

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 141**

Course Title: **College Calculus I**

Credit Hours: **4.0**

Textbook(s): **Stewart, *Calculus: Single Variable*** (Early Transcendentals, 5th ed. / UB custom 5th ed.), Brooks/Cole

Description: **This is the beginning of a 3-semester sequence in calculus for students of mathematics, natural sciences and engineering. Covers differentiation and integration with applications.**

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

Syllabus: **MTH 141 covers through Chapter 5 of the text.** The syllabus is written for 12 full teaching weeks, 24 lectures on a TTh schedule or 36 lectures on a MWF schedule. In a typical semester there are 28 or 29 TTh teaching days and 41 or 42 MWF teaching days. Some time is thus available for review and for exams. The schedule below is a guideline. **Change from F04:** The review of exp and ln in 1.5-6 are brought closer to the discussion of their derivatives. This means some examples in Ch.2 have to be avoided. Omit optional material if you have any doubts about finishing the material from Chapter 5. Don't leave MTH 142 instructors with a gap! You can help us improve this guideline by recording, as you go, your actual pace (and any other relevant thoughts), and providing a copy of this record to the Office of Undergraduate Studies at the end of the semester. Thanks!

Week	Section	Topics	Examples to be avoided	Actual pace
1	2.1	Tangent and Velocity Problems		
1	2.2	Limit of a Function		
1	2.3	Calculating Limits Using Limit Laws		
2	2.4	Precise Definition of a Limit, Infinite Limits		
2	2.5	Continuity	p129,130,131: log, inv trig, as e.g.	
3	2.6	Limits at Infinity; Horizontal Asymptotes	p137: inv trig as e.g., p141,142 exp as e.g.	
3	2.7	Tangents, Velocities, and Other Rates of Change		
4	2.8	Derivatives		
4	2.9	The Derivative as a Function	p163: exp in Ex's	
4	3.1i	Derivatives of Polynomial Functions		
5	1.5	Exponential Functions		
5	1.6	Inverse Functions and Logarithms, Inv Trig Funcs		
5	3.1ii	Derivatives of Exponential Functions		
5	3.2	The Product and Quotient Rules		
6	3.4	Derivatives of Trigonometric Functions		
6	3.5	The Chain Rule		
6	3.6	Implicit Differentiation, Derivatives of Inv Trig Funcs		
7	3.7	Higher Derivatives		
7	3.8	Derivatives of Logarithmic Functions		
option	3.9	<i>Hyperbolic Functions</i>		
option	3.10	<i>Related Rates</i>		
7	3.11	Linear Approximation and Differentials		
8	4.1	Maximum and Minimum Values		
8	4.2	The Mean Value Theorem		
8	4.3	How Derivatives Affect the Shape of a Graph		
9	4.4	Indeterminate Forms and L'Hopital's Rule		
9	4.5	Summary of Curve Sketching		
option	4.6	<i>Graphing with Calculus and Calculators</i>		
9	4.7	Optimization Problems		
option	4.8	<i>Applications to Business and Economics</i>		
option	4.9	<i>Newton's Method</i>		
10	4.10	Antiderivatives		
10	5.1	Areas and Distances		
11	5.2	The Definite Integral		
11	5.3	The Fundamental Theorem of Calculus		
12	5.4	Indefinite Integrals and the Net Change Theorem		
12	5.5	The Substitution Rule		
option	5.6	<i>The Logarithm Defined as an Integral</i>		