Instructor: Tatiana Doytchinova **email:** tdoytchinova@wpi.edu
Office hours: Friday 10:00-11:00 am (on Zoom), or by appointment

Scheduled Meeting Times:

LECTURES	DISCUSSION
Tuesday, Thursday 10:00 - 12:40 AM	Wednesday 10:00 – 11:10 AM

SYLLABUS

RECOMMENDED BACKGROUND: None

TEXT (not required): David C. Lay, Steven R. Lay, Judi J. McDonald, Linear Algebra and its Applications, Fifth edition.
You can use any other edition of the textbook or just use the class notes.

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

CANVAS. Canvas is WPI's online course environment. In the Canvas area for this class, you will find the syllabus, class notes and videos, assignments and your grades.

LECTURES, DISCUSSIONS and OFFICE HOURS. The synchronous Zoom lectures will provide the main presentation of the course material. I will split each class into 3 lectures with a short break between them. After each class I will post on Canvas my lecture notes in pdf format, prerecorded video lectures (there will be 3 prerecorded lectures for each class, approximately 40-50 minutes each) and homework assignment corresponding to the lectures.

If you prefer, instead of attending the synchronous lectures, you can watch the prerecorded video lectures at times convenient to you, but the prerecorded video lectures might not be absolutely the same as the synchronous lectures and you will not be able to ask questions while watching the prerecorded videos.

You are supposed to attend all the synchronous discussions.

Once a week 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. If you want to discuss grades or some other issues important to you, please email me and I will schedule a separate Zoom meeting with you.

Weekly discussion sessions give you an opportunity to discuss difficult material with the TA and practice different problem-solving techniques. You should come to the discussions prepared to solve problems, ask questions, and share solutions. **Homework assignments can be discussed during these sessions, but only briefly. Discussions are designed to show you interesting examples and problems and not as a time to do homework.**

ASSESSMENT. Your final grade for the course will be based on the degree of mastery of the course content listed above, as measured by your performance on homework assignments, the midterm exam and the final exam.

HOMEWORK. Homework is a required component of the course. Working the exercises is intended to help you learn, and give you some perspective on your progress. If you do not do homework regularly, you will not learn.

Homework will include two components: 1) **Practice Problems** and 2) **Homework Assignments**.

1) **Practice Problems will not be collected for grading, but if you do not do them, you will not learn.** I suggest that you keep a special notebook in which you write your solutions to the practice problems. To give you some idea on how to write solutions for the homework assignments and to help you prepare for the exams in a more focused and efficient way, solutions to the practice problems will be available on Canvas ahead of time. You can look at my solutions when you work on the practice problems, but remember that **no notes and no calculators will be allowed on the midterm exam and the final exam.** Practice problems (and my solutions for them) are intended to help you learn the material. **Even if you understand my solutions, it does not mean you can solve the problems on your own!** Just looking at my solutions will not help. But solving (or trying to solve) all the assigned problems and comparing your solutions with my solutions will help. **In case you do not understand the posted solutions, contact the instructor (or the TA) as soon as possible.**
2) **Homework Assignments will be collected (on Canvas) for grading.** Assignments that are posted on Tuesdays will be due at 9PM on Thursdays and the assignments posted on Thursdays will be due at 9PM on Mondays. The deadlines will be specified on Canvas. To submit your Homework assignments for grading, you will have to use section ASSIGNMENTS on Canvas. **Your solutions to the assigned problems must be submitted on Canvas as one pdf file**. Homework assignments will account for 40% of your grade.

No late homework will be accepted (even in case of illness)! But one (lowest) homework score will be dropped (in case a student was sick on the day when an assignment was due). If you do not submit your homework assignment on time it will receive a score of 0. If you are seriously sick and expect to miss more than one assignment, please let me know.

To receive full credit, solutions to the homework assignments must be written clearly and legibly, with enough detail included to indicate the solution method. No credit will be given for unsupported answers (even for correct unsupported answers).

The problems on the midterm and the final exam will be similar to (although not exactly the same as) the ones discussed in class or assigned as homework (including the practice problems). Discipline yourself to write clear readable notes and solutions, they will be of great value as review.

MIDTEERM and FINAL EXAM. There will be two in-class tests: the Midterm Exam and the Final Exam on the following dates:

Midterm - Tuesday, July 23, 11:30 AM – 12:40 PM
Final Exam – Thursday, August 8, 11:00 AM – 12:40 PM

The Midterm and the Final will be administered on Zoon and will be timed. The Midterm exam will take 1 hour and the Final Exam is designed for 1.5 hours. **This time limit will be strictly enforced.** You will be given additional 10 min for scanning or making pictures of your exam, creating a pdf file and submitting the exam on Canvas! Make up exams will not be given, except in cases of documented illness or grave emergency. If some unavoidable circumstance comes up that will prevent you from taking an exam as scheduled, you must talk to me about this personally and in advance.

The final exam will be comprehensive and will cover all the studied material. The midterm and the final are closed-book, in-class exams. No notes, written or electronic, are allowed. No calculators are allowed. No internet is allowed.

To receive full credit, solutions must be written clearly and legibly, with enough detail included to indicate the solution method. **NO CREDIT WILL BE GIVEN FOR UNSUPPORTED ANSWERS (EVEN CORRECT UNSUPPORTED ANSWERS).**

The exams will be administered on Zoom and will be proctored by the TA and the instructor. **All students must have a WEB CAMERA turned 'ON' and the proctors should be able to see the working area of your desk, your paper, your hands and your head.**

I will not give warnings about keeping the cameras on. If you do not keep your WEB camera 'ON' during the entire exam or if you position it in a way that the proctors cannot see your hands and your working area, you will get 0 for the exam. No exceptions!

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.

FINAL GRADE. Your final grade will be calculated in the following way:
30% of the grade come from the Final Exam,
30% of the grade come from the Midterm,
40% of the grade come from the Homework Assignments.

Grades will be assigned as either A, B, C, D, 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.

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.