

DEPARTMENT OF MATHEMATICS SYLLABUS

Course # & Name: MAT 21A: Differential 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	1.1 – 1.6	Review chapter one. Cover definitions of exponential functions, inverse functions, and logarithms. Okay to skip and refer to as needed.
1	2.1	Limits – Intuitive idea
1	2.2	Limit Laws
1	2.3	Precise definition of limit
1	2.4	1-Sided and limits at infinity
1	2.5	Infinite limits and asymptotes
1.5	2.6	Continuity
0.5	2.7	Tangent lines and derivatives
0.5	3.1	The derivative function
2	3.2	Derivative rules
1	3.3	Velocity and acceleration
1	3.4	Derivatives of trig functions
1.5	3.5	Chain Rule and Parametric Curves
1	3.6	Implicit differentiation
1	3.7	Derivatives of logs and inverse functions
1	3.8	Inverse Trig. Functions (skim)
1	3.9	Related rates
1	3.10	Linearization and differentials
1	4.1	Maxima, minima, and the derivative
1	4.2	Mean Value Theorem
1	4.3	First Derivative Test
1	4.4	Concavity and curve sketching
2	4.5	Applied optimization problems
1	4.6	L'Hopital's Rule (omit proof)

Additional Notes:

Total number of lectures = 26. This leaves four days for exams and lecture time adjustments.

If time allows, can include one lecture on section 4.7 (Newton's Methods). If time runs out on specified lectures, section 3.8 is a lower priority.

