

Math 109 – Mathematics For the Social and Management Sciences

Fall 2017 Section 3 2:00-2:50 PM, MTWR SCI A225

MATH 109. Mathematics for the Social and Management Sciences. 4 cr.

Systems of linear equations, matrices, linear programming, exponential growth and decay, mathematics of finance, differential calculus with emphasis on applications.

Prerequisite: 100 or suitable placement score. GDR:MATH BS BM/BFA

Instructor: Maggie Milkovich **Phone:** (715) 346 – 4124 **Email:** mmilkovi@uwsp.edu

Office Hours: SCI D260 10-10:30 am, 12:30-1:00 pm and 3pm – 3:50 pm Monday – Thursday

Text: College Mathematics for Business, Life Sciences and Social Sciences, 12th edition, **Raymond A. Barnett, Merritt College, Michael R. Ziegler and Karl E. Byleen, Marquette University**

Topics: (The order of the sections listed below is probably the order in which they will be covered.

The material in Chapters 1 and 2 should be mostly review, so not much time will be spent there.

Sections marked with an * will be covered as time allows.)

1. Linear Equations and Graphs

1-1 Linear Equations and Inequalities

1-2 Graphs and Lines

2. Functions and Graphs

2-1 Functions

2-2 Elementary Functions: Graphs and Transformations

2-3 Quadratic Functions

2-4 Exponential Functions

2-5 Logarithmic Functions

10. Limits and the Derivative

10-1 Introduction to Limits

10-3 Infinite Limits and Limits at Infinity

10-4 The Derivative

10-5 Basic Differentiation Properties

*11-6 Differentials

10-7 Marginal Analysis in Business and Economics

11. Additional Derivative Topics

11-1 The Constant e and Continuous Compound Interest

11-2 Derivatives of Exponential and Logarithmic Functions

11-3 Derivatives of Products and Quotients

11-4 The Chain Rule

*11-5 Implicit Differentiation

*11-6 Related Rates

11-7 Elasticity of Demand

12. Graphing and Optimization

12-1 First Derivative and Graphs

12-2 Second Derivative and Graphs

*12-3 L'Hôpital's Rule

*12-4 Curve-Sketching Techniques

12-5 Absolute Maxima and Minima

12-6 Optimization

3. Mathematics of Finance

3-1 Simple Interest

3-2 Compound and Continuous Compound Interest

3-3 Future Value of an Annuity; Sinking Funds

3-4 Present Value of an Annuity; Amortization

4. Systems of Linear Equations; Matrices

4-1 Review: Systems of Linear Equations in Two Variables

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

4-6 Matrix Equations and Systems of Linear Equations

4-7 Leontief Input—Output Analysis

5. Linear Inequalities and Linear Programming

5-1 Inequalities in Two Variables

5-2 Systems of Linear Inequalities in Two Variables

5-3 Linear Programming in Two Dimensions: A Geometric Approach

Note the order of the chapters. I will make every effort to discuss material before it is assigned. However, please be aware that in some cases you will be responsible for material that is only assigned as out of class reading.

Attendance:

Attendance will be taken immediately at the beginning of each class. Attendance will not be taken 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 fall semester!

Calculators:

You will need a calculator during the course of the semester, and because a graphing calculator would be the most beneficial, I require it. My advice is to beg, borrow, or buy one! 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 (e.g. the TI-92).

Supplemental Instruction ©:

Supplemental Instruction© (SI) offers structured, interactive study sessions designed to give you the chance to work with your classmates to practice course concepts and review lecture material. Your SI leader is a fellow student who has taken the course before and done well. Watch for emails and listen for announcements to hear where and when your SI will hold group sessions and office hours.

Homework:

Daily homework assignments from the textbook (and sometimes worksheets from class) will be given. Very few students are able to succeed without doing the homework. To do well in this class you will need to read the textbook, do the homework, ask questions in class, take (and review) notes, attend the bi-weekly SI sessions, seek assistance from your classmates, the SI, the Math Room, and/or your instructor. Plan to spend at least two to three hours working outside of class for every hour in class!

Quizzes:

Most weeks there will be a short quiz on Thursday (except during a week when you have an exam) based on the assigned homework problems. Make-up quizzes are not allowed – if you are absent on the day of a quiz, you will get a zero. Your two lowest quiz scores will be dropped at the end of the semester. Quizzes will count as 10% of your total grade.

