

# MA2071 – Matrices and Linear Algebra I

## C Term 2021, WPI

<b>Professor</b>	Dr. Xavier Ramos Olive ( <a href="mailto:xramosolive@wpi.edu">xramosolive@wpi.edu</a> )
<b>Office</b>	405B Salisbury Laboratories, Worcester Polytechnic Institute
<b>Office Hours</b>	TBD through Zoom or in person.
<b>Lectures</b>	In person, <b>Monday, Tuesday, Thursday, and Friday 4:00pm - 4:50pm ET</b> , at <b>Salisbury Labs 115 (Kinnicutt Hall)</b> . Lectures will also be streamed through Zoom and recorded with Echo 360, but synchronous attendance is encouraged (online or in person).
<b>Discussion</b>	<p>In person, on <b>Wednesdays</b>, time, location, and instructor depend on your section:</p> <p>Section <b>CD06</b>: with <b>Pooya Yousefi</b> (<a href="mailto:pyousefi@wpi.edu">pyousefi@wpi.edu</a>), <b>2:00 - 2:50pm SL406</b>.</p> <p>Section <b>CD07</b>: with <b>Anthony Vuolo</b> (<a href="mailto:arvuolo@wpi.edu">arvuolo@wpi.edu</a>), <b>2:00 - 2:50pm SH202</b>.</p> <p>Section <b>CD08</b>: with <b>Pooya Yousefi</b> (<a href="mailto:pyousefi@wpi.edu">pyousefi@wpi.edu</a>), <b>3:00 - 3:50pm in SH202</b>.</p> <p>Until January 21st , all discussions will be held <b>online through Zoom</b>.</p>
<b>Grading</b>	<p>3x Tests = 60%</p> <p>4x Quizzes = 16%</p> <p>zyBook activities = 15%</p> <p>3x Test Prep = 9%</p>
<b>Final Grade</b>	The grade of a Quiz will be dropped if it is lower than the grade of the following Test; in that case, the grade in the corresponding Test will be given an additional 4% of the weight (e.g. in the case of Test 3, if both Quiz 3 and Quiz 4 are dropped, it will be given a weight of 28%; if only one of them is dropped, it will be worth 24%; if none of the quizzes get dropped, it will be worth 20%).
<b>Letter grade</b>	A (90-100%), B (80-90%), C (70-80%), NR (<70%)
<b>Textbook</b>	<p>zyBook <i>Linear Algebra</i>. To access it, follow these steps:</p> <ol style="list-style-type: none"><li>1. Click the <i>Sign up for our zyBook</i> link on Canvas</li></ol> <p><b>(Do not go to the zyBooks website and create a new account, use Canvas)</b></p> <ol style="list-style-type: none"><li>2. Purchase a subscription</li></ol>
<b>Contents</b>	<p>This is a first course on Linear Algebra, which provides essential background and preparation for many other classes at WPI. At the end of this course, you will be able to</p> <ul style="list-style-type: none"><li>• Solve systems of linear equations in <math>n</math> variables via Gaussian elimination,</li><li>• relate systems of equations and matrices,</li></ul>

- perform basic matrix operations and use them to study linear systems,
- understand basic vector space notions like basis, dimension, and change of basis,
- interpret matrices as linear transformations between vector spaces,
- diagonalize a matrix using eigenvalues and eigenvectors.

<b>zyBook HW</b>	Our textbook is an online book with interactive activities and problems. There will be daily homework assigned from the book, which will include <b>short readings, participation activities, and challenge activities</b> . These activities will be <b>due before our lectures at 4pm ET</b> . Although keeping up with the set deadlines is highly encouraged, you will be allowed make-ups for missed zyBook activities up until the day of the following Test.
<b>Exam Prep</b>	No formal written homework will be assigned. However, you will be asked to turn in additional problems that you do to study for the tests. The problems you turn in will be selected from the list of available <b>exercises</b> in our zyBook (these are different from participation and challenge activities). On the <b>Tuesday before each test</b> (see our <a href="#">Calendar here</a> ), you will need to submit a document with notes and a few well written problems that you have been doing to prepare for the test. A selection of 4 or 5 problems from the corresponding sections covered in the test is enough, but it should show an <b>honest effort to prepare for the test</b> . Any document satisfying these requirements will be given full credit. Documents showing problems unrelated to the material covered in the test, or showing work unrelated to the class, will not be given any credit.
<b>Quizzes</b>	There will be 4 quizzes throughout the term, in weeks 2, 4, 6 and 7 (see our <a href="#">Calendar here</a> ). The quizzes will take place during the Discussion sections. The quizzes will get dropped if your grade in the corresponding test is higher than the grade in the quiz.
<b>Tests</b>	There will be three tests, which will take place during lecture on Fridays (see our <a href="#">Calendar here</a> ). Test 1 will cover Chapter 1, and will take place on Friday January 28. Test 2 will cover Chapters 2 and 3 and will take place Friday February 11. Test 3 will cover Chapters 4, 5, and 6, and will take place Friday March 4. The exams are not cumulative (they “eliminate” material), although the content of the class is deeply interrelated.
<b>Contingencies</b>	The Covid pandemic might prevent you or me from attending class, but this is not the only emergency that we might be facing this term. In our area, snow days are common, and sometimes it is not possible/safe to attend class in person on campus. In case of snow days where the campus is closed, we will have class online through Zoom. The same contingency plan will apply if the instructor gets sick or is forced to isolate. If you as a student have to isolate, you will be able to follow our class online through Zoom. Recordings will also be available through Echo360 on Canvas.
<b>Class Help</b>	There are several resources available to you to get help with Linear Algebra. Office Hours should be your main resource, but I also recommend you attending the MTC, a tutoring center for Mathematical Sciences, available in person Monday – Thursday 10:00am – 6:00pm ET without appointment needed. You can also consider attending MASH or the Peer Tutoring services offered by the <a href="#">ARC</a> .

**OAS** Students with approved academic accommodations should plan to submit their accommodation letters ASAP through the [Office of Accessibility Services Student Portal](#). Should you have any questions about how accommodations can be implemented in this 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, documentation guidelines, and what that all entails should plan to contact them either via email [AccessibilityServices@wpi.edu](mailto:AccessibilityServices@wpi.edu) or via phone (508) 831-4908.

**Integrity** In this course, collaboration in doing zyBook activities and Test Prep assignments is encouraged, but any sort of collaboration during quizzes or exams will be considered **cheating**. Students are expected to be familiar with the [Student Code of Conduct](#) and maintain the highest level of [academic integrity](#) at WPI. Please take a look at the [Academic Honesty Policy](#) at WPI.

**Sleep** Getting a good night sleep regularly (8+ hours of uninterrupted sleep) is very important while being a student. Having several nights of uninterrupted sleep after studying a subject increases the retention of the learner. “Pulling all-nighters” has adverse consequences for your physical and mental health, and it does not conduct to proper long-term learning. If you want to know more about how sleep affects your life, I recommend you to read UC Berkeley professor Dr M. P. Walker’s book *Why We Sleep: Unlocking the Power of Sleep and Dreams*, or you can check out their [TED talk on youtube](#). The deadlines of our assignments have been designed accordingly to ensure that you are not working late at night. Your physical and mental health must go first!