

Course No.: **MTH 142**

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 Title: **College Calculus 2**

Credit Hours: **4.0**

Textbook(s): **Stewart, *Calculus: Single Variable*** (Early Transcendentals, 6th ed. / UB custom 6th ed.), Brooks/Cole

Description: Methods of integration; infinite sequences; topics in analytic geometry; series and power series.

Prerequisite: MTH 141 with recommended grade of "C" or higher. MTH 121 is usually not adequate preparation for MTH 142

Syllabus: **MTH 142 covers (parts of) Chapter 5 through 11 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. You can help us improve this guideline by recording, as you go, your actual pace, and providing a copy of this record to the Office of Undergraduate Studies at the end of the semester. Thanks! The reason for the suggestion to put 10.3-6 at the end is simply to provide a little time for the infinite series ideas to sink in before final exams arrive.

Week	Section	Topics	Actual dates done
1	5.5	The Substitution Rule	
1	6.1	Areas Between Curves	
2	6.2	Volumes	
2	6.3	Volumes by Cylindrical Shells	
option	6.4	Work	
2	6.5	Average Value of a Function	
3	7.1	Integration by Parts	
3	7.2	Trigonometric Integrals	
4	7.3	Trigonometric Substitution	
4	7.4	Integration of Rational Functions by Partial Fractions (<i>Omit Case IV</i>)	
5	7.5	Strategy for Integration	
5	7.6	Integration Using Tables and Computer Algebra Systems	
5	-	Integration Review and Drills	
6	7.7	Approximate Integration	
6	7.8	Improper Integrals	
6	8.1	(Start) Arc Length	
7	8.1	(Finish) Arc Length	
7	8.2	Area of a Surface of Revolution	
option	8.3	<i>Applications to Physics and Engineering</i>	
option	8.4	<i>Applications to Economics and Biology</i>	
7	8.5	Probability	
8	10.1	Curves Defined by Parametric Equations	
8	10.2	Calculus with Parametric Curves	
8	11.1	Sequences	
9	11.2	Series	
9	11.3	The Integral Test and Estimates of Sums	
9	11.4	Comparison Tests	
10	11.5	Alternating Series	
10	11.6	Absolute Convergence & the Ratio Test (OMIT Root Test)	
10	11.7	Strategy for Testing Series	
10	11.8	Power Series	
11	11.9	Representation of Functions as Power Series	
11	11.10	Taylor and McLaurin Series	
11	11.11	Applications of Taylor Polynomials (<i>Omit Applications to Physics</i>)	
12	10.3	Polar Coordinates	
12	10.4	Areas and Lengths in Polar Coordinates	
option	10.5	<i>Conic Sections</i>	
option	10.6	<i>Conic Sections in Polar Coordinates</i>	