

**Instructor:** Keith Foster      Office: SC 327 & WCC 202      Phone: 479.619.4380      E-mail: gkfoster@nwacc.edu

**Course Objectives:**

1. To develop proficiency in calculus by:
  - a. working with application integration, including area, volume, surface area, work and fluid pressure and force.
  - b. use the basic integration techniques including u-substitution, integration by parts, trigonometric integrals, trigonometric substitution, partial fractions and evaluation of improper integrals.
  - c. determine convergence or divergence of infinite series
  - d. use of functional representation using power series, including Taylor and Maclaurin series.
  - e. understand and work with all coordinates systems: rectangular, polar and parametric forms.
  - f. understand basic properties of conic sections and their graphs.
2. To develop problem solving skills

**Course Description:** This course is a continuation of MATH 2554. Topics include applications of integration, techniques of integration, improper integrals, infinite series, conic sections, parametric curves, and polar coordinates.

**Textbook:** *Calculus, Early Transcendental Functions*, Third Edition by Briggs, Cochran and Gillett, Addison Wesley.

**Prerequisites:** MATH 2554 with a grade of C or better, or appropriate placement scores or consent of instructor. A good understanding of concepts from Calculus I is also required to do well in this course.

**Grading for Course:** The numerical grade comes from the following sources:

- ‡ *Unit Exams:* There will be four unit exams each worth 100 points (total: 400 points)
- ‡ *Quizzes:* Periodical quizzes will be graded and scaled to 100 points.
- ‡ *Final Exam:* The *final exam* is worth 200 points and will be comprehensive.

Percentage score will be this numerical grade out of 700 points.

**Participation Policy:** Participation is expected and lack of participation will invariably prove detrimental to your grade and your learning experience. Regardless of the reason for missing class, you will be responsible for any missed assignments, material and announcements. Do NOT wait until the last minute to complete assignments.

**Homework/Quizzes Policy:** You are expected to work all homework problems assigned (listed on my webpage) by the start of the next section. Since this class is a four credit class, this may require you to work up to eight hours each week on homework and general overview of topics covered (spread this time out throughout the week). This is considered the norm for a college level course. Some quizzes will be taken directly from the homework assignment where you can copy from your HW Notebook, while other quizzes will have similar problems found on the homework assignments but worked without using your HW Notebook. Either way, your performance on quizzes (and exams) will be directly related to the amount of effort you put into your homework assignments. Quizzes or HW Check Quizzes will be given most days.

**Exam Policy:** All exams will be given as scheduled. Notes will *not* be allowed on exams. Only approved calculators are permitted during exams. The use of graphing calculators, cell phones and other technologies on exams or quizzes is prohibited. Once the exam has started, no student may leave the classroom for *any* reason, unless the student turns in the exam or quiz for grading.

**Makeup Policy:** There will be no make ups on exams or quizzes. I may drop a few of the quizzes, depending on the number given. I will replace your lowest exam score (or missed exam) with your final exam percent score.

**Methods of Instruction:** Instruction will take place through lectures, readings and completion of assigned problems.

**Course Schedule:** Below is a week-by-week breakdown of course coverage. Schedule is subject to change and email notice will be given.

Week	Dates	Coverage
1	Aug 23 & 25	<i>Course Intro</i> <i>Review of Section 4.9 &amp; 5.5</i> 6.1 – Velocity and Net Change 6.2 – Regions Between Curves 6.3 – Volume by Slicing
2	Aug 30 & Sept 1	6.4 – Volume by Shells 6.5 – Length of Curves 6.6 – Surface Area
3	Sept 6 & 8	6.7 – Physical Applications 7.1 – Logarithmic and Exponential Functions Revisited 7.2 – Exponential Models
4	Sept 13 & 15	7.3 – Hyperbolic Functions <i>Exam #1</i>
5	Sept 20 & 22	8.1 – Basic Approaches 8.2 – Integration by Parts
6	Sept 27 & 29	8.3 – Trigonometric Integrals 8.4 – Trigonometric Substitutions
7	Oct 4 & 6	8.5 – Partial Fractions 8.9 – Improper Integrals
8	Oct 11 & 13	<i>Exam #2</i> 10.1 – An Overview 10.2 – Sequences 10.3 – Infinite Series
9	Oct 18 & 20	<i>Fall Break</i> 10.4 – The Divergence and Integral Tests 10.5 – Comparison Tests
10	Oct 25 & 27	10.6 – Alternating Series 10.7 – The Ratio and Root Tests
11	Nov 1 & 3	<i>Exam #3</i> 11.1 – Approximating Functions with Polynomials
12	Nov 8 & 10	11.2 – Properties of Power Series 11.3 – Taylor Series
13	Nov 15 & 17	11.4 – Working with Taylor Series 12.1 – Parametric Equations 12.2 – Polar Coordinates
14	Nov 22 & 24	12.3 – Calculus in Polar Coordinates <i>Thanksgiving Break</i>
15	Nov 29 & Dec 1	12.4 – Conic Sections <i>Exam #4</i>
16	Dec 6 & 8	<i>Catch up</i> <i>Review for Final Exam</i>
	Dec 12 – 16 Finals Week	<b>Final Exam will be given on Thursday, December 15, 9:00 – 11:00.</b>