Instructor: Tatiana Doytchinova   **email:** tdoytchinova@wpi.edu
Office hours: Mon   2:30 – 3:30pm (Zoom)   **Office:** SL405C
                   Thu   3:00 – 4:00pm (Zoom), or by appointment

**From January 12 through January 21 all discussions (and likely all the lectures) will be on Zoom.
Scheduled Meeting Times after January 21:**

Sec.	Lectures	Discussions	TA/PLA	TA's email
CD01	MT-RF 12:00-12:50 in OH 107	W 9:00-9:50 in SH309	Em Beeler	ebeeler@wpi.edu
CD02	MT-RF 12:00-12:50 in OH 107	W 10:00-10:50 in HL202	Jiaxuan Ye	jye@wpi.edu
CD03	MT-RF 12:00-12:50 in OH 107	W 12:00-12:50 in SH308	Jiaxuan Ye	jye@wpi.edu
CD04	MT-RF 12:00-12:50 in OH 107	W 1:00-1:50 in SH106	Kayleigh Campbell	kacampbell@wpi.edu
CD05	MT-RF 12:00-12:50 in OH 107	W 1:00-1:50 in SH202	Daniil Volkov	dvolkov@wpi.edu
CD09	MT-RF 12:00-12:50 in OH 107	W 2:00-2:50 in SL407	Sagarkumar Panchal	spanchal@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 carry the book to class, unless you enjoy weightlifting. 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, diagonilization, vector spaces, orthogonality, and applications of linear algebra.

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/PLA 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.

ATTENDANCE. You are supposed to spend 15 hours per week on this course. Of these, you will be spending 5 hours per week in class for: 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 8 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 first two weeks of classes the lectures will be on Zoom. Then we will meet in person.

Some students might not be able to attend in person lectures for a few days due to illness or quarantine. I will post on Canvas prerecorded video lectures that will include the same material that will be covered during in-person lectures. But since pre-recorded video lectures will be created ahead of time, they will not be 100 percent the same as in person lectures. For example, if somebody will ask a question during the in-person lecture, that question will be answered in class but it will not be included in the prerecorded video lecture.

The lectures will provide the main presentation of the course material. **If you miss in-person 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 in this course. It is impossible to learn that material in a few days. You need to work at a steady pace every day and not just three days before the exams.

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. (One or two quizzes could also be given during the lecture time.) The lowest quiz grade will be dropped. Quizzes will account for 20% of your grade. 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.

Your first quiz (and maybe some other quizzes) will be administered on Zoom with cameras on. All students must have a WEB CAMERA turned 'ON' and the proctor should be able to see the working area of your desk, your paper, your hands and your head. After you finish the quiz, you will be given additional 10 min for scanning or making pictures of your exam, creating one pdf file and submitting the exam on Canvas. You will be able to submit only a pdf file. Cell phones and other electronic devices must be in airplane mode and out of sight. They cannot be on the working area while you are taking an exam. After the exam is over, you can take your phone and use it for making the pictures and submitting the exam. Please practice ahead of time making pictures or scanning, creating a pdf file and using Canvas for submission.

OFFICE HOURS. I will have live office hours via Zoom. Zoom office hours will be for everybody to participate at once and during those office hours I will answer only questions related to linear algebra, covered course material and assignments. <u>If you want to discuss grades or some other important to you issues, please email me and I will schedule a separate Zoom meeting or a personal meeting with you.</u>

All TAs for this course will also have live Zoom office hours. <u>Those office hours are for students from all six sections.</u>

EXPECTATIONS: I expect students to spend at least 8 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 - Tuesday, February 1
Test2 - Monday, February 21   Final Exam – Thursday, March 3

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 - Monday, January 31
Review for Test2 - Friday, February 18   Review for Final Exam – Tuesday, March 1

All students will be given an opportunity to retake (with different questions) one test of their choice (Test1 or Test2) on Monday, February 28, during the lecture (<u>this date is subject to change</u>).

<u>The final exam will be comprehensive and will cover all the studied material.</u>

The two tests and the final are **closed-book**, in-class exams. No notes, written or electronic, are allowed. **No calculators are allowed.** All work must be shown to receive full credit. **NO CREDIT WILL BE GIVEN FOR UNSUPPORTED ANSWERS (EVEN CORRECT UNSUPPORTED ANSWERS).** Each test (Test1 and Test 2) and the Final will be timed and will take **50 minutes**. **<u>This time limit will be strictly enforced.</u>**

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 (**<u>do not count on it</u>**), 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 124 Daniels Hall.*
Use https://www.wpi.edu/student-experience/resources/accessibility-services for more information.