

Math 153—Intensive Calculus for Mathematics/Physical Sciences

Sections: 1 and 2

Syllabus and Problem List, Fall 2002

Lecturer: Professor Gregory L. Cherlin

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Workshops:

Sec.	Time	Place	Teaching Assistant	Peer Mentor
1	Mon-Tu-Wed 7th	SEC 210	Alfredo Rios rios@math.rutgers.edu	Carmen costincarmen@yahoo.com
2	Mon-Tu-Wed 7th	SEC 218	Liang Kong lkong@math.rutgers.edu	Shobhana shobhana@eden.rutgers.edu

Text: James Stewart, *Calculus (Early Transcendentals)*, 4th ed., Brooks/Cole.

Calculator: A graphing calculator is required for this course, but *no calculators of any type* will be permitted on the examinations.

Lecture	Reading	Topics
1. 9/5	Appendices A,B,D; 1.1–1.5	Review of real numbers, absolute value, inequalities, lines, functions, exponential and trig functions
2. 9/9	Appendix D, 1.6	Inverse functions; logs and inverse trig functions
3. 9/12	2.1, 2.2	Tangents & velocity; limits
4. 9/16	2.3, 2.4	Limit laws & definition of limit
5. 9/19	2.5	Continuity & Intermediate Value Theorem
6. 9/23	2.6	Infinity & asymptotes
7. 9/26	2.7, 2.8, 2.9	Rates of change; derivatives
8. 9/30	3.1, 3.2	Differentiation formulas; derivatives of exponential functions
9. 10/3	3.3, 3.4	Rates of change; derivatives of trig functions
10. 10/7	3.5, 3.6	The chain rule, implicit differentiation
11. 10/10	3.6, 3.7, 3.8	Derivatives of logs and inverse trig functions, higher derivatives
12. 10/14	First Exam, October 14 (usual class time & place)	
13. 10/17	3.10	Related rates
14. 10/21	3.11, 4.9	Linear approximation, Newton's Method
15. 10/24	4.4	L'Hôpital's Rule
16. 10/28	4.1, 4.2	Max & min; the Mean Value Theorem
17. 10/31	4.3	$f'(x)$, $f''(x)$ and the graph of f
18. 11/4	4.5, 4.6	Sketching graphs
19. 11/7	4.7	Applied max/min
20. 11/11	4.10	Antiderivatives
21. 11/14	5.1, Appendix E	Area, distance, Σ notation
22. 11/18	5.2	The definite integral
23. 11/21	Second Exam, November 21 (usual class time & place)	
24. 11/25	5.3, 5.4	The Fundamental Theorem of Calculus
25. 11/26!	5.5	Substitution rule
26. 12/2	6.1	Area computations
27. 12/5	5.6	Logarithm defined as an integral
28. 12/9	<i>Catch up, review for final exam (exam date: December 16, 4-7 PM; location: to be announced)</i>	

OVER

Homework for Mathematics 153

Note: The order of the sections has been rearranged to correspond more closely to our treatment.

Section *Do all of the following, and hand in the few marked in boldface:*

Appendix A	6, 7, 23, 28 , 49, 52 , 61, 62
Appendix B	1, 7, 23, 25, 29, 35
Section 1.1	2, 7, 8, 19, 21, 22, 25, 38, 50 , 51
Section 1.2	4, 9, 13, 14 (none collected)
Section 1.3	4, 5, 9, 12, 15, 24 , 36 , 37, 53
Section 1.4	1, 18, 19, 23, 25 , 33
Section 1.5	13, 15, 17, 18 , 20
Appendix D	15, 19, 27, 31, 67 , 74 , 83, 85, 87, 88 , 94
Section 1.6	5, 12, 14 , 24, 27, 35, 38, 42 , 48 , 49, 50, 52
Section 2.1	1, 3, 6, 8
Section 2.2	5, 6, 8, 9, 14 , 19, 21, 25, 26 , 28, 29, 33
Section 2.3	1, 3, 6, 7, 10, 13, 18 , 24 , 25, 27, 35, 36 , 38, 45, 56
Section 2.4	1, 3, 4 , 6, 7, 20 , 39, 40
Section 2.5	3, 4, 15, 16, 19, 20, 25, 26, 36 , 40 , 45, 48 , 49
Section 2.6	4, 11, 16, 18, 19, 23, 24 , 37, 38 , 53, 56
Section 2.7	5, 8 , 11, 12 , 15
Section 2.8	3, 7, 11, 15, 16
Section 2.9	2, 4 , 11, 19, 22 , 29, 30, 34, 37
Section 3.1	3, 5, 9, 12, 13, 16, 33, 40 , 43, 49 , 52, 55
Section 3.2	3, 4, 5, 8, 9, 16, 27, 39, 40
Section 3.3	3, 8 , 11, 16 , 23, 31
Section 3.4	3, 5, 8, 10, 13, 16 , 18 , 23, 29, 35, 36 , 39
Section 3.5	1, 4, 5, 9, 14, 15, 16, 21, 22 , 24 , 33, 35, 30, 44 , 47
Section 3.6	3, 9, 12, 29 , 41, 42 , 43, 44, 47, 48
Section 3.7	1, 5, 8, 13, 19, 20 , 39, 48 , 51, 57
Section 3.8	3, 4, 7, 8 , 13, 15, 24 , 25, 26, 32, 35, 38, 41
Section 3.10	1, 4 , 12 , 21, 22 , 29
Section 3.11	5, 7, 10 , 13, 31, 36 , 40
Section 4.9	1, 5, 12, 34
Section 4.4	1, 2, 3, 7, 10 , 15, 21, 22 , 29, 36 , 39, 40, 47, 57, 58, 72
Section 4.1	3, 22, 34, 41, 48, 55, 63, 64 , 67, 70 , 77
Section 4.2	5, 11, 14, 17, 23, 24 , 29
Section 4.3	1, 5, 7, 11, 21, 22, 29, 30 , 31, 34, 37, 40, 44 , 45
Section 4.5	3, 16, 30 , 35, 45, 48
Section 4.6	7, 14, 16 , 17, 26 , 27
Section 4.7	2, 9, 17, 22, 27, 33 , 40 , 52
Section 4.10	3, 10, 12, 15, 25, 28 , 35, 40, 48, 53 , 55, 60, 63
Section 5.1	4, 11, 16, 19
Appendix E	1, 6, 12, 14, 25 , 30, 44
Section 5.2	3, 5, 12 , 21, 29, 30 , 33, 34 , 45, 46, 49, 50
Section 5.3	1, 6, 9, 15 , 18, 23, 28 , 29, 33, 38, 64
Section 5.4	1, 2, 5, 7, 8, 10, 11, 18, 19, 22 , 27, 30, 40, 49, 54 , 55
Section 5.5	1, 3, 4, 5, 10, 12, 19, 20, 21, 29, 32 , 44 , 51, 53, 58 , 63, 66, 68
Section 6.1	1, 2, 3, 4, 9, 14, 17, 18, 43, 44 , 45
Section 5.6	1 , 3