18.01 Course Outline — Fall 2006

Differentiation

0.	W	Sept	6	Recitation: Graphing.
1.	R	Sept	7	Derivatives, slope, velocity, rate of change.
2.	F	Sept	8	Limits, continuity. Trigonometric limits.
3.	T	Sept	12	Derivatives of products, quotients, sine, cosine
4.	R	Sept	14	Chain rule. Higher derivatives.
5.	F	Sept	15	Implicit differentiation, inverses. **PS 1 due**
6.	T	Sept	19	Exponential and log. Logarithmic differentiation; hyperbolic functions.
7.	R	Sept	21	Continuation and Review
8.	F	Sept	22	**EXAM 1** covering lectures 1–7.
	M	Sept	25	**Student holiday – no recitation**

Applications of Differentiation

9.	T	Sept	26	Linear and quadratic approximations.
10.	R	Sept	28	Curve sketching.
11.	F	Sept	29	Max-min problems. **PS 2 due**
12.	T	Oct	3	Related rates.
13.	R	Oct	5	Newton's method and other applications.
14.	F	Oct	6	Mean value theorem. Inequalities. **PS 3 due**
	M,T	Oct	9,10	**Columbus Day holiday – no classes**
15.	R	Oct	12	Differentials, antiderivatives.
16.	F	Oct	13	Differential equations, separation of variables.
17.	T	Oct	17	**EXAM 2** covering lectures 8–16.

Integration

18.	R	Oct	19	Definite integrals.
19.	F	Oct	20	First fundamental theorem of calculus. **PS 4 due**
20.	T	Oct	24	Second fundamental theorem. Def'n of log.
21.	R	Oct	26	Areas between curves, volumes by slicing.
22.	F	Oct	27	Volumes by disks, shells. **PS 5 due**
23.	T	Oct	31	Work, average value, probability.
24.	R	Nov	2	Numerical integration.

Techniques of Integration

25.	F	Nov	3	Trigonometric integrals.
26.	T	Nov	7	**EXAM 3** covering lectures 18–24.
27.	R	Nov	9	Integration by inverse substitution; completing the square. **PS 6 due**
	F	Nov	10	**Veterans' Day holiday – no classes. (PS6 due on a Thursday.)**
28.	T	Nov	14	Partial fractions.
29.	R	Nov	16	Integration by parts; reduction formulas.
30.	F	Nov	17	Parametric equations, arclength, surface area. **PS 7 due**
31.	T	Nov	21	Polar coordinates; area in polar coordinates.
	R,F	Nov	23,24	**Thanksgiving holiday – no classes**
32.	T	Nov	28	Continuation and review.
33.	R	Nov	30	**EXAM 4** covering lectures 25–32.
34.	F	Dec	1	Indeterminate forms; L'Hospital's rule.
35.	T	Dec	5	Improper integrals.
36.	R	Dec	7	Infinite series. Convergence tests.
37.	F	Dec	8	Taylor series. **PS 8 due**
38.	T	Dec	12	Final review. (FINAL EXAM date to be announced)