

**LECTURE:**

Section	Class Location	Class Times
001	A216 WH	11:30-12:20 MWF
004	A222 WH	10:20-11:10 MWF

**EMAIL\OFFICE HOURS:**

Email	<a href="mailto:qwu@math.msu.edu">qwu@math.msu.edu</a>
Office Location	C207 WH
Office Hours	1:00-2:00 MWF

**CLASS WEBPAGE:** [math.msu.edu/~qwu/teaching.html](http://math.msu.edu/~qwu/teaching.html).

**GOAL:** This course is a proof-based introduction to Linear Algebra. After calculus, Linear Algebra is the most useful branch of mathematics, with innumerable applications in statistics, computer science, engineering, physics, economics and in mathematics itself. It combines algebra and geometry in a way that is mathematically “clean”: the definitions and theorems are simple and precise, and most proofs are short, direct and illuminating.

**PREREQUISITES:**

A year of Calculus;

Math 299;

A willingness to work hard on abstract math.

**TEXTBOOK:**

*Linear Algebra with Applications, 9th ed.*

Author: Steven Leon.

Coverage: Through the middle of Chapter 6.

**Additional resources:** The following textbooks are on reserve in the Mathematics Library:

- *Schaum's Outlines: Linear Algebra* by S. Lipschutz and M. Lipson is a cheap, helpful book.
- *Linear Algebra Done Wrong* by S. Treil. A free online book with a clean presentation. Download at [math.brown.edu/~treil/papers/LADW/LADW-2014-09.pdf](http://math.brown.edu/~treil/papers/LADW/LADW-2014-09.pdf).
- Video lectures: Go to [ocw.mit.edu/courses/mathematics](http://ocw.mit.edu/courses/mathematics), select course 18.06 (“Linear Algebra”) and click on video lectures. This MIT open online course (with Prof. G. Strang) may be useful for review. Prof. Strang’s approach emphasizes the applications of linear algebra to numerical analysis.

**EVALUATION:**

	Date & Location	Subtotal	Total
Homework	Due Every Wednesday	150	500
Exam 1	In-Class, 02/15/2017	100	
Exam 2	In-Class, 03/27/2017	100	
Final	Sec 1: 10:00-12:00, 05/04/2017, A216 WH	150	
	Sec 4: 10:00-12:00, 05/03/2017, A222 WH		

**Grade:** At the end of the semester, your total points will be converted to a percentage, and then to a course grade. Final grades will be determined by:

4.0 Grade	0.0	1.0	1.5	2.0	2.5	3.0	3.5	4.0
% Grade	[0,55)	[55,60)	[60,65)	[65,73)	[73,80)	[80,85)	[85,90)	[90,100]

This scale may be curved to be more lenient. Such a curve is at the discretion of the instructor. At the end of the semester, your total points

**Make-up:** Missed exams will count as 0 points. Only under rare circumstances (such as illness with a doctor’s written excuse) will a make-up exam be given.

**Grading:** If you suspect a homework or exam has been incorrectly graded please return it to your instructor within one week of receiving it back. After this no grade changes can be made.

**Homework:** The daily homework assignments are the main part of the course. *You are expected to do all homework problems and to have the homework stapled and ready to hand in at the beginning of every class.* Homework will be posted on the course webpage and selected problems will be graded. The homework will be collected on Wednesdays at the start of class. Plan on spending **2–4 hours** of homework for each class meeting. You are encouraged to help each other on homework. At the beginning of each class a few minutes will be spent answering homework problems.

**Key to Success:** Do *ALL* the homework problems. *Mathematics is learned by doing problems.* Again, you are encouraged to work with friends on the homework problems.

**ATTENDENCE & INTEGRITY:** You are responsible for everything presented in class meetings. If you must miss a class, plan to get notes for that day from a classmate. Don't miss exams. As always, all students are expected to adhere to MSU's policy on academic integrity described in 'General Student Regulations' in the Spartan Life booklet [vps.msu.edu/SpLife](http://vps.msu.edu/SpLife).

**IMPORTANT DATES:**

01/09/2017: Class begins.

02/03/2017: Last date to drop a course and receive a 100% tuition refund.

02/15/2017: **EXAM 1**, in class.

03/01/2017: Last day to drop a course without a grade being reported.

03/06-10/2017: no class (spring break).

03/27/2017: **EXAM 2**, in class.

04/28/2017: Last day of classes.

05/03/2017: **FINAL EXAM (Sec 4)**, 10:00am - noon, A222 Wells Hall.

05/04/2017: **FINAL EXAM (Sec 1)**, 10:00am-noon, A216 Wells Hall.

**Tentative Homework Assignments:**

Section	Homework
1.1	1ac, 2ac, 3ac, 4ac, 5c, 6e, 7, 9.
1.2	1-4, 5ef, 6c, 7, 8, 15.
1.3	laceg, 2acf, 4,5, 7, 8a.
1.4	1a, 2-4, 9, 12, 13, 20, 21.
1.5	1, 2, 3a, 10aeg, 7; , 10h, 11, 12abc, 23, 24.
2.1	2, 3ace, 4, 5, ; 6, 9, 10.
2.2	1ac, 2a, 3ace, 4, and 5; 6, 7
3.1	4,6, 9b.
3.2	1bce, 2ac, 3adf; 5a, 6b, 11bc, 12ad, 18, 19ab, 21.
3.3	1ac, 2ad, 4c; 6, 8ac, 9ad, 13, 14, 19.
3.4	2ad,3,4,5,7; 8ab, 11, 13, 14a, 15.
3.5	1-4; 5, 6, 9a, 10.
3.6	1, 3, 4ad, 6, 9, 12, 19, 26.
4.1	1abc, 3, 5abc, 6ab, 12, 14, 16, 20, 22; 17bc, 19a.
4.2	1abc, 2ab, 3c; 4b, 5, 6, 14,
4.3	3-5, 8, 12, 13, 14.
5.1	1ab, 2ab, 3ac, 5, 7, 17, 18, 20.
5.2	2,3,4,8; 1ad, 9 11 12a.
5.3	1ab, 3, 4a, 9, 11; 5, 6.
5.4	1, 4; 6,7,8ab,9,10,26, 32a, 33.
5.5	1a, 2a, 3, 4, 7; 1b, 2b, 5, 7.
5.6	1a, 2, 4, 7.
6.1	1abc, 8, 10
6.3	1abc, 2, 3