MAT 272: Linear Algebra, Section 001
Fall 2019, MWF 12:40–1:30 PM, Bowers 339

Contact Information:

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Office:	29 Broadway Trailer
Office Hours:	MWF 11:20-12:20 PM MWF
	T 11:00 - 12:45 PM

Textbook	*Linear Algebra and Its Applcations*, Lay, Lay,& Macdonald, 5th Edition, ISBN: 978-0-321-98238-4
Prerequisites	MAT 122 or MAT 236 with a grade of C- or better

You are welcome to drop by my office anytime or schedule an appointment outside of office hours. The best way to schedule an appointment is via e-mail. I will do my best to respond to e-mails in a timely fashion, however **I am not guaranteed to respond to any e-mails sent after 5:00 PM on weekdays or on the weekends until the next business day.**

Course Goals and Description: This course will cover an overview of basic linear algebra, with both computation and proofs. Major topics include linear systems, matrix algebra, vector spaces, with emphasis on Euclidean n-spaces, linear transformations, eigenvalues and eigenvectors, orthogonality, and selected applications.

Course Website: This course will be using Blackboard. Useful links, announcements, and other files and information will be posted there. Students' grades will also be updated periodically via Blackboard. In addition, this course will use MyMathLab for some homework assignments. Instructions for using MyMathLab will be posted on Blackboard.

Participation and Attendance: A major part of the learning experience is interacting with the material and fellow classmates. Students will frequently be doing work in-class in small groups, and as such **attendance is required. Use of any mobile device during class work or group activities is not allowed.**

Online Homework: There will be weekly online homework assignments that students will complete using MyMathLab. These assignments will typically be due Wednesday mornings at 6:00 AM. Instructions for accessing MyMathLab are available on Blackboard. The two lowest scores will be dropped. **No late homework will be accepted under any circumstances.**

Written Homework: One of the more important aspects of mathematics is being able to convey ideas, methods, and conclusions in an efficient and coherent manner. To this end, there will be weekly written assignments which will typically be due at the start of class on Fridays. The assignments will consist of 4-5 problems similar to problems from the textbook. To earn full points, students must submit organized responses which show all work and use complete sentences where appropiate. **Please staple your assignment if it contains multiple pages**. The three lowest scores will be dropped. **Late homework will not be accepted under any circumstances.**

Exams: There will be three in-class exams and a cumulative final exam. The *tentative* dates for the exams are **September 27th, October 25th, and November 25th**. The date of the final will be announced closer to the end of the semester and posted on Blackboard. Students may use scientific calculators on the exams, however **no mobile devices, graphing calculators, or calculators with a computer algebra system (CAS) are allowed. Make-up exams will be given only in extreme circumstances (e.g. medical emergencies), with proper documentation required.**

Grading:

	Online Homework		100
	Written Homework		100
	Three in-class Exams	100 each	300
+	Final Exam		150
	Total		650

Grade Scale Here are the cutoff point totals and corresponding percentages to guarantee various final grades.

A	604	93%	B+	565	87%	C+	500	77%	D+	435	67%
			B	539	83%	C	474	70%	D	409	63%
A-	585	90%	B-	520	80%	C-	455	68%	D-	390	60%

Students with final grades below 390 points can expect to receive an E in the course.

How To Succeed: In order to do well in the course, one should come to each class period ready to engage in class discussions and particpate in group work with their peers. I suggest reading the textbook before class to get a basic idea of the topic for the day. A typical class will consist of a brief lecture where the basic ideas of the day's concepts are presented, as well as an example or two. Then, students will interact with material in small groups to deepen their understanding and get some practice with the material in an environment where they can ask eachother or the instructor questions. Learning is then solidified while completing the homework assignments for the week.

Getting Help: First and foremost, **ask questions!** If you are confused in class, then others will be too and will likely have the same questions as you. Asking questions is a crucial part of the learning process. If you find yourself struggling with a concept or need assistance, the best way to do this is by talking to the instructor during their office hours. Study groups are also strongly encouraged. Consider creating an email thread or group chat with other students in your class.

Cell Phones and Mobile Devices: Learning mathematics requires active engagement, and as such, you should not be using cell phones during class for any reason. If you have to take an emergency call, please leave the room as to not distract others. You may not use your cell phone or any other device with an internet connection for a calculator, and smart watches should be removed during exams. You may take notes on a tablet or laptop if you wish, but make sure it is not a distraction to others. **Using a mobile device during class for non-academic purposes is not allowed.**

Makeups: Makeup exams may **only** be given in extreme circumstances or for university sanctioned reasons. Be prepared to provide supporting documentation. If your conflict involves an issue that you knew about ahead of time, then you are required to discuss it with me before the scheduled exam. If we have not worked out a solution ahead of time receiving a makeup will be unlikely.

