Math 240: Linear Algebra
Fall 2022 Syllabus

INSTRUCTOR: Dr. Hundley
OFFICE: Olin 222
OFFICE HOURS: Mon, Fri at 11AM or Wed at 3PM. We can also meet on T/Th by appointment (we'll typically meet online these two days).

If you can't make these times, feel free to schedule a different time. You may also stop by anytime my office door is open, or email me.
EMAIL: hundledr@whitman.edu
WWW: `http://people.whitman.edu/~hundledr/courses/M240.html` and Canvas.

1. **Text:** Linear Algebra and its Applications, by David C. Lay, **Fourth Edition**.

   As time allows, we will be covering topics from Chapter 1, 2.1-2.4, 3.1-3.3, 4.1-4.7, 5.1-5.5, 6.1-6.7 and 7.1-7.3.

2. **Technology:** Calculators won't be allowed on quizzes or exams, however we will be learning and using Matlab (or Octave) in this class. (We'll discuss this below).

3. **Classroom Activity**

   For this class, you'll be assigned videos to watch and some computer code to run (there will be some code writing, but it will be to modify existing code). In class every day, we'll summarize, discuss and you'll work through material based on the videos you've watched. **It will be very important that you're up to date for every class session.**

4. **Grading Criteria.**

   (a) **Weekly quiz.** The quiz will be 10-15 minutes and will involve some simple definitions and computations. This will typically be graded on a scale of 0-10, and will be at the end of class. There may include written portions to take home as well. You may drop two of these scores, and the overall average will be 15% of the grade.
   Please Note: Make-up quizzes are allowed ONLY when your absence is college authorized (oversleeping for example, is not college authorized).

   (b) Homework: The homework problems form the basis for the weekly quiz. It is expected that you will spend some time thinking about and completing the homework problems! Do not procrastinate- There is time during the beginning of each class meeting to discuss the previous day's homework assignment- This is an excellent time to ask questions!

   (c) **Weekly Lab.** We'll be doing some work on Octave or Matlab, and you'll turn in the solutions to those weekly sessions. Overall, the average of this work will be 5% of the overall grade.

   (d) **LATE WORK:** The only thing that might be late would be the weekly labs, and you'll be docked a half point per day (including weekends and holidays), to a maximum of 10 days (inc holidays and weekends), or until the first exam after the work was due.

(e) EXAMS. There will be three exams and a final exam. The average of the three exams will be worth 20% each, and the final exam will be worth 20% of your overall grade.

GRADING: Grading is done on a standard scale:

$A = 92 - 100$ $A- = 90 - 91$ $B+ = 88 - 89$ $B = 82 - 87$ $B- = 80 - 81$
$C+ = 78 - 79$ $C = 72 - 78$ $C- = 70 - 71$ $D = 60 - 69$ $F = 59$ and below

5. Help! I encourage you to come see me. If you can't make it during office hours, either email me if you have short questions, or make an appointment.

6. Academic Honesty. Academic standards will be *strictly* adhered to as outlined in the College's policies. This means that cheating will not be tolerated. Looking at another student's exam or quiz (whether or not you mean to copy answers) while taking it will be considered cheating. *Please don't test this policy!*

7. If you are a student with a documented disability who will need accommodations in this course, please meet with the Academic Resource Center for assistance in developing a plan to address your academic needs. Please contact me in advance of each session where you will need accommodations

8. **Please be courteous to your fellow students**: No electronic devices should be used during class (please put away your phone!). Exceptions to this may be made, but please ask first!

9. **Be sure to check your Whitman email regularly.** I will occasionally send out important information about the class via email.

I would like to create a learning environment for you that supports a diversity of thoughts, perspectives and experiences. To help accomplish this:

1. If you have a name and/or set of pronouns that differ from those that appear in your official College record, please let me know (feel free to send me an email if that's easier for you).

2. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you. Remember that you can also submit anonymous feedback. Also, the Academic Resource Center has a great staff that are there to help you as well.

3. I (like many people) am still in the process of learning about diverse perspectives and identities. If there was something in class that made you feel uncomfortable, please talk to me about it. (Again, anonymous feedback is always an option).

A couple of other important topics:

- **Copyright.** The materials and videos that are produced in this class are for your use only. Uploading classroom materials onto third party websites will constitute a violation of the college's copyright policy.

- **Religious Accommodations.** In accordance with Washington State Law and Whitman Colleges Religious Accommodations Policy, I will provide reasonable accommodations for all students who, because of religious observances, may have conflicts with scheduled exams, assignments, or required attendance in class. Please review the course schedule at the beginning of the semester to determine any such potential conflicts and send me an email by the end of the second week of class so that I can take note of your need for religious accommodations. If you believe that I have failed to abide by this policy, here is a link to the Grievance Policy at Whitman College where you can pursue this matter.

  Grievance policy link:

  https://www.whitman.edu/human-resources/grievance-policy

  Link to Washington State Law (RCW 28B.137.010:

  https://apps.leg.wa.gov/rcw/default.aspx?cite=28B.137.010

- **Tutoring.** The Academic Resource Center (ARC) provides free peer tutoring for many 100 and 200 level courses and is continually adding courses based on student need. All tutors are students who have already completed the course, have earned a B+ or higher, and were recommended by their instructor. If you feel you would benefit from utilizing this service, please visit the ARC webpage and submit a request so that you can be matched with a tutor. The ARC also provides academic coaching to students who would like to build skills such as time management and study strategies. Contact Laura A. Cummings, cummingl@whitman.edu, for additional information.

Learning Goals

Upon successful completion of Math 240, students will:

- Solve systems of linear equations. Be able to discuss the general situation and conditions under which we expect each type of solution. Discuss solutions in terms of the "four fundamental subspaces".
- Analyze vectors geometrically and algebraically.
- Understand the basic terms in linear algebra, including such things as: span, linear independence, basis, dimension, vector space, subspace.
- Understand how geometry works in higher dimensional space (in terms of angles, orthogonality, and distance).
- Understand the relationship between matrix algebra and linear transformations.
- Understand and use determinants.
- Be able to implement theory using a provided software package (like Matlab). Be able to visualize high dimensional data in different ways.