

SAMPLE SYLLABUS

Course Number: **MTH 141**

Course Title: **College Calculus I**

Credit Hours: **4.0**

Textbook(s): **Stewart, *Calculus: Single Variable*** (Early Transcendentals, 6th ed. / UB custom 6th ed.), Brooks/Cole
(Use of 6th edition begins Fall 2007.)

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 your actual pace (and any other relevant thoughts) as you go, and providing a copy of this record to the Office of Undergraduate Studies at the end of the semester. Thanks!

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.

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Week	Section	Topics	Actual date taught
1	2.1	The Tangent. 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	
3	2.6	Limits at Infinity: Horizontal Asymptotes	
3	2.7*	Derivatives and Rates of Change	
4	2.8*	The Derivative as a Function. Higher Derivatives	
4	3.1i	Derivatives of Polynomial Functions	
4	1.5	Exponential Functions	
5	1.6	Inverse Functions and Logarithms, Inverse Trig Functions	
5	3.1ii	Derivatives of Exponential Functions	
5	3.2	The Product and Quotient Rules	
6	3.3	Derivatives of Trigonometric Functions	
6	3.4	The Chain Rule	
6	3.5	Implicit Differentiation. Derivatives of Inverse Trig Functions	
7	3.6	Derivatives of Logarithmic Functions. Logarithmic diff. e as limit.	
7	3.8	Exponential Growth and Decay	
<i>option</i>	3.9	<i>Related Rates</i>	
7	3.10	Linear Approximation and Differentials	
<i>option</i>	3.11	<i>Hyperbolic Functions</i>	
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	
<i>option</i>	4.6	<i>Graphing with Calculus and Calculators</i>	
9	4.7	Optimization Problems	
<i>option</i>	4.8	<i>Newton's Method</i>	
10	4.9	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	

* Remember not to assign exercises involving exp, log, inverse trig functions (not covered until later in this suggested schedule).