

**MATH 203 Linear Algebra**

Section 003, Fall 2017

**Lecture:** MW 3:00P–4:15P, Planetary Hall 129

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By Appointment

**Prerequisites:** C or better in MATH 114, 114T or MATH 116.**Course Objectives:** To understand Systems of linear equations, linear independence, linear transformations, inverse of a matrix, determinants, vector spaces, eigenvalues, eigenvectors, and orthogonalization.**Textbook:** Lay, D., Lay, R. & McDonald, J.; *Linear Algebra and its Applications*, 5th Edition, Pearson; 2016.**Grading :** Your grade will be determined out of a possible 345 points:

Tests (2)	160 points (80 points for each test)
Comprehensive Final exam (1)	150 points
Worksheets (7)	35 points (5 points per worksheet)
Total	345 points

**Tests:** There will be two (2) midterm tests and a comprehensive final exam. It is expected that students will take the test in class at the scheduled time.**Homework:** Homework will be assigned each class period and it is assumed that you will complete the assignment before the next class period. While homework will neither be collected nor graded it is highly recommended that you complete all assignments.**Worksheets:** There will be a total of ten (10) worksheets, (see schedule when they are given). **If you are not in class on the day a worksheet is given there will be no make-up for that worksheet.** The three (3) lowest worksheet grades will be dropped**Grading:** Grades will be assigned according to the following scale:

A	A–	B+	B	B–	C+	C	C–	D	F
100–93	92–90	89–87	86–83	82–80	79–77	76–73	72–70	69–60	59–0

**Attendance:** The importance of class attendance cannot be over emphasized. Regular and prompt attendance is a must. In the event that you must miss class avoid falling behind by completing the missed assignment described in the attached class schedule. Remember that if you missed a lecture session you get a zero as your grade for that class' worksheet.**Make-up Exams:** If you are unable to be in class on the day of a test you must notify me beforehand (in person or by-mail) to make arrangements for a make-up test. The make-up test will be different and more difficult than the in-class test. Makeup exams will only be given to students with an acceptable excuse. The only acceptable excuses are **religious holy day, family emergency, school sponsored event, job interviews, or sickness.** All absences require documentation, for example, You must notify me of any religious holy days within the first 2 weeks of the semester. **All other absences will be given a zero for that test. No exceptions!****Important Dates****September 05:** is the last day you can add a class. If your name is not on my class roll then you cannot take this class. Last day to drop with no tuition penalty.**October 02–October 27:** Selective Withdrawal Period. If you stop attending classes and plan to withdraw from the course, it is your responsibility to withdraw from the course. You will not be able to withdraw yourself from the course after the above dates. If you do not withdraw before October 27 and you stop attending classes your final Grade will be an F.

**Students with Disabilities:** If you have a documented learning disability or other condition that may affect academic performance you should:

1. Make sure this documentation is on file with Office for Disability Services (SUB I, Rm. 4205; 993-2474;<http://ods.gmu.edu>) to determine the accommodations you need; and
2. Inform me so we can discuss your accommodation needs.

**Cellular Telephones in the Classroom** Students must turn off all cellular telephones and other communication devices when in the classroom. Students whose cellular telephones interrupt instruction will be asked to leave the classroom. Emergency personnel only who are on call and must be available by telephone should notify the instructor at the beginning of the course and should place their emergency phones on vibrate mode and answer such calls outside the classroom

**Policy on Academic Dishonesty** GMU is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. It is the responsibility of each student to ensure that other persons are not permitted access to answers to exams or quizzes or assignments which are required to be the sole work of each student. **IF A STUDENT IS SUSPECTED OF ACADEMIC DISHONESTY ON ANY EXAM OR QUIZ OR ASSIGNMENT REQUIRED TO BE THE SOLE WORK OF THE STUDENT, THE FOLLOWING PROCESS WILL APPLY:**

At a minimum, a ZERO (0) on that exam or quiz or assignment and incident reported to the Honor committee.

See *academicintegrity.gmu.edu* for a copy of the Honor Code.

**Obtaining Help:** There are many outlets available for you to get help in this class. The Math Tutoring Center, is in the Johnson Center room 344 and offers free tutoring to Math 113 students. I highly recommend using it. The schedule of the tutoring center can be found at <http://math.gmu.edu/tutorcenter.htm>.