Exams:

There will be four unit exams, and a comprehensive final exam. Typically the exam will be in class, but I reserve the right to make portion(s) of the exams take-homes. The unit exams will count as 70% of your total grade. The best three will be worth 20% each – and your lowest exam will be worth 10%. The final exam will count as 20% of your total grade. On some exams you may be allowed to have a 3x5 inch notecard as a “crib sheet” for all or part of the exam. In only extremely rare situations may a make-up exam be given. You must make arrangements IN ADVANCE for a make-up exam.

You can expect the exams to be given on or around the following dates:

Exam I – Sep 28 Exam II – Oct 17 Exam III – Nov 9 Exam IV – Dec 12

Theses dates are tentative and subject to change, but you will have at least five-seven days' notice prior to an exam.

Grading Scale:	A: ≥ 92%	A - : ≥ 90% but < 92%
B + : ≥ 88% but < 90%	B : ≥ 82% but < 88%	B - : ≥ 80% but < 82%
C + : ≥ 78% but < 80%	C : ≥ 72% but < 78%	C - : ≥ 70% but < 72%
D + : ≥ 68% but < 70%	D : ≥ 64% but < 68%	F : < 64%

If you want to discuss your current grade during the semester, email me or come to see me in my office.

Academic Integrity: (Cheating policy)

Any act of academic dishonesty will be dealt with by applying the most stringent penalties permitted. Cheating includes but is not limited to receiving help during exams and submitting homework without properly acknowledging persons who assisted you. Please read carefully the policy found at:

<http://www.uwsp.edu/dos/Documents/Community%20Rights%20and%20Responsibilities%20book.pdf>

Rights and Responsibilities:

You should be fully aware of your rights and responsibilities as a UWSP student. Refer to <http://www.uwsp.edu/dos/Pages/Student-Conduct.aspx> for more information regarding the UWSP Community Bill of Rights and Responsibilities, the UWSP Student Academic Disciplinary Procedures, and the Non-Academic Standards and Disciplinary Procedures.

Accommodations:

UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments. If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability and Assistive Technology Center on the 6th floor of Albertson Hall (library) as soon as possible. DATC can be reached at 715-346-3365 or DATC@uwsp.edu.

Classroom Atmosphere:

In order to maintain a comfortable learning atmosphere, I expect that students will:

- 1) Appreciate my dislike for beeping, ringing, and vibrating devices in the classroom (except my own, of course). Keep them turned off and out of my sight. Texters beware!!!
- 2) Appreciate my keen sense of smell. Unless you are prepared to share your food, eat it at another time. Non-alcoholic drink consumption is acceptable.
- 3) Not be embarrassed to raise their hands to ask questions or be corrected.
- 4) Send emails that are properly addressed in an appropriate tone that contain grammatically correct sentences. ("Hey prof, sry I wuz L8 2day LOL" is unacceptable, and I WILL NOT reply).
- 5) Contact their fellow classmates when absent. In other words, if you miss a class, DO NOT call/email me to find out what you missed.

- 6) Read the textbook – skim through the new material before lecture, then read again more carefully after the lecture. Do the homework, ask questions, be engaged!
- 7) Attend as many of the SI sessions as you are able.
- 8) Become familiar with this syllabus. It answers many common questions. Read it.
- 9) Be in class on time, prepared to work. That means you have prepared by doing your homework and have skimmed the new section and are trying to clarify concepts you have encountered (as opposed to using class time to initially introduce yourself to the concepts).
- 10) Quietly head to the back of the room with a guilty look on your face if you are late.

Quantitative Literacy Learning Outcomes

- Select, analyze, and interpret appropriate numerical data used in everyday life in numerical and graphical format.
- Identify and apply appropriate strategies of quantitative problem solving in theoretical and practical applications.
- Construct a conclusion using quantitative justification.

FALL SEMESTER 2017 Maggie Milkovich

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:00 AM					
10:00 AM		Math 556 D217		Math 556 D217	Math 556 D217
11:00 AM		Math 119-1 A210		Math 119-1 A210	
12:00 PM					
1:00 PM	OFFICE	OFFICE	OFFICE	OFFICE	
2:00 PM	Math 109-3 A225	Math 109-3 A225	Math 109-3 A225	Math 109-3 A225	
3:00 PM	Math 95-1 D223	Math 95-1 D223	Math 95-1 D223	Math 95-1 D223	
4:00 PM	Math 95-2 A210	Math 95-2 A210	Math 95-2 A210	Math 95-2 A210	
5:00 PM	OFFICE		OFFICE		

