Instructor: Tatiana Doytchinova **email:** tdoytchinova@wpi.edu
Office hours: Tue 10:00 am – 10:50 am **Office:** Stratton Hall 422
Thu 10:00 am – 10:50 am,
or by appointment

Scheduled Lecture Times: M-T-Th-F 12:00 - 12:50 in Olin Hall 107

Scheduled Discussion Times:

Section	Discussions	TA	TA's email
CD01	T 2:00 - 2:50 in Stratton Hall 313	MollyAnn Burkey	mburkey@wpi.edu
CD02	T 3:00 - 3:50 in Stratton Hall 313	MollyAnn Burkey	mburkey@wpi.edu
CD03	T 4:00 - 4:50 in Stratton Hall 313	MollyAnn Burkey	mburkey@wpi.edu

SYLLABUS

RECOMMENDED BACKGROUND: None

TEXT: David C. Lay, Steven R. Lay, Judi J. McDonald, Linear Algebra and its Applications, Fifth edition. There is no need to buy access code to MyMathLab.com.
You can use any other edition of the textbook.

COURSE COVERAGE. Linear algebra is an essential part of the mathematics, science and engineering disciplines. This course provides a study of computational techniques of matrix algebra and an introduction to vector spaces. Topics covered include: matrix algebra, systems of linear equations, eigenvalues and eigenvectors, diagonalization, vector spaces, and applications.

COURSE OBJECTIVES FOR STUDENTS.

- Learn how to solve linear systems
- Learn how to apply linear systems to problems from various disciplines
- Learn about matrices, determinants, matrix factorization, eigenvalues and eigenvectors
- Learn how to apply vector space concepts to solve problems

DISCUSSIONS. Weekly discussions give you an opportunity to discuss difficult material with the TA and go over the solutions to the practice problems and homework assignments. At the end of almost every discussion session there will be a quiz which will include 3-5 problems.

ASSESSMENT. Your final grade for the course will be based on the degree of mastery of the course content, as measured by your performance on quizzes, tests, and the final exam.

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ATTENDANCE. You are supposed to spend 12-15 hours per week on this course. Of these, you will be spending 5 hours per week in class (4 hours of lectures and one discussion session). You are expected to attend all lectures and discussions (if you miss a class, it is **your** responsibility to make a copy of the class notes from another student and make sure you learn what you have missed). Also, you should expect to

spend at least 7 hours each week working on your own: reading the book, reading and organizing your notes, solving problems.

LECTURES and NOTES. You will have 4 (sometimes 3) lectures per week. The lectures will provide the main presentation of the course material**. If you miss a lecture, you are supposed to watch the corresponding video lecture ON THE DAY specified on Canvas.** To succeed in class, it is important to work every day and not fall behind. You are supposed to learn several chapters of a relatively difficult material. It is impossible to learn that material in a few days. You need to work at a steady pace every day and not just a few days before the exams.

Some students might not be able to attend lectures for a few days due to illness. I will post on Canvas prerecorded video lectures that will include the same material that will be covered during in-person lectures. The video lectures were created ahead of time, they will **not** be the same as in person lectures. They will include more examples and the examples could be slightly different from those shown in class.

Note: you are supposed to attend all the lectures and the discussions in person. The video lectures and the notes will be posted to accommodate students who are sick.
They are NOT a substitute for in-person lectures.

HOMEWORK and QUIZZES. Homework is assigned for each section of the book covered and is a required component of the course. Working the exercises is intended to help you learn, and give you some perspective on your progress. Homework will not be collected for grading, but if you do not do it regularly, you will not learn. I suggest that you keep a notebook to write the homework in (this could be the same notebook in which you write your lecture notes).

Once a week, during a discussion session, there will be a quiz with three-five problems. The lowest quiz grade will be dropped. Quizzes will account for 20% of your grade. Quizzes might be given during the lecture time as well. The problems on quizzes will be very similar to the homework problems (although not exactly the same).

