

## DEPARTMENT OF MATHEMATICS SYLLABUS

Course # & Name: MAT 21B: Integral Calculus

Recommended Text(s) & Price: Thomas' Calculus: Early Transcendentals  
by Weir/Hass/Giordano (\$142.00)

Prepared by: Prof. Joel Hass      UPC Approval Date: Spring 2005

Lecture(s)	Sections	Comments/Topics
1	4.8	Antiderivatives
1	5.1	Estimating with finite sums
1	5.2	Limits of finite sums, notation
1	5.3	The Definite Integral
2	5.4	Fundamental Theorem of Calculus
1	5.5	Indefinite integrals and Substitution
1	5.6	Area between curves
1	6.1	Volumes by slicing
1	6.2	Volumes by shells
1	6.3	Lengths of curves
1	6.4	Moments and center of mass
1	6.5	Areas of surfaces of revolutions (can omit Pappus)
1	6.6	Work
1	6.7	Fluid Pressures
1.5	7.1	The integral definition of $\ln x$
1.5	7.2	Exponential growth and decay
1	8.1	Basic Integral Formulas
1	8.2	Integration by Parts (omit Tabular Integration)
1.5	8.3	Partial Fractions
0.5	8.4	Trigonometric Integrals
1	8.5	Trigonometric substitutions
1	8.7	Numerical methods
1	8.8	Improper integrals
1	10.5	Polar coordinates

### Additional Notes:

Total number of lectures = 25. This leaves five days for exams and time adjustments.

Optional, if time permits: One lecture on section 10.6 (Graphing in polar coordinates), one lecture on 10.7 (Area in polar coordinates), and two lectures on 9.1 (Slope Fields and Seperable differential equations).