phone: 7039932474.

Students who have accommodations in place are encouraged to coordinate with your instructor during the first week of the semester to communicate your specific needs for the course as it relates to your approved accommodations. All discussions concerning the nature of your disability remain confidential.

Tentative Schedule [1]:

Monday	Tuesday	Wednesday	Thursday	Friday
June 27th **1** Section 1.1,1.2	28th **2** Sections 1.3, 1.4	29th **3** Section 1.5, 1.7	30th **4** Section 1.8, 1.9 Homework 1 (out)	July 1st **Quiz-1 (out): Chapter 1**
4th **5** **Holiday**	5th **6** Section 2.1, 2.2	6th **7** Section 2.3, 3.1, 3.2	7th **8** Section 4.1, 4.2 Homework 2 (out) Homework 1 (due)	8th
11th **9** **Exam-I(Chapters 1 and 2)**	12th **10** Section 4.3, 4.4 Homework 1 (out)	13th **11** Section 4.5, 4.6	14th **12** Section 5.1, 5.2 Homework 3 (out) Homework 2 (due)	15th **Quiz-2 (out): Chapter 3 and 4**
18th **13** Section 5.3	19th **14** 6.1,6.2	20th **15** Section 6.3	21st **16** TBA Homework 4 (out) Homework 3 (due)	22nd **Quiz-3 (out): Chapter 5 an7 29**
25th **17** TBA	26th **18** TBA	27th **19** Homework 4 (due)	28th **20** Review	29th **Final Exam**

[1] Dates are subject to change and you will be given at least a week's notice of any changes.