COLLEGE OF THE REDWOODS

Syllabus for Math 45 (E-7313)

Course Information

Semester & Year: Fall 2019
Course ID & Section #: Math 45 Linear Algebra, E7313
Instructor's name: Mike Haley
Day/Time or *Online: Tuesday, Thursday 9:15-11:20 AM
Location or *Online: Science Bldg, Room SC 214
Number of units: 4

Instructor Contact Information

Office location or *Online: Creative Arts 130 (CA 130)
Office hours: Alternate Mon 2:30-3:30, Wed 9:00-10:00, Thur 11:30-12:30, By Appointment
Phone number: 476-4352
Email address: mike-haley@redwoods.edu

Required Materials

Textbook Title: Linear Algebra and its Applications
Edition: 4th
Author: Lay
ISBN: 0-321-38517-9
Other requirements: materials, equipment or technology skills

Catalog Description

A course which develops the techniques and theory needed to solve and classify systems of linear equations. Solution techniques include row operations, Gaussian elimination, and matrix algebra. Properties of vectors are investigated in two and three dimensions, leading to the notion of an abstract vector space. Vector space and matrix theory are presented including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, and linear transformations. Selected applications of linear algebra are included.

Course Student Learning Outcomes *(from course outline of record)*

1. Solve systems of linear equations using Gaussian elimination and matrix algebra, and apply these techniques to real world applications. Interpret the value of a determinant geometrically and use the value to determine the singularity of a matrix.
2. Determine the dimension of a vector space (e.g. the null space, the column space, and the row space of a matrix) and find a basis for the vector space.
3. Determine the matrix of a linear transformation and analyze the geometric action of the transformation and its inverse (if it exists).
4. Determine the eigenvalues and eigenvectors of a matrix and find bases for the eigenspaces. Interpret the definition of eigenvalues and eigenvectors geometrically. Use orthonormal bases to solve problems in linear algebra.

Evaluation & Grading Policy

ACADEMIC HONESTY: In the academic community, the high value placed on truth implies a corresponding intolerance of scholastic dishonesty. In cases involving academic dishonesty, determination of the grade and of the student's status in the course is left primarily to the discretion of the faculty member. In such cases, where the instructor determines that a student has demonstrated academic dishonesty, the student may receive a failing grade for the assignment and/or exam and may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct (AP 5500) is available on the College of the Redwoods website at: http://www.redwoods.edu/board/Board-Policies/Chapter-

5-Student-Services, and scroll to AP 5500. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the college catalog and on the College of the Redwoods website.

DISRUPTIVE CLASSROOM BEHAVIOR: Student behavior or speech that disrupts the instructional setting will not be tolerated. Disruptive conduct may include, but is not limited to: unwarranted interruptions; failure to adhere to instructor's directions; vulgar or obscene language; slurs or other forms of intimidation; and physically or verbally abusive behavior. In such cases where the instructor determines that a student has disrupted the educational process a disruptive student may be temporarily removed from class. In addition, he or she may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct (AP 5500) is available on the College of the Redwoods website at: http://www.redwoods.edu/board/Board-Policies/Chapter-5-Student-Services and scroll to AP 5500.

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EXPECTATIONS: I expect that all students that remain enrolled in this class agree to actively participate in discussions and activities, and directly engage the material and other people in the course with a positive attitude.

I expect that everyone is treated with respect in our class. Please go out of your way to be considerate of others since this will enhance the quality of the learning environment in our classroom. I expect that you use cell phones and computers appropriately and in a manner that does not disturb any fellow students or the instructor; this implies that at the very least there should not be any sound coming from your cell phone and you only utilize applications that have course content related material. Head phones and ear buds should be removed during class since these tend to inhibit interactions between people.

To learn the material that will be presented this semester may require **twelve or more hours** each week outside of the class meeting period.

