

Course Information

Multivariable Calculus, Linear Algebra, and Differential Equations II (Honors) Math 341-0101, Spring 2008

Class Meeting Time and Place: TTh 9:00-10:45, Math 0405

Instructor: Patrick Shipman

Office: Mathematics Building, Rm. 4101

Office Hours: Monday 1-2, Tuesday 11:00-12:00, Wed. 3-4, & by appointment. Please come!

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Course webpage: www.math.umd.edu/~shipman

Prerequisites: Math 340.

Description of the course: This is the second semester of the MATH340-341 sequence which gives a unified and enriched treatment of multivariable calculus, linear algebra and ordinary differential equations, with supplementary material from subjects such as differential geometry, Fourier series and the calculus of variations.

The class will be intensive. This is a 4-credit course covering the content of about 6 credits of material in the regular class. Furthermore, we will cover it in greater depth.

Students completing MATH340-341 will have covered the material of MATH240 (Introduction to Linear Algebra), MATH241 (Calculus III), and MATH246 (Differential Equations), and may not also receive credit for MATH240, MATH241 or MATH246.

Texts:

- M. Braun. Differential Equations and their Applications, Fourth Edition. Springer, 1993. ISBN: 978-0-387-97894-9.
- B. R. Hunt, R. L. Lipsman, J. E. Osborn, J. M. Rosenberg. Differential Equations with MATLAB, Second Edition. Wiley, 2005. ISBN: 0-471-71812-2.
- S. J. Colley, Vector Calculus, Third Edition. Prentice Hall, 2006. ISBN: 0-13-185874-2.
- C. G. Cullen. Matrices and Linear Transformations. Second Edition. Dover, 1972. ISBN: 0-486-66328-0.

Mathematical Software: The mathematical software system MATLAB will be used occasionally for homework sets. The course website includes a number of links to helpful MATLAB sites.

Syllabus: We will cover Chapter 4 of Colley (Multivariable Optimization), and most of Braun (Differential Equations). Several topics from Linear Algebra useful to differential equations and other areas of math will be presented. These include eigenvalues, eigenvectors, generalized eigenvectors, and the alternative theorem. Additional material, including complex numbers, will be presented as time permits.

Grading:

Grades will be based on

Homework, Projects, Quizzes: 25 %

Midterm examination 1 (early March): 25%

Midterm examination 2 (mid April): 25%

Final Exam : 25%

Attendance:

Lectures are designed to complement the texts. They will include material not found in the texts and for which you will be responsible.

There will not be make-up quizzes. Absence from an examination will be excused only in accordance with the campus policy; see <http://testudo.umd.edu/soc/atedasse.html>. The reasons for absence must be unavoidable, documented, and reported to me as early as possible.

Religious Observances: If you will be absent from class due to religious observances, then contact me at the beginning of the semester to discuss alternatives. You are responsible for making these arrangements at the beginning of the semester.

Students with Disabilities: If you have a documented disability and need academic accommodations, please contact me as soon as possible.

Academic Integrity: Students are responsible to inform themselves of the university's policies regarding the Code of Academic Integrity.

See <http://studenthonorcouncil.umd.edu/code.html>