

Math 300-01 Vector Spaces

Spring 2016
MWF 1:10-2:00
AEC 500

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Office Hours: MW 10:45-11:30, R 10:30-12:00; *other times by appointment.*

Other Online Course Materials: moodle.lafayette.edu

Texts: Schaum's Outlines Linear Algebra, 5th Edition, Lipschutz, Lipson, ISBN 978-0-07-179456-5; Linear Algebra Done Right, 3rd edition, Axler, ISBN 978-3-319-11079-0

Course Goals and Learning Outcomes: The student work in this course is in full compliance with the federal definition of a four credit hour course. Please see the Lafayette College Compliance webpage for the full policy and practice statement.

Upon successful completion of this course, you should understand: basic matrix arithmetic; various data about matrices including determinants and eigenvalues; various methods for solving linear systems; the geometry of vector spaces and inner product spaces; matrices as linear transformations on vector spaces.

Homework: Homework assignments are listed online, and it is your responsibility to complete the assigned homework corresponding to the sections covered in class. I plan to collect homework every Friday. I will collect homework in the first ten minutes of class, and **will not** accept late homework without an official excuse. In addition, you *must* turn in the homework in person; I will not accept your homework if it is handed in by someone else without an official excuse. I plan to drop one homework grade.

The homework in this course will consist of problems from each of the texts, as well as occasional additional problems. I plan to hand out the homework assignment the Friday before it is due, so that you have a full week to complete it. I *strongly recommend* that you start the homework immediately, as most of the problems will be difficult and take a lot of thinking. The work that you turn in to me should be neat, organized, and legible. If it is not, I will return it to you to rewrite and will reduce your score by a letter grade.

I encourage you to work with other students on the assignments. However, it is critical that you write up your assignments in your own words. If I find identical homework assignments, it is unclear to me if the students involved worked together, or if one copied from the other. As such, if I *do* find identical work, I will report it to the dean as a case of academic dishonesty.

Finally—the key to the problems from the Axler text is available online. I expect you to avoid all temptation to look it up and use it to assist you with the work that you are to turn in. If I find out that you are using the key, you can be assured that I will report it to the dean as a case of academic dishonesty.

Participation and Attendance: I do not plan to take regular attendance in the course, but I expect you to be on time and in class regularly. I also expect you to participate in class discussions,

attempt to answer questions during class, and ask *me* questions when you have them. Attendance and participation will be counted towards your final grade at the end of the course. It is your responsibility to ensure that I am receive dean's excuses for any *excused* absences you may need.

Tests: There will be three regular tests and a comprehensive final. I **will not** drop a test grade. The dates for the tests are below:

Test 1 February 26
Test 2 April 1
Test 3 April 29

Grades:

Tests (3 @ 100 points each)	300
Homework average	300
Attendance and Participation	100
Final	<u>300</u>
Total	1000

Grading Scale:

A	93-100%	(930+ points)
A-	90-93%	(900-929 points)
B+	87-89%	(870-899 points)
B	83-87%	(830-869 points)
B-	80-83%	(800-829 points)
C+	77-79%	(770-799 points)
C	73-77%	(730-769 points)
C-	70-73%	(700-729 points)
D	60-69%	(600-699 points)
F	<60%	(<600 points)

Projected Course Content: As I better determine the needs of this class, this schedule will change. Thus I reserve the right to add to/subtract from the schedule. However, at present I plan to cover the sections in the following order:

Matrix Arithmetic, Linear Systems, Introduction to Vector Spaces, Test 1
Linear Transformations, Rank, Nullspace, Test 2
Inner Product Spaces, Vector Space Decompositions, Test 3
1 week of review
Final exam (comprehensive)

Office Hours: I will be in my office during the hours listed on this syllabus. You do not need to make an appointment to see me during those times. If you need extra help from me outside of the hours I've listed, let me know; I will do my best to accommodate you.

Honesty: I expect all students in this course to be honest in all of their academic work. Your further participation in this course is a tacit agreement to commit to acting in an honorable fashion in this academic community and signifies that your failure to comply with this commitment may result in disciplinary action. I **will** report any suspected case of academic dishonesty to the Dean of the College. Penalties for academic dishonesty are often quite severe; it is certainly better to earn a low grade honestly than to take the chance of being caught cheating.

While I encourage students to collaborate on homework and labs, I also expect that the materials you turn in reflect your own work on the assignment. You may not copy or paraphrase the work of another student, nor should you use another student's work as a model for your own.

During examinations and quizzes, you must not confer with other students, look at their papers, or use any unauthorized sources of information. Additionally, you may not allow another student access to your work. It is also dishonest to seek information about an examination from another student before taking a make-up examination.

In order to help assure honesty on in-class evaluations, I require that you show an appropriate amount of work for each problem on a quiz or test. The less detail you show, the less credit you will receive; unjustified answers will receive a score of 0.

See the Student Handbook for a complete statement of the College's Policy on Academic Honesty.

Accommodation for Disabilities: Students who require such considerations should make an appointment with me during the first week of classes. Please bring your memo from ATTIC.

Attendance Policy/Absence from Quizzes and Exams: If you miss a day of class, a homework assignment, or a test, you may make it up only if you have a Dean's excuse, doctor's excuse, or athletic excuse for the affected day.

Email Policy: Email is an official form of communication at Lafayette College; you are responsible for checking your email often.

Important Dates:

January 25	Classes begin
February 5	Deadline for adding/dropping courses
March 18	Mid-term
March 21-25	Spring Break
April 18	Last day to withdraw
May 6	Last class day
May 9-16	Final exams

The final exam date and time for this class will not be set until a few weeks into class. The date and time will be posted on my website once it becomes available. Until that time, **do not** make any travel plans for the entire exam period listed above; I will not be willing to move an exam for a student who has done so precipitously.

Student Expectations and Responsibilities: I expect you to be in class on time every day, and to stay for the entire period. Missing class means that you will lose valuable opportunities to interact with me and your peers.

I expect you to remain alert and engaged during class. Sleeping, texting, studying for other classes, or any behavior that interferes with the ability of other students to learn is unacceptable. If any of these things become an issue I will ask you to leave class for the day.

I also expect you to ask me questions during class whenever you are confused (no need to ask permission); that is simply part of the learning process. However, I do require respectful and thoughtful behavior from you; again, I will not tolerate any actions that prevent others from learning.

You must remain thoroughly engaged in your own learning process. This means that you *must* seek help when you see that you need it. Help can come in many forms: coming to my office hours or making an appointment to see me and getting help from your friends in the class are both good places to start.

Your phone should be on silent during class; I don't want to hear it ring or vibrate while I'm teaching. In addition, texting during class is rude and disrespectful; if I catch you texting chronically, I will ask you to leave class. Please refrain from using your cell phone during class time. In particular, if you are caught with a cell phone on your desk, in your lap, or anywhere in view while taking a test, I will view this as a case of academic dishonesty which will be reported to the Dean.