Additionally, you should be on time to class and avoid leaving early in order to minimize disruption. If you are asked to leave the class, then be sure to visit me in the office and be prepared to write a paper before returning to class. The Student Code of Conduct addresses many issues that arise on a college campus and you should be aware of the agreement that you have made as an enrolled student.

GRADE SYSTEM: Your final grade will be determined as follows

Homework	20%
Quizzes/Activities	20%
Exams	40%
Project	20%

In order to earn an A or B, all assignments must be turned in. Additionally, there is a Pass/No Pass Option available, but there are deadlines associated with this option.

The following grade system will be utilized to assign the final course grade:

A	93-100%	B	83-86.9%	C	70-76.9%
A-	90-92.9%	B-	80-82.9%	D	60-69.9%
B+	87-89.9%	C+	77-79.9%	F	0-59.9%

HOMEWORK: Homework will be a regular aspect of this class, and I expect that it will be done in an organized, neat and readable fashion. The quality of your homework presentation is important to me since it representative of your understanding of coursework. Homework is where you get to develop and polish the skills that have been presented in class. Your lowest homework score will be dropped, however late homework will not be accepted. See **Guidelines for Homework Assignments**. One or two assignments will be given each week, and will be graded on completeness, quality of the work, and following the directions. Typically homework will be returned within the week.

PARTICIPATION: The structure of this class and the emphasis on small group learning implies that active participation in the course is necessary for success. .

QUIZZES/ACTIVITIES: Quizzes will be a regular aspect of the course. They will typically be announced in class the day before the quiz. Activities may be utilized throughout the semester and may be either individual or group assignments based upon the specific assignment.

EXAMS: There are two closed book exams this semester. The **midterm exam** will be held on Thursday, October 24, 2019. The **final exam** will be based upon the college's **Final Examination Schedule**, which looks like it will be on **Tuesday, December 18**, 2019 from **8:30-10:30.** The final exam may consist of at least one part that is closed book/notes and without the use of the calculator.

PROJECT: There will be a project which will require a proposal, a written report and a presentation. Students may work independently, or with one other student. Additional information will be forthcoming during the third week of the semester.

ATTENDANCE: To succeed in a mathematics class it is often helpful to attend every class meeting. The CR Catalog defines the equivalent of a week's absence as excessive and the Math Department has determined that missing the equivalent of two weeks of class is cause for being dropped from the class. If you have to miss class, make prior arrangements with a fellow student to get any notes or materials covered that day. You are responsible for the all material covered even if you don't attend class. Plan on being in class for the complete duration of the session. Any combination of two occurrences of tardiness or leaving before the end of the course will be considered an absence.

LATE WORK: The four exam dates that are posted in the syllabus and should be followed. Homework due dates will be posted when the assignment is given and are to be submitted at the beginning of the class period. Typically there are no make-up quizzes offered.

Prerequisites/co-requisites/ recommended preparation

A year of college calculus and prior or concurrent course work with vector calculus or vector-intensive physics would be helpful.

Special accommodations statement

[College of the Redwoods complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request at least one week before the first test so that necessary arrangements can be made. No last-minute arrangements or post-test adjustments will be made. If you have a disability or believe you might benefit from disability related services and may need accommodations, please see me or contact Disabled Students Programs and Services. Students may make requests for alternative media by contacting DSPS at 707-476-4280.

Student feedback policy

Exams, quizzes and homework are where I will regularly provide timely and substantive feedback on coursework.

Proctored Exams

Exams and quizzes will either be taken during the class period or in the testing center and will require a proctor. There may be some portions of the exams which include a take-home component.

Student Accessibility Statement and Academic Support Information

Academic support is available at Counseling and Advising and includes academic advising and educational planning, Academic Support Center for tutoring and proctored tests, and Extended Opportunity Programs & Services, for eligible students, with advising, assistance, tutoring, and more.

DISCLAIMER: While every attempt will be made to keep minimal changes to this document during the semester, like most other things, it is subject to change.

Last update August 26, 2019