# MATH-241 Linear Algebra. Section 6.

**Instructor:** Prof. Akhtar A. Khan

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**Course Information:**

**Office Hours:** TuTh.: 12:45PM–1:45PM or by appointment.

**Lectures Schedule**: Tuesdays and Thursdays TuTh 2:00PM - 3:15PM, Thomas Gosnell Hall (GOS)-2305.

**Textbook:** D. Poole: Linear Algebra, A Modern Introduction, 4th ed.

**Topics:**

1. Vectors
   - 1.1 The Geometry and Algebra of Vectors
   - 1.2 Length and Angle: The Dot Product
   - 1.3 Lines and Planes
2. Systems of Linear Equations
   - 2.1 Introduction to Systems of Linear Equations
   - 2.2 Direct Methods for Solving Linear Equations
   - 2.3 Spanning Sets and Linear Independence
3. Matrices
   - 3.1 Matrix Operations
   - 3.2 Matrix Algebra
   - 3.3 The Inverse of a Matrix
   - 3.4 The LU Factorization
   - 3.5 Subspaces, Basis, Dimension, and Rank
   - 3.6 Introduction to Linear Transformations
4. Eigenvalues and Eigenvectors
   - 4.1 Introduction to Eigenvalues and Eigenvectors
   - 4.2 Determinants
   - 4.3 Eigenvalues and Eigenvectors of $n \times n$ matrices
   - 4.4 Similarity and Diagonalization
5. Some additional topics of interest.

**Courtesy:**

I expect you to pay full attention to the lectures. I also expect that during the class time, you won't read any material that is not related to my lectures and that you won't spend time on your laptop unless it is explicitly required by me. The use of electronic devises is prohibited.

**Attendance:**

Attendance and participation are crucial to your success in this course. I will be counting on you to be in class and to be prepared. If you are unable to attend a class due to an illness or personal loss, you should contact me as soon as possible.

**School of Mathematical Sciences policy:** To be eligible for letter grade A or B, a student may have no more than four unexcused absences from the lectures.

**Grading Policy:** The final grade will be weighted as follows:

| | |
|---|---|
| Weakly Quizzes | 12 points |
| Midterm Exam (3) | 60 points |
| Homework | 8 points |
| Final Exam | 20 points |
| Total | 100 points |

Your scores on all assignments will be combined (according to the above weights) into a single percentage P. Your letter grade will then be determined as follows: Your scores on all assignments will be combined (according to the above weights) into a single percentage P. Your letter grade will then be determined as follows:

| P range | Course grade |
|---|---|
| $[93, 100]$ | A |
| $[90, 93)$ | A- |
| $[87, 90)$ | B+ |
| $[83, 87)$ | B |
| $[80, 83)$ | B- |
| $[77, 80)$ | C+ |
| $[73, 77)$ | C |
| $[70, 73)$ | C- |
| $[60, 70)$ | D |
| $[0, 60)$ | F |

**Final Exam:** 5/3/2024, Friday. 1:30PM - 4:00PM. Thomas Gosnell Hall (GOS)-2305

**Academic Integrity:** The RIT Academic Integrity policy is found at:

https://www.rit.edu/academicaffairs/policiesmanual/d080. A breach of student academic integrity falls into three basic areas: cheating, duplicate submission and plagiarism (see the definitions of these terms using the above link) and any violations of these will be dealt according to the procedure listed in the policy above.

**Statement on Title IX:** Title IX violations are taken very seriously at RIT. RIT is committed to investigate complaints of sexual discrimination, sexual harassment, sexual assault and other sexual misconduct to ensure that appropriate action is taken to stop the behavior, prevent its recurrence, and remedy its effects. Please view the Title IX Rights and Resources at RIT.

**Student Accomodations:** RIT is committed to providing academic adjustments to students with disabilities. If you would like to request academic adjustments, such as testing modifications due to a disability, please contact the Disability Service Office (DSO). Contact information for the DSO and information about how to request adjustments can be found at https://www.rit.edu/disabilityservices. After you receive academic adjustment approval, it is imperative that you see me during office hours so that we can work out whatever arrangement is necessary.