Academic Integrity Statement: All students are expected to uphold academic integrity standards. Plagiarism is defined as taking the ideas of others and using them as one's own without due credit. Students who cheat in examinations, course assignments, or plagiarize in this course may be disciplined in accordance with university rules and regulations. (College Handbook, Chapter 340)

Disability Statement: As part of SUNY Cortland's commitment to a diverse, equitable, and inclusive environment, we strive to provide students with equal access to all courses. If you believe you will require accommodations in this course, please place a request with the Disability Resources Office at disability.resources@cortland.edu or call 607-753-2967. Please note that accommodations are generally not provided retroactively so timely contact with the Disability Resources Office is important. All students should consider meeting with their course instructor who may be helpful in other ways. (College Handbook, Chapter 745)

Diversity Statement: SUNY Cortland is dedicated to the premise that every individual is important in a unique way and contributes to the overall quality of the institution. We define diversity broadly to include all aspects of human difference. The College is committed to inclusion, equity, and access and thus committed to creating and sustaining a climate that is equitable, respectful and free from prejudice for students, faculty and staff. We value diversity in the learning environment and know that it enhances our ability to inspire students to learn, lead and serve in a changing world. We are committed to promoting a diverse and inclusive campus through the recruitment and retention of faculty, staff and students. As a community, we hold important the democracy of ideas, tempered by a commitment to free speech and the standards of inquiry and debate. To this end, we are dedicated to developing and sustaining a learning environment where it is safe to explore our differences and celebrate the richness inherent in our pluralistic society. (College Handbook, Chapter 130)

Inclusive Learning Environment Statement: SUNY Cortland is committed to a diverse, equitable and inclusive environment. The course instructor honors this commitment and respects and values differences. All students enrolled in this course are expected to be considerate of others, promote a collaborative and supportive educational environment, and demonstrate respect for individuals with regard to ability or disability, age, ethnicity, gender, gender identity/expression, race, religion, sex, sexual orientation, socio-economic status or other aspects of identity. In an environment that fosters inclusion, students have the opportunity to bring their various identities into conversation as they find helpful, but are not expected to represent or speak for an entire group of people who share aspects of an identity. If you have any questions or concerns about this statement, contact the Institutional Equity and Inclusion Office at 607-753-2263.

Title IX Statement: Title IX, when combined with New York Human Rights Law and the New York Education Law 129-B, prohibits discrimination, harassment and violence based on sex, gender, gender identity/expression, and/or sexual orientation in the education setting. The federal Clery Act and NY Education Law 129-B provide certain rights and responsibilities after an incident of sexual or interpersonal violence. When a violation occurs, victims and survivors are eligible for campus and community resources. Where the College has jurisdiction, it may investigate and take action in accordance with College policy. If you or someone you know wishes to report discrimination based in sex, gender, gender identity/expression, and/or sexual orientation, or wishes to report sexual harassment, sexual violence, stalking or relationship violence, please contact the Title IX Coordinator at 607-753-4550, or visit cortland.edu/titleix to learn about all reporting options and resources. (Updated by SUNY Legal Feb. 1, 2018).

Course Schedule:

This is a tentative schedule, and subject to change.

Week	Dates	Topics	Assignments Due
1	8/26	1.1 Systems of Linear Equations	
	8/28	1.2 Row Reduction and Echelon Forms	
	8/30	1.3 Vector Equations	Written #1
2	9/2	**Labor Day - No Class**	
	9/4	1.4 The Matrix Equation $A\vec{x} = \vec{b}$	MyMathLab #1
	9/6	1.5, 1.6 Solution Sets of Linear Equations and Applications	Written #2
3	9/9	1.7 Linear Independence	
	9/11	1.8 Introduction to Linear Transformations	MyMathLab #2
	9/13	1.9 The Matrix of Linear Transformations	Written #3
4	9/16	2.1 Matrix Operations	
	9/18	2.2 The Inverse of a Matrix	MyMathLab #3
	9/20	2.3 Characterizations of Invertible Matrices	Written #4
5	9/23	2.4 Partitioned Matrices	
	9/25	Review	MyMathLab #4
	9/27	Exam 1	Written #5
6	9/30	2.8 Subspaces of Euclidean space	
	10/2	2.9 Dimension and Rank	MyMathLab #5
	10/4	3.1 Introduction to Determinants	Written #6
7	10/7	3.2 Properties of Determinants	
	10/9	3.3 Cramer's Rule	MyMathLab #6
	10/11	4.1 Vector Spaces and Subspaces	Written #7
8	10/14	4.2 Null Spaces, Column Spaces, and Linear Transforamtions	
	10/16	4.3 Linearly Independent Sets, Bases	MyMathLab #7
	10/18	4.4 Coordinate Systems	Written #8
9	10/21	**Fall Break - No class**	
	10/23	Review	MyMathLab #8
	10/25	Exam 2	
10	10/28	4.5 The Dimension of a Vector Space	
	10/30	4.6 Rank	
	11/1	4.7 Change of Basis	Written #9
11	11/4	5.1 Eigenvectors and Eigenvalues	
	11/6	5.2 The Charactersitic Equation	MyMathLab #9
	11/8	5.3 Diagonalization	Written #10
12	11/11	5.4 Eigenvectors and Linear Transformations	
	11/13	5.5 Complex Eigenvalues	MyMathLab #10
	11/15	6.1 Inner Products, Length, and Orthogonality	Written #11
13	11/18	6.2 Orthogonal Sets	
	11/20	6.3 Orthogonal Projections	MyMathLab #11
	11/22	Review	Written #12
14	11/25	Exam 3	
	11/27 − 11/29	**Thanksgiving Break - No Class**	
15	12/2	6.4 Gram-Schmidt Process	
	12/4	7.1 Diagonalization of Symmetric Matrices	MyMathLab #12
	12/6	Review	Written #13
	12/9 − 12/13	**Finals Week**	