Department of Mathematics

136.150 Introductory Calculus I, September, 2005
Course Outline

TEXT: James Stewart, Single Variable Calculus, Early Transcendentals, Fifth Edition, Brooks-Cole, 2003

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, 57-65
1.3	New Functions From Old Functions (Combinations/Compositions only)	42 – 48	31, 35, 39, 41, 45, 49, 55, 57
1.5	Exponential Functions	55 – 63	5, 7, 9, 11
2.2	Limit of a Function	92 – 104	1-9, 12, 13, 15, 23-29
2.3	Limit Laws	104 – 113	1-29, 35-47
2.5	Continuity	124 – 135	1-7, 11, 15-23, 31-47, 42
2.6	Limits at Infinity: Horizontal Asymptotes	135– 149	1, 3-7, 11-33, 37-53
2.7	Tangents, Velocities & Other Rates of Change	149 – 157	1-19
2.8	Derivatives	158 – 164	1-9, 13-25
2.9	The Derivative as a Function	165 – 176	1-17, 4, 21-31, 37, 43
3.1	Derivatives of Polynomials & Exponential Functions	183 – 192	1-31, 39, 41, 45-57
3.2	Product & Quotient Rules	192 – 198	1-27(a), 31-35, 43
3.4	Derivatives of Trigonometric Functions	211 – 217	1-23, 29, 33, 35-47
3.5	Chain Rule	217 – 227	1-45, 51-57
3.6	Implicit Differentiation (omit inverse trig. functions)	227 – 235	1-27
3.7	Higher Order Derivations	236 – 243	1-19, 29-35, 43, 47
3.10	Related Rates	256 – 262	1-25, 31

MID TERM EXAM (1 hour) = 30% October 28, 2005 at 5:30 p.m.

1.6	Inverse & Logarithmic Functions	63 – 77	1-13, 17-27, 31-43, 47-51
3.8	Derivatives of Logarithmic Functions	244 – 249	1-49, 48
4.1	Max. & Min. Values	279 – 289	1-25, 31-61, 45
4.2	Mean Value Theorem	290 – 296	11-15
4.3	How Derivatives Affect the Shape of a Graph	296 – 307	1-45, 66, 67, 68, 69
4.5	Curve Sketching (omit oblique asymptotes)	316 – 324	1-23, 31, 33, 43-49
4.7	Optimization Problems	331 – 342	1-19, 29, 31, 33
4.10	Antiderivatives	353 – 360	1-49, 61, 63, 69, 75
5.1	Areas and Distances	369 – 380	3, 5, 11
5.2	Definite Integral	380 – 393	1-7, 29-45
5.3	Fundamental Theorem of Calculus	394 – 404	1-11, 15-35, 39, 41, 49, 51

FINAL EXAM (2 hours) = 60%

Required Theorems:

2.9 differentiable $\Rightarrow$ 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 $f' = 0$ on I $\Rightarrow$ f constant on I

4.3 $f' > 0$ on I $\Rightarrow$ f increasing on I

4.3 $f' < 0$ on I $\Rightarrow$ f decreasing on I