

Math 221Q Course Information Sheet

Spring, 2003

Enhanced Differential Equations

Hours: Tu Th 9:30–10:45 MSB 215,

Text: *An Introduction to Differential Equations/Order and Chaos*, by Florin Diacu (Freeman, 2000) ISBN 0-7167-3296-3. **Required**

Instructor: James F. Hurley
Office & Hours: MSB 218, M Tu Th 11:00–11:50
Other times by appointment or e-mail
Telephone/Electronic Mail: 486-2404 hurley@math.uconn.edu

Grade: Your course grade will be computed as follows.

Weekly Homework Assignments:	1/6 (100 points)
Midterm Examinations:	1/3 (2 @100 points each)
Term Project(s):	1/6 (100 points; counts as a third midterm exam)
Final Examination:	1/3 (200 points)

Study Groups. To assist you in mastering the material, the class will break into study groups of three-to-five students. Each week, homework will be assigned at the Tuesday and Thursday lectures for submission at the *next week's* Tuesday meeting. Try to work *every* assigned problem, but in the study groups for each assigned problem assign definite *responsibility* for mastering it to a specific the group member. That person should be able to work the problem, and explain it to the other members of the group who may ask for help with it. The responsible persons are free to obtain assistance from the instructor, consultants in the Math Center, or anyone else willing to provide help. Each week, prior to Tuesday's class, the group can meet to go over the homework, assemble it, and prepare it for submission *by the group*. Each group member will receive the same grade for that submission, which should represent the collective work of all its members. If a member does not contribute to a submitted assignment, the remaining group members will normally omit his or her name from the group's submission. (You are free to change study groups at any time; always inform the other group members beforehand.) At the weekly pre-submission meeting, the experts can explain the solutions of any problems that may have stumped anyone. In this way, everyone gets a reliable and understandable explanation of *all* the challenging problems.

Honors credit. The instructor's understanding is that everyone in the Honors Program automatically receives honors credit for Math 221. Students not in the program are encouraged to visit the Honors Program office for further information.

Quizzes. Without advance announcement, there may be short 10-minute quizzes or worksheets distributed and collected. Results of such work will be averaged into the homework grade.

Projects. Like many of the homework problems, these will best be analyzed with computer assistance. The main tools for the course are *Differential Systems* and *Maple*, which will be used frequently in class to illustrate key ideas. They should prove very helpful in doing your homework. To assist you in getting started with that, there are some specially prepared computer documents in the Math 221 folder in the Mathematics Macintosh Computer Laboratory (MSB 203). The project questions will challenge you to model, analyze and interpret realistic systems like those that arise in professional scientific and engineering work. Each study group will make a common submission for each project as the collaborative work of the group, and its members will all receive the same grade for the project.

General Background. Since 1995, the Math Department has modernized and upgraded its differential equations courses, Math 211 and 221. In consultation with faculty from Engineering, this course was the testing ground of the revolutionary new text now in use in Math 211, and this is the second time that a new honors-level text has been used for Math 221. In comparison to Math 211, Math 221 discusses more of the mathematical underpinnings of the methods as part of its generally deeper consideration of the material, and also includes some analytic methods that receive little or no attention in Math 211. Please offer your reaction to the course as the semester proceeds. Suggestions for improving your experience are welcome at any time!

Web pages. The course Web site is accessible from www.math.uconn.edu. The Official Course Outline will evolve there as the semester progresses. There is also a link for electronic consultation hours with the instructor, as well as announcements and other useful information.