

Math 220Q Course Information Sheet

Fall, 2002

Enhanced Multivariable Calculus

Hours: Tu Th 9:30–10:45 MSB 215, W 9:00–9:50 MSB 311.

Instructor: James F. Hurley
Office & Hours: MSB 218, Tu Th 11:00–11:50, W 10:00–10:50
Other times by appointment
Telephone/Electronic Mail: 486-2404 hurley@math.uconn.edu

Grade: Your course grade will be computed as follows.

Weekly Homework Assignments:	1/7 (100 points)
Wednesday Discussion Section:	1/7 (100 points)
Term Project(s):	1/7 (100 points, replacing one midterm exam)
Midterm Examinations:	2/7 (2 @100 points each)
Final Examination (December 19):	2/7 (200 points)

Study Groups. To assist you in mastering the material, the class will break into study groups of three-to-five students. You can use the class Web site for help with study-group formation. Each week, homework will be assigned at the Tuesday and Thursday lectures for submission at the *next week's* Wednesday meeting. Try to work *every* assigned problem, but in the study groups a good practice has been to rotate definite *responsibility* for each assigned problem among the members. For each problem, one designated person should be able to work the problem, and explain it to the others. The responsible persons may obtain assistance from the instructor, staff at the Math Center or anyone else willing to provide help. Each week, prior to the Wednesday discussion meeting, the group can meet to go over the homework, assemble it, and prepare it for submission *by the group* on Wednesday. Each group member receives the same grade for that submission, which should represent the collective work of all members. If someone does not contribute to a submission, the remaining group members omit his or her name from the group's paper. At the pre-submission meeting, the experts explain the solutions of any problems that other members were unable to complete. In this way, everyone gets a reliable and understandable explanation of *all* the challenging problems.

Honors credit. Everyone in the Honors Program automatically receives honors credit for Math 220. Students not in the program are encouraged to visit the Honors Program office with any questions they may have. Periodically, the instructor may offer problems not on the regular homework assignment for extra credit. Please submit all such work on a group basis, just like the homework. (A group of one is acceptable for this type of problem.)

Discussion Section. Many weeks, the study groups will work together *without consulting books or notes* on worksheets consisting primarily of old exam and quiz problems. (Other weeks, especially early ones, to keep to the schedule part or all of the discussion period may be in lecture format.) The last 10 minutes will often be devoted to a 20-point quiz (taken individually) on the material of the current homework and worksheet. After deletion of the lowest quiz score, the quiz grades and worksheet grades will be averaged to compile the discussion-section component of the grade. You are free to change study groups at any time; always inform the other group members beforehand.

Project(s). As for many of the homework problems, computer assistance will be helpful in dealing with these more open-ended questions. *Maple* worksheets and *Mathematica* notebooks, specially created to accompany the course and text, will be available in the Macintosh Computer Laboratory (MSB 203) and the class Web site. Project questions challenge you to analyze and interpret computer output to discuss and explain underlying mathematical structure connected with the questions. Each study group will make a common project submission as the collaborative work of the group, and its members will all receive the same grade for the project.

General Background. The Math Department has received three separate National Science Foundation multi-year grants, two State grants, and just this summer a grant from Waterloo Maple Software in support of lower-division curriculum improvement. The lab and Web routines include many custom designed for the most challenging aspects of the course: visualizing 3-dimensional regions and obtaining the requisite information to set up and solve problems like those that arise in other fields where multivariable calculus methods are important. The experience of working with the computer — particularly the 3-dimensional graphics routines, *Maple* and *Mathematica*, for which one of our grants secured a UConn-wide all-platform site license — should prove valuable in your subsequent courses and career. Your ideas for improving the effectiveness of the course and student experience in it are welcome at any time!