# Syllabus for Mat2250, fall, 2009

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## **Course Objectives**

We learn how to compute limits, derivatives, and anti-derivatives of functions and how to use these concepts to do application problems. We shall also learn how to integrate a function for various functions.

# Academic Honesty

As a University of Georgia student, you have agreed to abide by the Universitys academic honesty policy, A Culture of Honesty, and the Student Honor Code. All academic work must meet the standards described in A Culture of Honesty found at: www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

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		Chapter 2: Limits and Continuity
8/17M	$\S{2.1}$	Rates of Change and Tangents to Curves
	$\S{2.1}$	#1, 3, 7, 8, 11, 12, 15, 19
8/18T	$\S{2.2}$	Limit of a Function and Limit Laws
	$\S{2.2}$	#1, 2, 3, 5, 9, 13, 19, 21, 22, 25, 27, 29
8/19W	§2.2:	#34, 35, 36, 39, 42, 49, 57, 64, 68, 69, 85
8/21F	$\S{2.4}$	One-Sided Limits and Limits at Infinity
	$\S{2.4}$	#1, 2, 7, 10, 12, 17, 19, 20, 21, 23, 25, 27
8/24M	$\S{2.4}:$	# 34, 35, 39, 43, 47, 49, 51, 55, 69, 74 ( <b>HW DUE</b> )
$8/25\mathrm{T}$	$\S{2.5}$	Infinite Limits and Vertical Asymptotes
	$\S{2.5}$	#1, 3, 9, 13, 14, 17, 18, 19, 23, 31, 35, 39, 42, 43, 44
8/26W	$\S{2.6}$	Continuity
	$\S{2.6}$	#1-4, 5-10, 11, 12, 13, 19, 25
8/28F	$\S{2.6}$	#35, 36, 39, 46, 47, 58
8/31M	$\S{2.7}$	Tangents and Derivatives at a Point
	$\S{2.7}$	#1, 5, 7, 11, 13, 18, 23, 27, 28, 29, 30
9/1T		Review for Test I
		Additional and Advanced Exercises: $#4, 5, 6, 14, 21$
9/2W		Test I and (HW DUE)

### **Chapter 3: Differentiation**

9/4F	§3.1	The Derivative as a Function
- /	§3.1	#1, 3, 6, 9, 10, 13, 17, 27 - 30, 31, 33, 43, 44
9/8T	$\S{3.2}$	Differentiation Rules for Polynomials, Exponentials, Products, and
7	0	Quotients
	§3.2	#1, 3, 5, 7, 11, 15
9/9W	$\S{3.2}$	# 17, 18, 21, 23, 24, 27, 28, 29, 33
9/11F	§3.2	# 35, 39, 43, 47, 49, 50, 53, 58, 62, 63
9/14M	§3.3	The Derivative as a Rate of Change
	$\S{3.3}$	#1, 5, 7, 10, 11, 15  ( <b>HW DUE</b> )
9/15T	$\S{3.3}$	17, 18, 21, 23, 26, 29
9/16W	$\S{3.4}$	Derivatives of Trigonometric Functions
	§3.4	#1, 5, 8, 9, 11, 13, 16, 20, 25, 27, 35, 37, 47
9/18F	$\S{3.5}$	The Chain Rule and Parametric Equations [N.B. Skip parametric for- mula for $d^2y/dx^2$ .]
	$\S{3.5}$	#1, 3, 5, 9, 11, 15, 17, 19, 24, 27, 31, 35, 41, 45, 47
9/21M	$\S{3.5}$	#50, 51, 55, 57, 59, 61, 71, 73, 81, 83, 86, 95, 99, 112, 115 ( <b>HW DUE</b> )
9/22T	$\S3.6$	Implicit Differentiation
	§3.6	#1, 5, 11, 17, 19, 25, 39, 44, 51
9/23W	$\S{3.7}$	Derivatives of Inverse Functions and Logarithms
	$\S{3.7}$	#3, 11, 13, 21, 25, 27, 29, 32, 41, 51
9/25F	$\S{3.7}$	#57, 61, 64, 65, 91, 93, 95, 98
9/29M	$\S3.8$	Inverse Trigonometric Functions
	$\S{3.8}$	#1, 3, 7, 21, 23, 30, 33, 34, 42, 43, 48, 54 (HW DUE)
9/29T	$\S{3.9}$	Related Rates
	$\S{3.9}$	#1, 2, 3, 5, 7, 9, 10, 11, 13, 14, 15, 17, 18, 19
9/30W	$\S{3.9}$	#22, 23, 25, 30, 31, 35
10/2F	$\S{3.10}$	Linearization and Differentials
	$\S{3.10}$	#3, 8, 11, 15, 16, 39, 43, 45, 53, 54, 56, 61, 62, [65]
10/5M		Review for Test II
		Additional and Advanced Exercises: $\#6, 8, 19, 20$
10/6T		Test II and $(HW DUE)$
		Chapter 4: Applications of Derivatives
10/7W	84 1	Extreme Values of Functions
10/111	§4.1	#1-14, 15, 17, 19, 21, 25, 27, 29, 31, 33, 39
10/9F	0	#41, 43, 49, 51, 55, 61, 66, 67, [70], 72
10/12M	-	The Mean Value Theorem
10/1-111	§4.2	#5, 6, 7, 9, 12, 13, 15, 19, 23, 25, 27, 31
10/13T	0	#35, 39, 41, 45, 46, 59, 66a (HW DUE)
10/14W	-	Monotonic Functions and the First Derivative Test
7	$\S{4.3}$	#1, 3, 5, 7, 9, 13, 17, 21, 25, 31, 43, 47, 49, [58]
10/15F	0	Concavity and Curve Sketching
1	•	#1, 3, 11, 15, 17, 21
$10/19 \mathrm{M}$	§4.4	#25, 30, 33, 37, 53, 59, 69;
10/20T	•	p. 309: #55, 57, 59 ( <b>HW DUE</b> )

