Syllabus for Mat2500, Fall, 2007
Call Number: 31–647
Class Time: 10:10–11:00am, Graduate Studies Building, Rm. 303

Instructor: Ming-Jun Lai
Office: Room 540 Boyd Graduate Studies Building
Office Hours: 2:30–3:30pm MWF or by appointment
Phone Number: 542–2065
Text: *Calculus*, Edwards & Penney, 6 th Edition, 2003.
Webpage: www.math.uga.edu/∼mjlai/teaching.html

Course Objectives

In this course, you will learn the multivariate differential and integral calculus. In addition, you will learn vector analysis. You will see many concepts such as *vectors, cross-product, partial derivatives, gradient, tangent plane, polar coordinates, parametric curves, line integrals, surface integrals*, etc. and many theorems such as Lagrange Multiplier Theorem, Green's Theorem, Divergence Theorem, Stokes Theorem, as well as many integral techniques for double and triple integrals.

Your Major Responsibilities

Attend the class regularly although a roll is not usually taken. Be a good citizen during the class. Do all assignments. In particular, do the home assignment after each class so that you can understand the material in the next class. Homework will be collected on Fridays. **Note that there is no way you can learn multivariate calculus without doing a lot of homework.** There are three tests and one final. When answering homework and test problems, please use correct notation (be especially careful about parentheses and equals signs), and use complete grammatical sentences in the English language where appropriate. Calculation without explanation is incomprehensible. Messy and confused writing usually reflects messy and confused thinking, so aim for clear thought! All work for the class is subject to the Academic Honesty Policy of the University of Georgia.

Tentative Schedule

Date	Sections	Topics	Home Work
8/17F	§11.1	Vectors in $\mathbf{R}^2$	1,3,7,13,15,19,25, 27,29,31,37
8/20M	§11.2	Vectors in $\mathbf{R}^3$	1,3,5,7,9, 11,19,22,24, 25, 27
8/22W	§11.2	Vectors in $\mathbf{R}^3$	39, 41,43,45,47,49,53, 58, 59, 60
8/24F	§11.3	Cross-Product	1,3,5,7,11,12,14,15,19,21,23,35,36
8/27M	§11.4	Lines in $\mathbf{R}^3$	1,3,5,7,9,11,13,15,17,19
8/29W	§11.4	Planes in $\mathbf{R}^3$	21,23,25,27,31,33,35,37,41,49,55
8/31F	§11.5	Curves in Space	1,3,5,7,9,11,13,15
9/3M	§11.5	Curves in Space (II)	17,19,21,23,25,27,31,33,36,39,49,52,55
9/5W		Review	
9/7F		Test I	
9/10M	§12.2	Functions of Several Variables	3,5,12,19,37,39,53,55,57
9/12W	§12.3	Limits, Continuity	3,7,11,17,19,21,23,30,37,40
9/14F	§12.4	Partial Derivatives	1,3,5,13,19,23,31,33,37,40,55,58
9/17M	§12.5	Max. & Min. Problems	1,5,7,11, 15, 19, 21,25,27
9/19W	§12.5	Max. & Min. Problem	29,31,36,39,41,43,45,49,53,56

9/21F	§12.6	Linear Approximation	1,3,15,17,21,23,25,29,31,35
9/24M	§12.7	Chain Rule	1,3,5,7,9,11,15,17,19,21,23,
9/26W	§12.7	Chain Rule(II)	25, 27, 29, 31,33,35,38,41,42,45,47
9/28F	§12.8	Gradient Vectors	3,5,6,7, 9,11,13,15,19
10/1M	§12.8	Gradient Vectors(II)	21,23,25,29,33,35,43,44
10/3W	§12.9	Lagrange Multipliers	1,3,5,7,9,15,17,19,21,23
10/5F	§12.9	Lagrange Multipliers(II)	25,27,36,37,41,44,47,51,53
10/8M	§12.10	Second Derivative Test	1,3,7,17,21,23,30,31
10/10W		Review	
10/12F		Test II	
10/15M	§13.1	Double Integrals	1,4,7,11,13,17,21,27,29,35
10/17W	§13.2	Double Integrals (II)	1,3,5,9,12,19,25,31,29
10/19F	§13.3	Area and Volume	11,21,27,29,35,41
10/22M	§9.2	Polar Coordinates	1,2, 3,5,7,11, 13,15,19,21,23,27,29,30
10/24W	§13.4	Double Integrals(Polar Coordinates)	3,4,9,13,17,19,29,33
10/26F		**Fall Break**	
10/29M	§13.5	Applications	5,7,11,15,22,33,41,43,53
10/31W	§13.6	Triple Integrals	1,3,5,9,11,17,23,39,40
11/2F	§13.7	Cylinderic & Spherical Coordinates	1,5,7,15,19,23,33,37
11/5M		Review	
11/7W		Test III	
11/9F	§14.1	Vector Fields	1,3,5,9,11,13,15,19,23,32,43
11/12M	§14.2	Line Integrals	1,3,5,7,9,11,13,15
11/14W	§14.2	Linear Integrals(II)	17,19,21,25,27,29,33,35
11/16F	§14.3	Independence of Path	3,5,9,17,21,25,27,30
11/19M	§14.4	Green's Theorem	1,3,5,7,13,15,17,19
11/21W–23F		**Thanksgiving Holiday**	
11/26M	§14.4	Green's Theorem(II)	21,23,25,27,29
11/28W	§14.5	Surface Integrals (I)	1,3,5,7,11,13,15,17
11/30F	§14.5	Surface Integrals (II)	19,21,23,27,29,37,39
12/3M	§14.6	Divergence Theorem	1, 7,11,13,15,16,17
12/4T	§14.7	Stokes' Theorem	1,3,7,9,15
12/5W		Review for Final	
12/14F		Final Exam. 8:00–11:00am	

Grading Policy:

TEST I	100 points
TEST II	100 points
TEST III	100 points
Final Exam.	200 points
HomeWork	100points
Total	600 points

Fixed Scale:

A	90+%	A-	$87 - 90\_\%$	B+	$83 - 87\_\%$	B	$80 - 83\_\%$
B-	$77 - 80\_\%$	C+	$73 - 77\_\%$	C	$67 - 73\_\%$	C-	$63 - 67\_\%$
D	$53 - 63\_\%$	F	$< 53\%$				