Syllabus for Linear Algebra

Dr. Abdul Hassen

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Class Meetings: MW 9:30am to 10:45am, James 2101

Office Hours: TR 9:30 – 10:30am, W 8:00 to 9:00am and 11:00 am – 12:00pm, and by appointment. Email is the best way to communicate with me. Please use your Rowan e-mail address for all communications.

Prerequisite: Calculus II
Text: Anton, H. Rorres, C., and Kaul, A. *Elementary Linear Algebra: Applications Version,* 12th ed., John Wiley and Sons

Course Description: The topics in this course include linear equations and matrices, vector spaces, linear dependence and independence, dimension and basis of a vector space, linear transformations, inner product and cross product, orthogonality, and eigenvalues and eigenvectors. Use of graphing calculators is required and the computer algebra system Mathematica will be used.

Objectives: The essential topics of linear algebra are prerequisite for many of the subsequent mathematics courses. For example, linear algebra concepts are decidedly useful in multivariable calculus, differential equations, and statistics. The purpose of the course is to provide an introduction to linear algebra at an elementary level to improve students' ability of abstract reasoning by its attention to mathematical proof

Technology: A graphing calculator is required for this class and the TI-89 is highly recommended. Mathematica will be used in an integral part of this course.

SYLLABUS: We will cover the following section from the text.

- **Chapter 1. Systems of Linear Equations and Matrices**
- **Chapter 2. Determinants**
- **Chapter 3. Euclidean Vector Spaces**
- **Chapter 4. General Vector Spaces**
- **Chapter 5. Eigenvalues, Eigenvectors**
- **Chapter 6. Inner Product Space**
- **Chapter 8. General Linear Transformation**
- **Chapter 10. Applications of Linear Algebra**

GRADING POLICY: Students will be graded based on three tests (**80%** of the total grade), Homework assignments **10%** of the total grade), and Mathematica assignments (**10%** of the total grade). The dates for the tests will be announced in class at least a week in advance. The three tests will cover the following sections from the textbook.

Test 1 (**25%** of total grades) covers Chapters 1 and 2

Test 2 (**30%** of total grades) covers Chapters 3 and 4

Test 3 (**25%** of total grades) covers Chapters 5, 6, and 8.

Homework: The homework problems are divided in three sets (HW1, HW2, HW3). The exercises in HW1 will cover sections for Test 1. Similar rules apply for the other Homework and all sets are available on Canvas or sent to you via e-mail. You are required to submit your homework via Canvas.

Mathematica Projects: These can be found on Canvas page of the course or will be e-mailed to you. Due dates will be announced at least two weeks in advance. You are required to submit your assignments via Canvas.

Note: Your overall grade will be computed as follows:

T1*0.25+T2*0.30+T3*0.25+0.033*(HW1+HW2+HW3) + 0.033*(Proj 1+Proj 2+Proj 3).

Numerical grades will be converted to letter grades by the following scale.

A(A-) = 90 to 100, B(-,+)= 80 to 89, C(-,+)= 70 to 79, D(-,+)= 60 to 69, F= 0 to 59

Attendance Policy: Attendance is mandatory. An attendance sheet will be passed around at the beginning of each class period. Please write your signature next to your printed name on the list. If you are absent/tardy from a class, you must submit a note requesting that the absence/tardiness be excused by the next class meeting. If you miss a class, it is your responsibility to study the section(s) covered and do the homework. If you are absent the day of a regularly scheduled test, a grade of zero is automatically recorded as your test score. You will be permitted to make up this zero only when you can confirm that you were absent for reasons beyond your control.

Some Important Rowan University Policies:

Please revise the Rowan University Academic Policies here
https://sites.rowan.edu/deanofstudents/forms/handbook.html

You can get more information about Rowan's Attendance Policy here:
https://confluence.rowan.edu/display/POLICY/Attendance+Policy

Academic Honesty: Cheating on a test or assignment seriously undermines the integrity of the academic system and will not be tolerated. Although a student is not cheating, he or she is expected to refrain from actions that could be suspicious. Using common sense on your part should avoid unnecessary embarrassment. Please read Rowan University's Academic Integrity Policy at the link:
https://confluence.rowan.edu/display/POLICY/Academic+Integrity+Policy

Students with Disabilities and Special Needs: Please speak with me as early in the semester as possible so that we can make appropriate accommodations for you. If necessary, you can also contact the Office of Special Services.

Rowan University's Statement on Diversity (from DEI): Rowan University promotes a diverse community that begins with students, faculty, staff and administration who respect each other and value each other's dignity. By identifying and removing barriers and fostering individual potential, Rowan will cultivate a community where all members can learn and grow. The Rowan University community is committed to a safe environment that encourages intellectual, academic, and social interaction and engagement across multiple intersections of identities. At Rowan University, creating and maintaining a caring community that embraces diversity in its broadest sense is among the highest priorities.

For more on this visit: https://sites.rowan.edu/diversity-equity-inclusion/about/index.html

How to Get Mathematica

1. Create an account *(New users only)*:
    a. Go to user.wolfram.com and click "Create Account"
    b. Fill out form using a @rowan.edu email, and click "Create Wolfram ID"
    c. Check your email and click the link to validate your Wolfram ID
2. Request access to the product:

Mathematica Desktop	Mathematica Online
For a personally owned machine: a. Fill out this form to request an Activation Key b. Click the "Product Summary page" link to access your license c. Click "Get Downloads" and select "Download" next to your platform d. Run the installer on your machine, and enter Activation Key at prompt	e. Fill out this form to request access f. Go to Mathematica Online and sign in to access Mathematica Online
	Wolfram|Alpha Pro
	g. Fill out this form to request access h. Go to Wolfram|Alpha and click "Sign in" to access Wolfram|Alpha Pro