**E-mail and Blackboard:** E-mail is an effective form of communication outside the classroom. I frequently send announcements through email so make sure that you activate and check your GMU email account regularly. Even students from outside universities are required to use their George Mason email for communication. Please put Math 113 in the subject field anytime you send me an e-mail. For privacy purposes, all email communications will only be done using GMU email accounts. I will be using Blackboard in this class to post class announcements, grades and other important information pertaining to the class. You can access this by going to [mymason.gmu.edu](http://mymason.gmu.edu) and logging in using your NetID.

**Unscheduled and Late Closings:** If the university has an unscheduled closing-because of weather or some other unforeseen occurrence you should assume that we will pick up with the schedule where we left off. In particular, if a test was scheduled for a day in which school was canceled or an assignment was due that day you should assume that the test will be given or the assignment will be collected the next time class meets. If the university has a late opening on a class day we will begin class at the time the university opens. A test scheduled for a day the university opens late will be postponed until the next class day. Make sure you check your GMU e-mail account for any announcements.

The following calendar gives a timetable for the course and the list of sections in the textbook, with suggested problems. The schedule is subject to change.

<b>Date</b>	<b>Section/Activity</b>	<b>Suggested Problems</b>
Week 1 (W1) 8/28-8/30	1.1 Systems of Linear Equations	1 – 15 odd
	1.2 Row Reduction and Echelon Forms	1 – 6
Week 2 9/6	1.3 Vector Equations	1 – 17 odd, 27
	1.4 The Matrix Equation $A\mathbf{x} = \mathbf{b}$	1 – 25 odd
Week 3 (W2) 9/11-9/13	1.5 Solution Sets of Linear Systems	1 – 11 odd, 23
	1.7 Linear Independence	1 – 27 odd, 33, 35, 37
Week 4 (W3) 9/18-9/20	1.8 Introduction to Linear Transformations	1 – 21 odd
	1.9 The Matrix of a Linear Transformation	1 - 23, odd
Week 5 9/25-9/27	2.1 Matrix Operations	1 – 19 odd, 27
	<b>SEPTEMBER 27/TEST I</b>	Chapter 1, 1–5, 7 – 9
Week 6 (W4) 10/2-10/4	2.2 The Inverse of a Matrix	1 – 23 odd, 29, 31
	2.3 Characterizations of Invertible Matrices	1 – 23 odd
Week 7 (W5) 10/10-10/11	2.4 Partitioned Matrices	1 – 11 odd
	3.1 Introduction to Determinants	1 – 13 odd
	3.2 Properties of Determinants	1 – 9 odd, 15 – 25 odd
Week 8 (W6) 10/16-10/18	4.1 Vector Spaces and Subspaces	1 – 15 odd
	4.2 Null Spaces, Column Spaces, and Linear Transformations	1 – 27 odd
Week 9 (W7) 10/23 - 10/25	4.3 Linearly Independent Sets; Bases	1 – 15 odd
	4.4 Coordinate Systems	1 – 17 odd, 21, 27 – 31 odd
Week 10 10/30-11/01	4.5 The Dimension of a Vector Space	1 – 21 odd
	<b>NOVEMBER 1/TEST II</b>	
Week 11 (W8) 11/6-11/8	4.6 Rank	1 – 21 odd
	5.1 Eigenvectors and Eigenvalues	1 –19 odd
Week 12 (W9) 11/13 - 11/15	5.2 The Characteristic Equation	1 – 17 odd
	5.3 Diagonalization	1 – 25 odd
Week 13 11/20	6.1 Inner Product, Length, and Orthogonality	1 – 19 odd
Week 14 (W10) 11/27-11/29	6.2 Orthogonal Sets	1 – 21 odd
	6.3 Orthogonal Projections	1 – 11 odd
Week 15 12/4-12/6	6.4 The GramSchmidt Process	1 – 9 odd
	6.5 Least-Squares Problems	1 – 11 odd, 17
Week 16	<b>DECEMBER 18/FINAL EXAM, 1:30P 4:15P</b>	

**Note:** (W#) indicates worksheet number; worksheets are given on the second meeting of the week (Wednesdays)