MATRICES AND BOUNDARY VALUE PROBLEMS

PROFESSOR RALUCA FELEA

COURSE INFORMATION-SECTION II

Office: College of Science, Room 2274
Phone: 475-2524
Email: rxfsma@rit.edu
Office hours: T 1-3 pm, W 2-3pm.

***Text*:** *Matrix Operations* , Schaum's Outlines
Differential Equations with boundary value problems, 6th edition, by Dennis G. Zill and Michael R. Cullen.

Course description: Topics include matrix operations with applications to the solution of linear systems of algebraic equations, Fourier series, separation of variables, the heat equation and the wave equation.

Help: Walk in, free tutoring by **Math Faculty and Majors** in College of Science in the Bates Study Center.

: Walk in; free tutoring in a lab setting at the **Academic Support Center**, located in the Eastman Bldg. (01-2371).

Grading: ♪ Two exams: in class: 100 points each.
☺ Final exam: 2 hours, cumulative: 150 points.
☼ Quizzes (3): 45 points.
♢ Homeworks: 70 points (due on Thursdays).
♣ Folder check: 35 points

Grading Guidelines:
A: 85-100
B: 70 - 84
C: 56 - 69
D: 45-55
F: 44 and below

Homeworks: Assigned every Thursday. Keep all your homeworks in a folder. After 7 weeks, make an appointment for the folder check. You will also be asked to solve one problem from the homework.

Quizzes: On Thursdays (March 23, April 20, May 11).

Exams: April 4, April 25.

Calculators: You are not allowed to use calculators for quizzes and exams.

Make-ups: No make-up exams or quizzes.

Behavior in class: Be a good student! Come to class with the idea that you want to learn. Take good notes. Be involved in the lecture and do not disturb your colleagues. Every disturbing behavior will be punished by taking off **5** points of your final grade.

Learning objectives: Students will be able to:

- List the row and column operation;
- Outline the Gaussian elimination algorithm
- Calculate determinants and the inverse of a matrix
- Apply the properties of determinants
- Distinguish between linear dependent and independent vectors, singular and nonsingular matrices,
- Describe the properties of eigenvalues and eigenvectors
- Calculate the Fourier coefficients of a piecewise smooth function
- Determine the convergence of a Fourier series
- Identify the boundary and initial conditions
- Solve a simple Sturm Liouville problem, a Heat, Wave and Laplace equation