To help you prepare for the quizzes in a more focused and efficient way, solutions to the homework problems will be available on CANVAS ahead of time. You can look at my solutions when you work on your homework assignments, but remember that **no notes and no calculators will be allowed on quizzes, tests and the final exam.** Homework assignments (and my solutions for homework assignments) are intended to help you learn the material. Just looking at my solutions will not help. But solving (or trying to solve) all the assigned problems and comparing your solutions with solutions posted on CANVAS will help. In case you do not understand the posted solutions, contact the instructor (or the TA) as soon as possible.

Some homework problems are marked with a star. These are very important problems and majority of the problems on quizzes will be very similar to the problems with stars. Remember also that you must solve and understand all homework problems, not just the starred ones. The problems on the tests and the final exam will be similar to (although not exactly the same as) the ones discussed in class or assigned as homework. Discipline yourself to write clear readable notes and solutions, they will be of great value as review.

EXPECTATIONS: I expect students to spend at least 7 hours per week preparing and practicing problems for this course in addition to attending the lectures. Some students might find that they need to spend more time on the course in order to achieve the desired results. **It is important that you keep pace with the course material and assignments each week.**

TESTS and EXAMS. There will be two in-class tests and a Final Exam on the following dates:

Test1 - Thursday, February 6
Test2 - Friday, February 28 Final Exam – Thursday, March 6

Each test is timed and will take 50 minutes. This time limit will be strictly enforced. Make up tests will not be given, except in cases of documented illness or grave emergency.

There will be three in-class review sessions on the following dates:
Review for Test1 – Tuesday, February 4
Review for Test2 - Tuesday, February 25
Review for Final Exam – Monday, March 3

Note: All students will be given an opportunity to retake (with different questions) one test of their choice (Test1 or Test2) on Tuesday, March 4. If you retake a test, the highest of your two scores will be kept.

The final exam will be comprehensive and will cover all the studied material.
The two tests and the final are closed-book, in-class exams. No calculators and no notes, written or electronic, are allowed (except the notes provided by the instructor). All work must be shown to receive full credit. **The problems on the tests and the final exam will be similar to (although not exactly the same as) the ones discussed in class or assigned as homework. NO CREDIT WILL BE GIVEN FOR UNSUPPORTED ANSWERS (EVEN CORRECT UNSUPPORTED ANSWERS).**

FINAL GRADE. Your final grade will be calculated in the following way:
25% of the grade come from the Test1,
25% of the grade come from the Test2,
30% of the grade come from the Final Exam,
20% of the grade come from the Quizzes.

Grades will be assigned as either A, B, C, I, or NR.

- An average of 90% will ensure an A for the course.
- An average of 80% will ensure a B for the course.
- An average of 65% will ensure a C for the course.
- An average of less than 65% will result in NR for the course.

Depending on the overall class performance and due to curving, the above target percentages could be lowered a little bit (**do not count on it**), however, they will not be raised. In other words, 90% performance guarantee you an A, etc.

INTEGRITY. Each student is expected to familiarize him/herself with WPI's Academic Honesty policies which can be found at https://www.wpi.edu/about/policies/academic-integrity/dishonesty. All acts of fabrication, plagiarism, cheating, and facilitation will be prosecuted according to the university's policy.

ACADEMIC ACCOMODATIONS and DISABILITIES. *Students with approved academic accommodations should plan to submit their accommodation letters through the Office of Accessibility Services Student Portal. Should you have any questions about how accommodations can be implemented in this particular course, please contact me as soon as possible. Students who are not currently registered with the Office of Accessibility Services (OAS) but who would like to find out more information regarding requesting accommodations should plan to contact them via email: AccessibilityServices@wpi.edu and/or via phone: (508) 831-4908 and/or by visiting Unity Hall, 5th floor.*
Use https://www.wpi.edu/student-experience/resources/accessibility-services for more information.