Math 109 — Mathematics for the Social & Management Sciences **Syllabus**

The study of systems of linear equations, matrices, linear programming, exponential growth and decay, mathematics of finance, and differential calculus with emphasis on applications. **4 credits**

Associate Instructor	**Office Hours**	**Class Schedule**	**Spring 2024**
Lisa Kennedy Office: D221Science Building Phone: 715-346-2120 Email: lkennedy@uwsp.edu	Monday 1:00-1:50 pm Tuesday 10:00-10:50 am Wednesday 1:00-1:50 pm Science Building D221 *or by appointment*	Science Building A225 MATH 109 – 01 Monday, Tuesday, Wednesday, Thursday 2:00 – 2:50 PM	University of Wisconsin Stevens Point

Text (rental): *Mathematical Applications for the Management, Life and Social Sciences*, 12th Ed., by Harshbarger & Reynolds (Published by Cengage) **ISBN**: 978-1-337-62534-0
Topics include most of those in Chapters 1–3, 5-6, and 9-11, but not in that order.

Calculators: A **graphing calculator** TI-83, TI-83+, TI-84, or TI-84+ is strongly recommended. There are several apps that are either free or under $5 that you can use instead of a graphing calculator if you do not have access to one. However, the apps cannot be used for quizzes and exams. If you cannot obtain a graphing a calculator, a scientific calculator can be used. The preferred scientific model should have at least a two-line display. (The TI-30XS and Casio Fx115 are two popular models).

> Do not become overly dependent on using calculators or technology. One of the goals of this course is for students to be able to predict how a change in variable, exponent, or coefficient effects the behavior of a function. Often subtle changes to a function are not visible in the graph displayed on a graphing calculator or graphing app unless you know where to look for the significant features of the graph.

Prerequisites: Math 107, Math 100, or a suitable placement test score.

Quantitative Literacy Learning Outcomes: GEP: QL

Students will develop the following communication skills, and problem-solving approaches to applied problems in fields such as business, economics, life sciences and social sciences:

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

Evaluation: Final course grades will be determined by the following:

10 % **Assignments**
20 % **Quizzes**
50 % **Exams**
20 % **Comprehensive Final Exam**

Grading Scale: Final grades will be based on the percentages. I reserve the right to lower/raise these cutoff points.

The cutoff points are:

Course Grades (%) at or above	93	90	87	83	80	77	73	70	67	60
will receive at least a grade of	A	A -	B +	B	B -	C +	C	C -	D +	D

Important Dates:

Announced Quizzes		**Tentative Dates**
Quiz 1: Thursday, February 1	**Quiz 4: Thursday, March 14**	**Exam Unit 1: Thursday, February 22**
Quiz 2: Thursday, February 15	**Quiz 5: Tuesday, April 16**	**Exam Unit 2: Thursday, March 28**
Quiz 3: Thursday, March 7	**Quiz 6: Tuesday, April 30**	**Exam Unit 3: Tuesday, May 7**
		Cumulative Final Exam **Monday, May 13 5:00 - 7:00pm CCC 213**

Keys to Success:

1. Attend Class	**2. Focus and Engage in the Content**	**3. Complete the Assignments Daily**
4. Ask Questions	**5. Prepare for Quizzes/Exams**	**6. Attend Office Hours/Use Tutoring**

Cell Phones: Please silence and put away cell phones once class begins. Cell phones, smart watches, and ear buds MUST be silenced and stored during quizzes and exams.

Attendance Policy: Attendance is expected at every class meeting. It is the student's responsibility to make prompt arrangements for finding out what was missed and for making up any assigned work in the case of an absence. Check the posts in CANVAS, follow along in the textbook, get notes from another student, and complete the assigned problems. I recommend exchanging contact information with another student in this specific section of Math 109. