

SAMPLE SYLLABUS

NOTE: This document is published only as an indication of what is typically taught in this course. Instructors have the responsibility of deciding on topics to be omitted, additional topics to be included, and the emphasis, ordering, and pacing of presentation of topics.

Course Number: **MTH 121**

Course Title: **Survey of Calculus and its Applications I** Credit Hours: **4.0**

Textbook(s): **Goldstein, Lay, Schneider & Armar, *Calculus and its Applications*, (UB Custom 3rd ed., or regular 12th ed.), Prentice-Hall**

Description: **For students in social, biological, and management sciences. Limits, continuity, differentiation of algebraic and exponential functions; applications; introduction to integration.**

Prerequisite: **NYS Regents Math B or MTH 115.**

Syllabus: **The course should cover Chapters 0 through 6. There should be at least two (2) in-class tests and a final examination.** One possible arrangement to achieve this is as follows: (based on a 13-week semester; in the summer this would, of course, have to be pro-rated.)

Note: Section 0.6 Functions & Graphs in Applications is optional. Instructors covering this section might go lightly over 0.1-0.3 (but should stress definition of function & composition). An alternative is to integrate 0.6 with 2.5 & 2.6.

Week	Section	Topic
1	0.1 - 0.5	Functions, Some Important Functions, Algebra of Functions, Zeros - Quadratic Formula & Factoring Exponents and Power Functions
2	1.1 - 1.5	Slope of a Straight Line; Slope of a Curve at a Point Limits and the Derivative Differentiability and Continuity
3	1.6 - 1.8	Some Rules for Differentiation More about Derivatives The Derivative as a Rate of Change
4	*****	***** Review and Test *****
5	2.1 - 2.3	Describing Graphs of Functions First and Second Derivative Rules Curve Sketching (introduction)
6	2.4 - 2.6	Curve Sketching (conclusion) Optimization Problems
7	2.7, 3.1 - 3.3	Applications of Calculus to Business and Economics Product and Quotient Rules Chain & General Power Rules; Implicit Differentiation & Related Rates
8	*****	***** Review and Test *****
9	4.1 - 4.3	Exponential Functions Exponential Functions e^x Differentiation of Exponential Functions
10	4.4 - 4.6	The Natural Logarithm Function The Derivative of $\ln x$ Properties of the Natural Logarithm Function
11	5.1 - 5.4	Applications of the Exponential and Natural Logarithm Functions
12	6.1 - 6.3	Antidifferentiation Areas and Riemann Sums Definite Integrals and the Fundamental Theorem
13	6.4 - 6.5	Areas in the xy -Plane Riemann Sums, Application of Definite Integral