

MATHEMATICS 252  
CALCULUS II (4)  
(EFFECTIVE SPRING 2012)

PREREQUISITE: A grade of C or better in Mathematics 251-Calculus I

- NOTES:
1. This course requires the use of a graphing calculator. Computer algebra systems are prohibited. A TI-Nspire calculator may only be used with the TI-84 faceplate.
  2. Some instructors may require a computer supplement in addition to the course text.
  3. All students in this course will take the Department of Mathematics and Statistics common final exam.

CATALOG DESCRIPTION: (Applies to the Math 251-252 sequence)  
Limits and continuity. Derivatives and integrals of polynomial, rational, exponential, logarithmic, trigonometric, and hyperbolic functions. Techniques of integration. Conics. Parametric and polar equations. Intermediate forms and improper integrals. Infinite series, including Taylor series. Must be taken in sequence.

- OBJECTIVES: The student will:
1. Continue to differentiate and integrate the elementary functions (algebraic, trigonometric, logarithmic, exponential) and apply their results.
  2. Evaluate integrals using the standard techniques of integration such as integration by parts, partial fractions, trigonometric substitution, and other substitutions.
  3. Evaluate integrals using tables, computer algebra systems, and approximation techniques.
  4. Use various tests to determine if improper integrals converge or diverge and to evaluate certain convergent improper integrals.
  5. Use very elementary differential equations to introduce the concept of mathematical modeling.
  6. NOTE: The growth and decay material is back in Chapter 3.
  7. Solve basic calculus problems using parametric and polar equations..
  8. Use the basic tests to determine if sequences and series converge or diverge and to evaluate or approximately evaluate convergent series.
  9. Derive Taylor Polynomials and Taylor series and use them to approximate functions and their derivatives and integrals.

TEXTBOOK: If taking Math 252-320:  
Calculus: Early Transcendentals (7th Edition), Stewart;  
ISBN-10: 053-849790-4  
ISBN-13: 978-053-849790-9

OR

If taking Math 252 and NOT 320  
Single Variable Calculus: Early Transcendentals (7th Edition), Stewart;  
ISBN-10: 053-849867-6  
ISBN-13: 978-053-849867-8

OR

If taking Math 252 and NOT 320  
Single Variable Calculus (Vol. 2): Early Transcendentals (7th Edition), Stewart;  
ISBN-10: 053-849870-6  
ISBN-13: 978-053-849870-8

OUTLINE:

CHAPTERS	TITLE	SECTIONS	DAYS
7	Techniques of Integration	7.1-7.8	12
8	Further Applications of Integration	8.1-8.5	8
9	Differential Equations	9.1,3,4,5	5
10	Parametric Equations and Polar Coordinates	10.1-10.6	10
11	Infinite Sequences and Series	11.1-11.11	<u>15</u>
			50
Tests	Five One Period Tests		<u>5</u>
	Totals (55 class meetings and 34 sections)		<u>55</u>