Instructor: Jennifer Nordstrom
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Office hours for extra help: M: 12:30-1:30; T: 2:00-3:00; WF: 1:30-3:00.
During these times, I will be available over Zoom, no appointment necessary. The link is on Blackboard. I am also available to meet in person by appointment.

Text: Understanding Linear Algebra, D. Austin.
This is an open source text available as a free download at http://merganser.math.gvsu.edu/david/linear.algebra/ula/index.html

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Course Objectives:

1. To introduce students to the basic concepts of vector spaces and matrices.
2. To introduce students to computational aspects of matrix theory including systems of equations, eigenvalues, and reduced and canonical forms.
3. To develop the student’s facility with matrix computations.
4. To increase student’s problem solving ability.
5. To introduce students to applications such as population models and Markov chains.
6. To improve the student’s ability to think logically and abstractly.

Homework: Homework will be due once a week on Mondays at 4 pm. Assignments are posted on the course website, accessible through Blackboard. Part of doing homework is reading the text. You are expected to read the section in the text before it is discussed in class. Late homework will be accepted within 24 hours if an extension is requested prior to 4 pm on the due date. Homework may be rewritten for full credit. All rewrites are due the Monday following the original due date.

Summary: Homework is due on Mondays at 4 pm.
**Group Worksheets:** Each section will have one or two worksheets or activities. You will work in groups of 2 or 3 students on the worksheet. Your group will have substantial class-time to work on it. Each group will turn in one copy of each worksheet per group. All group members will get credit unless the group indicates a member did not contribute. Worksheets will be worth 10 points each for a maximum score of 240 points. A student should be able to earn 240 points by completing about 3/4 of the worksheets. Worksheets are due on Wednesdays at 4 pm. Late worksheets will lose points.

The Worksheet for Section 2.6 will instead be a short presentation. These presentations will be October 2, in class.

**Summary:** Worksheets are group assignments due Wednesdays at 4 pm.

**Quizzes:** There will six quizzes. The quizzes will be completed online through WeBWorK. Practice problems will be available in WeBWorK. You may use notes, the book, and Sage, but the answers on the quizzes should be your own. The quizzes are every two weeks. They will open on Wednesday afternoon and close on Friday at 4 pm. In general, there are no extensions and no make-up quizzes, but I will drop the lowest quiz score.

- Quiz 1: Friday, September 11.
- Quiz 2: Friday, September 25.
- Quiz 3: Friday, October 9.
- Quiz 4: Friday, October 23.
- Quiz 5: Friday, November 6.
- Quiz 6: Friday, November 20.

**Summary:** WeBWorK quizzes are due every other Friday at 4 pm.

**Project:** The final project will be an in-depth study of an application of Linear Algebra. You can work in groups of 1-2 students. Possible topics include Cryptography, Electrical Networks, Genetics, Linear Programming, Population Growth, and Game Theory. Your project should include some background research on your application, some sample problems, and how linear algebra, specifically, can be used to solve the problem. Your project can be either a written paper which will be shared with the class or a formal presentation (live or recorded) with slides. In both cases, class feedback will be part of your grade, including feedback you give your peers on their projects. Project presentations and papers are due the week of Nov. 30. Revised slides and papers are due no later than 12:30 pm Monday, Dec. 7 (the end of the scheduled final exam time).

**Grading:**

- Homework: 40%
- Worksheets: 30%
- Quizzes: 15%
- Project: 15%

Letter grades correspond to the following percentages:

- A-, A: 90-100%
- B-, B, B+: 80-89%
- C-, C, C+: 65-79%
- D: 55-64%

**Advising Information:** The prerequisite for this course is Math 170-Calculus I. This course is required for math majors and data science minors. It will also be useful for students minoring in mathematics with a major in science, economics, business, or computer science. Although Calculus I is the only prerequisite, students will find this course easier to handle if they have taken Math 175-Calculus II or Math 220-Introduction to Proofs before this course.

**Cell Phone Policy:** Cell phones must be off and put away during class. Laptop computers and tablets are encouraged, as we will be engaging with materials that are available electronically. However, please use them in ways that are focused on the course and the activities of the class.
Academic Honesty: (From the Linfield University Course Catalog) “Academic work is evaluated on the assumption that the work presented is the student’s own, unless designated otherwise. Anything less is unacceptable and is considered academically dishonest.” Academic dishonesty includes all forms of cheating, such as using or attempting to use unauthorized materials, information, or study aids in any work submitted for credit; changing answers after graded work has been returned; making unauthorized changes to an exam, quiz, or assignment. Knowingly helping or attempting to help another violate the University’s policy on academic work is a form of academic dishonesty. Any form of academic dishonesty will result in a 0 on that assignment/quiz/exam. Additionally, academic dishonesty may result in a failing grade in the course. See the Course Catalog for information on the procedure to be used in dealing with academic dishonesty.

Disability Statement: Students with disabilities are protected by the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. If you are a student with a disability and feel you may require academic accommodations please contact Jeff Larson, Program Director of Learning Support Services (LSS), as early as possible to request accommodation for your disability. The timeliness of your request will allow LSS to promptly arrange the details of your support. LSS is located in Melrose Hall 020 (503-883-2562), or LSS@linfield.edu. We also encourage students to communicate with faculty about their accommodations.

COVID-19 Consideration: Students who are currently sick or who are on quarantine will communicate to Jeff Larson, Program Director of Learning Support Services (LSS), as early as possible to request temporary accommodation for their individual situation. LSS is located in Melrose Hall 020 (503-883-2562) or LSS@linfield.edu. Once notified by LSS for the need of accommodation, the instructor will determine the most appropriate way to stay current with class material and any missed work.

All Linfield University faculty, staff and students are required to adhere to the temporary policies including face coverings, physical distancing and others found here: https://inside.linfield.edu/ehs/index.html.

COVID-19: In Case of Local Outbreak: In the event of disruption of normal classroom activities due to a coronavirus outbreak, information pertaining to the completion of this course will be communicated to all students. It is possible that the format for this course may be modified to enable completion of the course. In that event, you will be provided an addendum to the course syllabus by the instructor.

Electronic Recording/Content Sharing: To facilitate learning for all students in the current climate around COVID-19, I may opt to record the classroom activities for instructional purposes and post them to the cloud. The electronic recording of classroom lectures, discussions, simulations, and other course-related activity is governed by Linfield’s Classroom Recording Policy (Faculty Handbook, VII.26 and Student Policy Guide).

Students do not have permission to record any Zoom meetings. Students do not have permission to distribute or share any recorded content from Zoom meetings.

Worksheets, homework, and solutions may only be shared amongst students enrolled in this course. Students are not permitted to post any of this material in a public manner.

Quizzes and quiz solutions may not be shared with anyone except the instructor.