

Department of Mathematics

136.150 Introductory Calculus I, September, 2004 Course Outline

TEXT: James Stewart, Single Variable Calculus, Early Transcendentals, Fourth Edition, Brooks-Cole, 1999

Ch.,Sec.	Title	Page Numbers	Suggested Homework (Odd Numbers)
1.1	Four Ways to Represent a Function	11 – 24	1, 5-11, 17-41, 45-53, 57-63
1.3	New Functions From Old Functions (Combinations/Compositions only)	42 – 49	31, 35, 39, 41, 45, 49, 55, 57
1.5	Exponential Functions	56 – 64	5, 7, 9, 11
2.2	Limit of a Function	90 – 102	1-9, 12, 13, 15, 21-27
2.3	Limit Laws	102 – 111	1-27, 33-45
2.5	Continuity	122 – 133	1-7, 11, 15-23, 35, 37, 39, 40, 41, 45, 46
2.6	Limits at Infinity: Horizontal Asymptotes	133– 147	1, 3-7, 11, 15-31, 33-47, 51
2.7	Tangents, Velocities & Other Rates of Change	147 – 155	1-19
2.8	Derivatives	156 – 162	1-9, 13-25
2.9	The Derivative as a Function	163 – 173	3, 4, 5-15, 19-27, 39
3.1	Derivatives of Polynomials & Exponential Functions	181 – 190	1-27, 37, 39, 43-55
3.2	Product & Quotient Rules	190 – 196	1-27(a), 31-35, 41
3.4	Derivatives of Trigonometric Functions	208 – 215	1-23, 29, 33, 35-47
3.5	Chain Rule	215 – 224	1-45, 51-57
3.6	Implicit Differentiation (omit inverse trig. functions)	224 – 232	1-27
3.7	Higher Order Derivations	233 – 239	1-19, 29-35, 43, 47
3.10	Related Rates	253 – 259	1-23, 29

MID TERM EXAM (1 hour) = 30% October 29, 2004 at 5:30 p.m.

1.6	Inverse & Logarithmic Functions	64 – 77	1-13, 17-27, 31-41, 47-51
3.8	Derivatives of Logarithmic Functions	240 – 246	1-47, 48
4.1	Max. & Min. Values	277 – 287	1-25, 31-41, 49, 51, 57, 59
4.2	Mean Value Theorem	288 – 294	11-15
4.3	How Derivatives Affect the Shape of a Graph	294 – 305	1-43, 63-67
4.5	Curve Sketching (omit oblique asymptotes)	314 – 322	1-23, 31, 33, 43-49
4.7	Optimization Problems	329 – 340	1-19, 29, 31, 33
4.10	Antiderivatives	351 – 358	1-49, 61, 63, 73, 75
5.1	Areas and Distances	367 – 378	
5.2	Definite Integral	378 – 391	
5.3	Fundamental Theorem of Calculus	391 – 400	1-9, 13-35, 39, 47

FINAL EXAM (2 hours) = 60%

Required Theorems:

2.9	$\text{differentiable} \Rightarrow \text{continuous}$
3.1	$(cf)' = cf'$
3.1	$(f + g)' = f' + g'$
3.2	$(fg)' = f'g + fg'$
3.4	$(\sin x)' = \cos x$
4.2	$f' = 0 \text{ on } I \Rightarrow f \text{ constant on } I$
4.3	$f' > 0 \text{ on } I \Rightarrow f \text{ increasing on } I$
4.3	$f' < 0 \text{ on } I \Rightarrow f \text{ decreasing on } I$