Department of Mathematics
136.150 Introductory Calculus I, September 2005
Course Outline

TEXT: James Stewart, Single Variable Calculus, Early Transcendentals, Fifth Edition, Brooks-Cole, 2005 or
James Stewart, Single Variable Calculus, Early Transcendentals, Fourth Edition, Brooks-Cole, 1999

		Suggested Homework:			
		5th Edition		**4th Edition**	
Sec	**Title**	**Page#**	**(Odd Numbers)**	**Page#**	**(Odd Numbers)**
1.1	Four Ways to Represent a Function	11 — 24	1, 5-11, 17-41, 45-53, 57-65	11 — 24	1, 5-11, 17-41, 45-53, 57-63
1.3	New Functions From Old Functions (Combinations/Compositions only)	42 — 48	31, 35, 39, 41, 45, 49, 55, 57	42 — 49	31, 35, 39, 41, 45,49, 55, 57
1.5	Exponential Functions	55 — 63	5, 7, 9, 11	56 — 64	5, 7, 9, 11
2.2	Limit of a Function	92 — 104	1-9, 12, 13, 15, 23-29	90 — 102	1-9, 12, 13, 15, 21-27
2.3	Limit Laws	104 — 113	1-29, 35-47	102 — 111	1-27, 33-45
2.5	Continuity	124 — 135	1-7, 11, 15-23, 31-47, 42	122 — 133	1-7, 11, 15-23, 35, 37, 39, 40, 41, 45, 46
2.6	Limits at Infinity: Horizontal Asymptotes	135— 143	1, 3-7, 11-33, 37-53	133— 147	1, 3-7, 11, 15-31, 33-47, 51
2.7	Tangents, Velocities & Other Rates of Change	149 — 157	1-19	147 — 155	1-19
2.8	Derivatives	158 — 164	1-9, 13-25	156 — 162	1-9, 13-25
2.9	The Derivative as a Function	165 — 176	1-17, 4, 21-31, 37, 43	163 — 173	3, 4, 5-15, 19-27, 39
3.1	Derivatives of Polynomials & Exponential Functions	183 — 192	1-31, 39, 41, 45-57	181 — 190	1-27, 37, 39, 43-55
3.2	Product & Quotient Rules	192 — 198	1-27(a), 31-35, 43	190 — 196	1-27(a), 31-35, 41
3.4	Derivatives of Trigonometric Functions	211 — 217	1-23, 29, 33, 35-47	208 — 215	1-23, 29, 33, 35-47
3.5	Chain Rule	217 — 227	1-45, 51-57	215 — 224	1-45, 51-57
3.6	Implicit Differentiation (omit inverse trig. functions 4th ed)	227 — 235	1-27	224 — 232	1-27
3.7	Higher Order Derivations	236 — 243	1-19, 29-35, 43, 47	233 — 239	1-19, 29-35, 43, 47
3.10	Related Rates	256 — 262	1-25, 31	253 — 259	1-23, 29
MIDTERM EXAM (1 Hour) = 30%					
1.6	Inverse & Logarithmic Functions (omit inverse trig. functions 4th ed)	63 — 77	1-13, 17-27, 31-43, 47-51	64 — 77	1-13, 17-27, 31-41, 47-51
3.8	Derivatives of Logarithmic Functions	244 — 249	1-49, 48	240 — 246	1-49, 48
4.1	Max. & Min. Values	279 — 289	1-25, 31-61, 45	277 — 287	1-25, 31-61, 45
4.2	Mean Value Theorem	290 — 296	11-15	288 — 294	11-15
4.3	How Derivatives Affect the Shape of a Graph	296 — 307	1-45, 66, 67, 68, 69	294 — 305	1-43, 63-67
4.5	Curve Sketching (omit oblique asymptotes)	316 — 324	1-23, 31, 33, 43-49	314 — 322	1-23, 31, 33, 43-49
4.7	Optimization Problems	331 — 342	1-19, 29, 31, 33	329 — 340	1-19, 29, 31, 33
4.10	Antiderivatives	353 — 360	1-49, 61, 63, 69, 75	351 — 358	1-49, 61, 63, 73, 75
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5.2	Definite Integral	380 — 393	1-7, 29-45	378 — 391	1-7, 29-45
5.3	Fundamental Theorem of Calculus	394 — 404	1-11, 15-35, 39, 41, 49, 51	391 — 400	1-9, 13-35, 39, 47
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