

## MATH 109

### Mathematics for the Social and Management Sciences

Instructor: Bob VanDenHeuvel Email: bvandenh@uwsp.edu  
Office: D260 Science Bldg. Phone: 715-346-4222 (email is preferred)  
Office Hours: 7:30- 8:00 in SCI 207, Tuesday through Friday  
11:00-11:30 in SCI D260, Tuesday through Friday  
and by appointment  
Textbook: College Mathematics for Business, Economics, Life Sciences,  
and Social Sciences, 12<sup>th</sup> edition, Authors: R.A. Barnett, M.R. Ziegler,  
and K.E. Byleen.

This course will cover the following topics from the text:

- Chapter 1.....A Beginning Library of Elementary Functions  
We will spend time briefly reviewing functions, graphs,  
linear and quadratic functions.
- Chapter 2.....Additional Elementary Functions
  - 2.1 Functions
  - 2.2 Elementary Functions: Graphs
  - 2.3 Quadratic Functions
  - 2.4 Exponential Functions
  - 2.5 Logarithmic Functions
- Chapter 3.....Mathematics of Finance
  - 3.1 Simple Interest
  - 3.2 Compound & Continuous Compound Interest
  - 3.3 Future Value of an Annuity; Sinking Funds
  - 3.4 Present Value of an Annuity; Amortization
- Chapter 4.....Systems of Linear Equations; Matrices
  - 4.1 Review: Systems of Linear Equation and Matrices
  - 4.2 Systems of Linear Equations and Augmented Matrices
  - 4.3 Gauss-Jordan Elimination
  - 4.4\* Matrices: Basic Operations
  - 4.5 \* Inverse of a Square Matrix
- Chapter 5.....Linear Inequalities and Linear Programming
  - 5.1 Inequalities in two variables
  - 5.2 Systems of Linear Inequalities in Two Variables
  - 5.4 Linear Programming in Two Variables: A Geometric Approach
- Chapter 10.....The Derivative
  - 10.1 Introduction to Limits
  - 10.2 Continuity
  - 10.3 Infinite Limits and Limits at Infinity
  - 10.4 The Derivative
  - 10.5 Basic Differentiation Properties
  - 10.6 Differentials
- Chapter 11.....Additional Derivative Topics
  - 11.1 The Constant  $e$  and Continuous Compound Interest
  - 11.2 Derivatives of Exponential Functions and Logarithmic Functions
  - 11.3 Derivative of Products and Quotients
  - 11.4 Chain Rule
  - 11.5 \* Implicit Differentiation
  - 11.6 \* Related Rates
- Chapter 12.....Graphing and Optimization
  - 12.1 First Derivative and Graphs
  - 12.2 Second Derivative and Graphs
  - 12.3 L'Hopital's Rule
  - 12.4 Curve Sketching Techniques
  - 12.5 Absolute Maxima and Minima
  - 12.6 Optimization

\*indicates optional sections that will be covered as time allows.

Chapters will not be covered in the order listed. I will make every effort to discuss material before it is assigned, however, be aware that in some instances you will be responsible for material that is only assigned as out of class reading.

Exams: There will be three major exams and the final exam. In addition, there will be 4 quizzes during the course of the semester. You can expect the major tests to be given on or around the following dates:  
Test 1.....Friday, September 30  
Test 2.....Friday, October 28  
Test 3.....TBD, November 23 - 3  
Final Exam Section 1.... Tuesday, December 20, 12:30 – 2:30  
Section 3.... Wednesday, December 21, 2:45 – 4:45  
Section 4.... Friday, December 16, 8:00 – 10:00  
The quiz dates have not been set; typically, one day's notice will be given. In extremely rare situations a make-up test may be given, but you must make arrangements in advance. There will not be make-up quizzes, but the low quiz score is dropped. The final exam will be comprehensive.

Grades: You can access your grades through D2L. Grades will be based on:  
Quizzes.....15%  
Tests.....60%  
Final Exam.....25%  
A score in the range of 90-100 will earn a grade of at least A-, 80-89 a B-, 70-79 a C-and so forth.

Homework: I will not be collecting assignments for grading purposes. I have met very few students that were successful without doing the homework, and would not encourage you to see if you could be one of them. A typical class period will open with your questions on the assignment, followed by a discussion to help you complete the next assignment. Optional assignments will be given that offer you the opportunity to earn test points.

Attendance: I will not take attendance for grading purposes; however, I believe you will definitely benefit from being present and attentive in class. Be aware of the drop/add dates for the semester.

Calculators: You will need a calculator during the course of the semester, while a graphing calculator may prove to be especially useful. You will be allowed to use a calculator on portions of the exams; you will not be allowed to use a computer, a telephone with a graphing calculator app, or a calculator with a QWERTY keyboard. (i.e. the TI-92).

Rights and Responsibilities: Your rights and responsibilities as a part of the UWSP community can be found at:  
<http://www.uwsp.edu/dos/Documents/CommunityRights.pdf>

Modifications: Information concerning accommodations made as per Section 504 of the Rehabilitation Act or the Americans With Disabilities Act can be found at:  
<http://www4.uwsp.edu/special/disability/>  
In particular, to request any accommodations of this type, relevant to this class, you should discuss the matter with the Disability Services Office. Information and contact information may be found at:  
<http://www4.uwsp.edu/special/disability/ToQualifyforDisabilityServicesProcedure/>

Other tidbits: I will use your campus email address (as listed under D2L) as my source for contacting you concerning class activities and announcements.

The use of cell phones is not allowed during class.



