Fall 2015
Math 2243: Linear Algebra and Differential Equations
Sections 31, 32, 33, 34 & 35

TEXTBOOK: *Differential Equations & Linear Algebra*,
by Edwards & Penney, 3rd edition, Prentice-Hall, Upper Saddle River, NJ 2010.

Overview: This course is divided into two somewhat related topics. The major emphasis will be on techniques and concepts, with less emphasis on the theory. **Linear Algebra**: matrices and matrix operations, Gaussian elimination, matrix inverses, determinants, vector spaces and subspaces, linear dependence, Wronskian, dimension of a vector space, eigenvalues, eigenvectors, diagonalization of a matrix. **Ordinary Differential Equations**: Separable and first-order equations, applications, second-order linear ODEs with constant coefficients, method of undetermined coefficients, the harmonic oscillator, 2×2 and 3×3 linear systems of ODEs with constant coefficients, solution by eigenvalues and eigenvectors, nonhomogeneous linear systems, phase-plane analysis of 2×2 nonlinear systems near equilibrium.

Homework: The homework sheet shows suggested homework problems, with the number of the first page of Edwards & Penney on which the homework appears; and in **boldface,** a much smaller number of problems you are expected to write up, to be handed in each Tuesday in discussion section. 140/1000 points.

Quizzes: There will be a 10-minute quiz each Thursday (except Sept. 10, exam dates and Thanksgiving) at the beginning of your discussion section. The typical quiz might be one or two of the homework problems you did not have to hand in. 90/1000 points.

Exams: There will be three 50-minute midterm exams, during discussion on Thursday, October 8; Thursday, November 5; and Thursday, December 3. 450/1000 points. The final exam will be Thursday, December 17 from 1:30 to 4:30 PM, room TBA. 320/1000 points. Calculators will not be allowed, nor needed, on the three hour exams and the final exam. Students may bring a small "crib sheet" in his/her own handwriting or word processing to each exam.

Make-ups: Students must make arrangements in advance (the sooner the better) if they will be handing in homework late or will miss an exam. Exam absences, due to recognized University-related activities, religious holidays, verifiable illness, and family/medical emergencies will be dealt with on an individual basis. In case you must take a make-up exam you must make arrangements for taking the make-up exam with your teaching assistent before the time of the regular exam. Ignorance of the time and place of an exam will not be accepted as an excuse for absence.

Incompletes: We will consider giving you an incomplete if you have successfully completed all but a small portion of the work for the course and some severe, unexpected event prevents you from completing the course. This means that you must have taken at least 2 midterms and must be doing work at the C- level or better. We cannot give you an incomplete simply because you are behind in your work. You may drop any course without permission from your college up through the 8th week of the semester.

Grading Distribution:
Homework: 10 points each
Nine quizzes: 10 points each
Three midterms: 150 points each
Final Exam: 320 points
Semester Total: 1000 points.

Lectures are MWF 2:30–3:20 in Bruininks Hall 230.
Lecturer: Robert Gulliver, 452 Vincent Hall, 625-1560.
gulliver@math.umn.edu

Discussion section 31 meets TTh 2:30–3:20 in Lind Hall 229.
Teaching Assistant, section 31: Craig Corsi, 426 Vincent Hall, (612) 624-4523
corsi007@umn.edu

Discussion section 32 meets TTh 2:30–3:20 in Appleby Hall 3
Teaching Assistant, section 32: Tuan Pham, 504 Vincent Hall, (612) 624-1543.
phamx352@umn.edu

Discussion section 33 meets TTh 2:30–3:20 in Akerman Hall 327.
Discussion section 34 meets TTh 3:35–4:25 in Vincent Hall 209.
Discussion section 35 meets TTh 3:35–4:25 in Vincent Hall 209.
Teaching Assistant, sections 33, 34 & 35: Doga Guctenkorkmaz, 420 Vincent Hall
(612) 625-5099. gnkor001@umn.edu.

Course web page, currently under construction, will be found at
www.math.umn.edu/~gulliver/2243