10/21W	-	Applied Optimization
10/000	§4.5	
	-	#20, [22], [24], [25], 27
10/26M	•	#32, 33, 41, 44
10/27T	§4.6	Indeterminate Forms and L'Hôpital's Rule
10/0011	§4.6	#3, 5, 9, 15, 19, 21, 23, 25  ( <b>HW DUE</b> )
10/28W	0	#47, 51, 53, 61, 63
11/2M	§4.7	Newton's Method
11/00	§4.7	#1, 3, 5, 13, 16
11/3T	•	Antiderivatives
1 1 / 1337	§4.8	#1, 5, 7, 13, 15, 19, 23, 31, 33, 39 ( <b>HW DUE</b> )
	§4.8	# 43, 45, 55, 59, 61, 65
	$\S4.8$	#87, 89, 91, 95, 103, 117, 118, 119, 120
11/9M		Review for Test III
		Additional and Advanced Exercises: $\#13$ , 15, 17, 22, 35
11/10T		Test III and (HW DUE)
		Chapter 5: Integration
11/11W	$\S{5.1}$	Estimating with Finite Sums, Sigma Notation and Limits of Finite Sums
	$\S{5.1}$	#1, 3, 5, 7, 11, 19, [21, 22]
11/13F	$\S{5.2}$	#1, 3, 7, 9, 13, 15, 19, 29, 35, 39
11/16M	$\S{5.3}$	The Definite Integral
	$\S{5.3}$	#1, 3, 5, 9, 11, 13, 17, 19, 27, 31, 35
11/17T	$\S{5.3}$	$\#55, 59, 63, 65, 66, [77], [79], [82] (\mathbf{HW DUE})$
11/18W	$\S{5.4}$	The Fundamental Theorem of Calculus
	$\S{5.4}$	#1, 3, 5, 7, 9, 11, 17, 23, 27, 29, 33, 35, 39
11/20F	$\S{5.4}$	#41, 43, 45, 47, 49, 53, 55, 58, 61-64, 73, 75
11/30M	$\S{5.5}$	Indefinite Integrals and the Substitution Rule
	$\S{5.5}$	#1, 3, 5, 7, 9, 13, 17, 19, 22, 23, 29
12/1T	$\S{5.5}$	#39, 43, 49, 51, 61, 67 (HW DUE)
12/2W	$\S{5.6}$	Substitution and Area Between Curves
	$\S{5.6}$	#1, 3, 7, 13, 25, 27, 31, 39, 47, 51, 53, 55
12/4F	$\S{5.6}$	#57, 67, 77, 81, 85, 89, 99, 103, [115, 116]
12/7M		Review for Test IV
		Additional and Advanced Exercises: $#4$ , 5, 6, 30, 31, 32,
		Leibniz's Rule, 47, 48, 55
12/8T		Test IV and (HW DUE)
		Final Examination Times
12/14		$12:20-1:10 \text{pm} \rightarrow 12:00-3:00 \text{pm}$
12/16		$1:25-2:15 \text{pm} \rightarrow 12:00-3:00 \text{pm}$
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Note that Problems listed in brackets are best saved for the better students, as are the recommended "Additional and Advanced Exercises."

# Grading Policy:

TEST I	100 points
TEST II	100 points
TEST III	100 points
TEST IV	100 points
Home Work	200 points
Final Exam.	200 points
Total	800 points

Fixed Scale								
А	90 + %	A-	$87 - 90_{-}\%$	B+	$83 - 87_{-}\%$	В	$80 - 83_{-}\%$	
B-	77-80%	C+	$73 - 77_{-}\%$	С	$67 - 73_{-}\%$	C-	$63 - 67_{-}\%$	
D	$53 - 63_{-}\%$	F	< 53%				1	
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The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary