Studies in Analysis
Math 618
Syllabus, Fall 2008

Class meets Monday and Wednesday, 6:00–7:50 p.m. JB 383

Instructor:	Dr. Charles Stanton
Office:	Jack Brown Hall 331
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URL:	http://www.math.csusb.edu/faculty/stanton/
Office hours:	Monday, Wednesday, and Friday 9:30–10:30 a.m. Monday and Wednesday, 7:50-8:20 p.m. and by appointment

Textbook: *Multivariable Mathematics*, by Theodore Shifrin

Course content: This course will be a "theoretial calculus of several variables with applications." We will cover Chapter 3 (The Derivative) briefly, and Chapters 5 (Extremum Problems), Chapter 6 (Solving Nonlinear Problmes), Chapter 7 (Integration), and Chapter 8 (Differential Forms on Manifolds). The book is at a somewhat lower level than optimal, but it has some very good problems. The homework assigned will be from the more difficult problems (you should make sure you know how to do the other problems).

Grading: Your grade will be based on homework, a presentation, two midterms, and a final exam.

Homework	200 points total
2 Midterms	200 points total
Final exam	10 points
Total	500 pts

Grading Scale:

A	92–100	C+	71–73
A-	89–91	C	62–70
B+	86–88	C-	60–61
B	78–85	D	50–59
B-	74–77	F	0–49

Homework: Homework will be assigned and collected weekly. Late homework will not be accepted.

Midterms: The first Midterm will be on Wednesday October 22, and the second will be on Wednesday, November 19.

Final Exam: Wednesday, December 10, 6–8 p.m.

Schedule

Monday, Sept 29	Chapter 3: The Derivative (Gradients, Jacobians, Differentiability)
Wednesday, Oct. 1	Chapter 3: Curves
Monday, Oct. 6	Chapter 4: Linear Algebra, Solutions to Linear and Non–Linear Equations
Wednesday, Oct. 8	Chapter 5: Extremum Problems, Compactness, Quadratic Forms, Hessians
Monday, Oct 13	Chapter 5: Lagrange Multipliers, Least Squares
Wednesday, Oct. 15	Chapter 6: Solving Nonlinear Problems, Contraction Mapping Principle
Monday, Oct 20	Chapter 6: Inverse and Implicit Function Theorems
Wednesday, Oct. 22	Midterm 1
Monday, Oct 27	Chapter 6: Manifolds
Wednesday, Oct 29	Chapter 7: Integration, Multiple Integrals
Monday, Nov. 3	Chapter 7: Iterated Integrals and Fubini's Theorem
Wednesday, Nov 5	Chapter 7: Other Coordinate Systems: Polar, Cylindrical, Spherical
Monday, Nov 10	Chapter 7: Physical Applications
Wednesday, Nov 12	Chapter 7: Change of Variables
Monday, Nov. 17	Chapter 8: Differential Forms
Wednesday, Nov. 19	Midterm 2
Monday, Nov. 24	Chapter 8: Line Integrals and Green's Theorem
Wednesday, Nov. 26	Chapter 8: Surface Integrals, Stoke's Theorem
Monday, Dec 1	Chapter 8: Applications
Wednesday, Dec 3	Chapter 9: Flows, Differential Equations, Divergence Theorem
Monday, Dec 8	**Class does not meet.**

Portfolio Entry

Each student must submit a portfolio entry (either a proof or an exemplary solution to a problem) meeting the requirements of the MA program. The portfolio entry is due on December 3.

Students with Disabilities:

If you are in need of an accommodation for a disability in order to participate in this class, please let me know ASAP and also contact Services to Students with Disabilities at UH-183, (909)537-5238