

**Instructor:** Keith Foster      Office: SC 327      Voice Mail: 479.619.4380      E-mail: gkfoster@nwacc.edu

### **Course Objectives:**

1. To develop proficiency in finite mathematics, a student should be able to:
  - a. set up and solve linear programming problems graphically
  - b. set up and solve standard and nonstandard linear programming problems using the Simplex Method
  - c. calculate future values, present values, interest rates, effective rates, interest amounts, numbers of years, and numbers of compounding periods using simple and compound interest formulas
  - d. calculate interest rates, interest amounts, principal amounts, payments, present values, and future values of ordinary annuities, and sinking funds
  - e. find the payment amount for an amortized loan, the portion of a loan payment that is interest & the portion that is principal; the remaining balance, the sum of all payments, & the total amount of interest paid
  - f. perform set operations; draw, interpret, and apply Venn diagrams
  - g. use basic counting techniques including the multiplication principle, permutations, and combinations to count and to find probabilities
  - h. compute conditional probabilities, probabilities of independent events, and binomial probabilities; calculate odds and expected values; and apply Bayes' Theorem
  - i. organize data; create frequency & probability distributions and histograms; and compute measures of central tendency and variation
  - j. find the percentage of area under a normal curve; z-scores; & probabilities using the standard normal curve
2. To develop problem solving skills

**Course Description:** A survey and applications course in mathematics designed for business, life science, and social science students. Topics include a review of using a graphing utility, linear models, systems of linear equations, matrices, linear programming, the simplex method, set theory, probability, counting principles, statistics, and finance mathematics.

**Required Textbook:** *Finite Mathematics and Calculus with Applications*, Lial, Greenwell & Ritchey, Pearson, 12<sup>th</sup> Ed.

**Prerequisites:** College Algebra (MATH 1203) with a C or better, or appropriate placement scores. A good understanding of the concepts of College Algebra is expected.

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

- † **Unit Exams:** There will be three unit exams each worth 100 points (total: 300 points)
- † **Homework:** All homework scores (except the Review sections) will count towards your Homework grade and be scaled out of 50 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 650 points.

**Homework/Quizzes Policy:** You are expected to work all homework problems assigned on *myMathLab*. Since this class is a three-credit class, this may require you to work up to six 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. It is recommended that you write up your homework in a notebook for reference later (even though the HW is on *myMathLab*), as you prepare for the exams and the Final. Quizzes will be assigned and will be given using *myMathLab*. There might be quizzes given during class time.

**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 not being able to access *myMathLab*, you will be responsible for any missed assignments, material and announcements. Do NOT wait until the last minute to complete assignments or quizzes. Class attendance *is* required.

**Exam Policy:** All exams will be during scheduled class time. Hopefully, I will have a computer classroom so the exam can be taken on *myMathLab*. Notes will *not* be allowed on exams. Only approved calculators are permitted on the Exams. Also, calculators on cell phone or other devices are not permitted. The use of cell phones during testing time is prohibited. Once the exam has started, no student may leave for *any* reason, unless the student turns in the exam for grading. Show all work on sketch paper for each problem and turn in after the exam is turned in. This will allow me to give partial credit on each exam.

**Makeup Policy:** There will be no make ups on exams, quizzes or homework assignments. I will replace your lowest exam score (or missed exam) with your final exam percent score. Also, some quizzes might be dropped before the semester grade is calculated.

**Methods of Instruction:** Instruction will take place through lectures, readings and 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> 7.1 Graphing Linear Inequalities in Two Variables 7.2 Linear Programming: The Graphical Method
2	Aug 30 & Sept 1	7.3 Applications of Linear Programming 7.4 The Simplex Method: Maximization
3	Sept 6 & 8	<i>Labor Day</i> 7.5 Maximization Applications
4	Sept 13 & 15	7.7 The Simplex Method: Nonstandard Problems <i>Exam #1 (Chapter 7)</i>
5	Sept 20 & 22	5.1 Simple Interest and Discounts 5.2 Compound Interest 5.3 Annuities, Future Value and Sinking Funds
6	Sept 27 & 29	5.4 Annuities, Present Value and Amortization 8.1 Sets 8.2 Applications of Venn Diagrams and Contingency Tables
7	Oct 4 & 6	8.3 Introduction to Probability 8.4 Basic Concepts of Probability
8	Oct 11 & 13	<i>Exam #2 (Chapter 5, Sections 8.1 – 8.4)</i> 8.5 Conditional Probability and Independent Events
9	Oct 18 & 20	<i>Fall Break</i> 8.6 Bayes' Formula
10	Oct 25 & 27	8.6 Bayes' Formula 9.2 The Multiplication Principle, Permutations and Combinations
11	Nov 1 & 3	9.2 The Multiplication Principle, Permutations and Combinations 9.3 Applications of Counting
12	Nov 8 & 10	9.4 Binomial Probability 9.1 Probability Distributions and Expected Value
13	Nov 15 & 17	<i>Exam #3 (Sections 8.5, 8.6 &amp; Chapter 9)</i> 10.1 Frequency Distributions 10.2 Measures of Center
14	Nov 22 & 24	10.3 Measures of Variation and Boxplots <i>Thanksgiving Break</i>
15	Nov 29 & Dec 1	10.4 Normal Distributions
16	Dec 6 & 8	<i>Catch up</i> <i>Review for Final Exam</i>
	Dec 14 <b>Finals Week</b>	<b>Final Exam will be given on Monday, Dec 14, 6:00 – 8:00</b>