Linear Algebra - Math 304

Spring 2024 -- Course Coordinator: Quincy Loney

Sec	Instructor	Office	Email(*)	Meets	Room
2	Minghao Rostami	WH-127	Rostami	MWF: 8:00-9:30	CW-202
3	Quincy Loney	WH-332	Loney	MWF: 9:40-11:10	WH-G002
4	Quincy Loney	WH-332	Loney	MWF: 11:20-12:50	WH-G002
5	Michael Gottstein	WH-326	Gottstein	MWF: 11:20-12:50	LH-004
6	Sarah Lamoureux	WH-326	Lamoureux	MWF: 1:10-2:40	WH-G002
7	Michael Gottstein	WH-326	Gottstein	MWF: 2:50-4:20	WH-G002
8	Sarah Lamoureux	WH-322	Lamoureux	MWF: 4:00-5:30	LN-2403

(*): To send an email to your instructor, click on the link in the Email column of the table.

Below is a partial syllabus with information for all sections that you should know. Your instructor may have a more detailed syllabus about how your section will be run.

Textbook (Required)

Linear Algebra and Its Applications, 6/e, by Lay/McDonald, Pearson+ etext

---

Additional Textbooks and Resources (Supplemental)

Here are a few additional books that students and instructors may find helpful.

Linear Algebra by Jim Hefferon. One can access additional free resources at the textbook's official website.

A First Course in Linear Algebra by Robert A. Beezer

Elementary Linear Algebra by K.R. Matthews

Linear Algebra by D. Cherney, T. Denton, R. Thomas, and A. Waldron

There are also resources for Linear Algebra on the internet, which may supplement the textbook and homework. For example, the following link takes you to a free website with exercises and feedback on your answers: MathMatize by Jonathan Herman

---

Approximate Exam Schedule (Each section instructor will decide when it is appropriate to give Exams 1, 2, 3.)

Exam 1: The week of Feb. 12, 2024

Exam 2: The week of Mar. 18, 2024

Exam 3: The week of Apr. 15, 2024

Final Exam: Common exam for all sections: Monday May 06, 12:50-2:50PM, LH 001

Anyone with a final exam conflict must contact their instructor to make an arrangement.

Grades

The course total will be determined as follows:

Quizzes: 20% (Quizzes should be given approximately once per week except in weeks when an exam is given.)

Exam 1: 15%

Exam 2: 15%

Exam 3: 15%

Final Exam: 30%

MyLab Assignments (Common for all sections): 5%

Important: To truly master the material in the course, it is recommended that in addition to the assigned MyLab problems, you should do additional exercises at the end of each section. These will not be graded, but they could be important to your success in the course.

Quizzes are important for students to keep up with the progress of the course and to provide timely feedback on how the material is being absorbed. By ``Assessment Day" enough quizzes should have been taken to evaluate each student's progress and make a risk assessment for early warning about problems.

At the end of the course, your grade in the course will be determined by your instructor based on your course total and the following approximate scale. (Borderline cases will be decided by other factors such as attendance or participation.)

A 90%, A- 85%, B+ 80%, B 75%, B- 70%, C+ 65%, C 60%, C- 55%, D 50%

Health and Safety Procedures Due to COVID Pandemic

Binghamton University follows the recommendations of public health experts to protect the health of students, faculty, staff and the community at large. Safeguarding public health depends on each of us strictly following requirements as they are instituted and for as long as they remain in force. Health and safety standards will be enforced in this course.

Current rules make face coverings optional, but when they are worn, they should completely cover **both the nose and mouth** while indoors (unless they are eating or alone in a private space like an office). A face shield is not an acceptable substitute. Classroom safety requirements will continue to be based on guidance from public health authorities and will be uniformly applied across campus. If these requirements change, a campus-wide announcement will be made to inform the University.

Expected workload

You are expected to spend about 12.5 hours per week on average for this class, including in-class lectures, watching instructional videos, solving homework problems (graded and ungraded), reviewing the material, and preparing for the tests. Expect the work load to be higher than average in the weeks before the exams.

Expected behavior in class

During classes all students are expected to participate in a way that maximizes their learning and minimizes disruptions for their classmates. If you have any concerns, limitations, or circumstances, please communicate with your instructor to find the most appropriate solution.

Academic Code of Honor

For all graded assignments and exams, you are not allowed to use any help not explicitly authorized by your instructor. This includes, but is not limited to, problem-solving websites, notes, help from other people, etc. All instances of academic dishonesty will be investigated, penalized, and referred to the appropriate University officials for maximal possible punishment. **Cheating will not be tolerated.**

Getting Help

If you fall behind in class, or need extra help to learn the material, talk to your instructor as soon as you can. They should be able to help you and also point you to other resources. We also encourage you to talk to your classmates, and, in particular, to form informal study groups to prepare for the exams.

Disability Information

If you have a disability for which you are or may be requesting an accommodation, please contact both your instructor and the Services for Students with Disabilities office (119 University Union, 607-777-2686) as early in the term as possible. Note: extended time for the examinations may require special scheduling.

Topics for Exam 1	Chapter
Systems of Linear Equations	1.1
Row Reduction and Echelon Forms	1.2
Vector Equations	1.3
Matrix Equations	1.4
Solution Sets of Linear Systems	1.5
Linear Independence	1.7
Linear Transformations	1.8
Standard Matrix for a Linear Transformation	1.9
Matrix Operations	2.1
Invertible Matrices	2.2
Invertible Matrix Theorem	2.3
Topics for Exam 2	
Determinants	3.1
Properties of Determinants	3.2
Applications of Determinants (Not responsible for Cramer's Rule or Adjugates)	3.3
Abstract Vector Spaces	4.1
Fundamental Subspaces	4.2
Bases	4.3
Coordinate Systems	4.4
Dimension	4.5
Change of Basis Matrices	4.6
Topics for Exam 3	
Eigenvalues and Eigenvectors	5.1
Characteristic Equations	5.2
Diagonalization	5.3
Matrix for a Linear Transformation	5.4
Complex Eigendata	5.5
Inner Products	6.1
Orthogonal Sets	6.2
Orthogonal Projections	6.3
Gram-Schmidt	6.4
Additional Topics	
Inner Product Spaces	6.7
Symmetric Matrices	7.1

Syllabi from previous semesters

The syllabus for Math 304 in Fall 2023 is available through this link:

Fall 2023 page

The syllabus for Math 304 in Spring 2023 is available through this link:

Spring 2023 page

The syllabus for Math 304 in Fall 2022 is available through this link:

Fall 2022 page

The syllabus for Math 304 in Spring 2022 is available through this link:

Spring 2022 page

The syllabus for Math 304 in Fall 2021 is available through this link:

Fall 2021 page

The syllabus for Math 304 in Spring 2021 is available through this link:

Spring 2021 page