## Syllabus for Mat2250, fall, 2009

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Text: Hass, Weir, and Thomas, University Calculus

## 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.

| Dates |  | Section |  | Topics and Recommended Exercises |
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|  |  |  | $\quad$ Chapter 2: Limits and Continuity |  |

## Chapter 3: Differentiation

| 9/4F | $\S 3.1$ | The Derivative as a Function |
| :---: | :---: | :---: |
|  | $\S 3.1$ | \#1, 3, 6, 9, 10, 13, 17, 27-30, 31, 33, 43, 44 |
| 9/8T | §3.2 | Differentiation Rules for Polynomials, Exponentials, Products, and 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 |
|  | §3.3 | \#1, 5, 7, 10, 11, 15 (HW DUE) |
| 9/15T | §3.3 | 17, 18, 21, 23, 26, 29 |
| 9/16W | $\S 3.4$ | Derivatives of Trigonometric Functions |
|  | $\S 3.4$ | \#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 formula for $d^{2} y / d x^{2}$.] |
|  | §3.5 | \#1, 3, 5, 9, 11, 15, 17, 19, 24, 27, 31, 35, 41, 45, 47 |
| 9/21M | §3.5 | \# 50, 51, 55, 57, 59, 61, 71, 73, 81, 83, 86, 95, 99, 112, 115 (HW DUE) |
| 9/22T | §3.6 | Implicit Differentiation |
|  | $\S 3.6$ | \#1, 5, 11, 17, 19, 25, 39, 44, 51 |
| 9/23W | $\S 3.7$ | Derivatives of Inverse Functions and Logarithms |
|  | §3.7 | \#3, 11, 13, 21, 25, 27, 29, 32, 41, 51 |
| 9/25F | §3.7 | \#57, 61, 64, 65, 91, 93, 95,98 |
| 9/29M | $\S 3.8$ | 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 |
|  | §3.9 | \#1, 2, 3, 5, 7, 9, 10, 11, 13, 14, 15, 17, 18, 19 |
| 9/30W | §3.9 | \#22, 23, 25, 30, 31, 35 |
| 10/2F | §3.10 | Linearization and Differentials |
|  | §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 | §4.1 | Extreme Values of Functions |
|  | §4.1 | \# 1-14, 15, 17, 19, 21, 25, 27, 29, 31, 33, 39 |
| 10/9F | §4.1 | \#41, 43, 49, 51, 55, 61, 66, 67, [70], 72 |
| 10/12M | §4.2 | The Mean Value Theorem |
|  | §4.2 | \#5, 6, 7, 9, 12, 13, 15, 19, 23, 25, 27, 31 |
| 10/13T | §4.2 | \#35, 39, 41, 45, 46, 59, 66a (HW DUE) |
| 10/14W | §4.3 | Monotonic Functions and the First Derivative Test |
|  | §4.3 | \#1, 3, 5, 7, 9, 13, 17, 21, 25, 31, 43, 47, 49, [58] |
| 10/15F | §4.4 | Concavity and Curve Sketching |
|  | §4.4 | \#1, 3, 11, 15, 17, 21 |
| 10/19M | §4.4 | \#25, 30, 33, 37, 53, 59, 69; |
| 10/20T | §4.4 | p. 309: \# 55, 57, 59 (HW DUE) |


| 10/21W | $\S 4.5$ | Applied Optimization |
| :---: | :---: | :---: |
|  | §4.5 | \#1, 3, 4, 5, 7, 11, 12, 14 |
| 10/23F | $\S 4.5$ | \#20, [22], [24], [25], 27 |
| 10/26M | §4.5 | \#32, 33, 41, 44 |
| 10/27T | $\S 4.6$ | Indeterminate Forms and L'Hôpital's Rule |
|  | §4.6 | \#3, 5, 9, 15, 19, 21, 23, 25 (HW DUE) |
| 10/28W | §4.6 | \#47, 51, 53, 61, 63 |
| 11/2M | $\S 4.7$ | Newton's Method |
|  | $\S 4.7$ | \#1, 3, 5, 13, 16 |
| 11/3T | $\S 4.8$ | Antiderivatives |
|  | §4.8 | \#1, 5, 7, 13, 15, 19, 23, 31, 33, 39 (HW DUE) |
| 11/4W | $\S 4.8$ | \# 43, 45, 55, 59, 61, 65 |
| 11/6F | §4.8 | \#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 | §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 | §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] (HW DUE) |
| 11/18W | $\S 5.4$ | The Fundamental Theorem of Calculus |
|  | §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 | §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 |
|  | §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, |
| 12/8T |  | Test IV and (HW DUE) |
|  |  | Final Examination Times |
| 12/14 |  | 12:20-1:10pm $\rightarrow$ 12:00-3:00pm |
| 12/16 |  | $1: 25-2: 15 \mathrm{pm} \rightarrow 12: 00-3: 00 \mathrm{pm}$ |

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

| A | $90+\%$ | A- $87-90 \_\%$ | B+ | $83-87 \_\%$ | B | $80-83_{-} \%$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| B- | $77-80 \_\%$ | C+ | $73-77_{-} \%$ | C | $67-73 \_\%$ | C- | $63-67 \_\%$ |

D $53-63-\% \mid \mathrm{F} \quad<53 \%$
The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary

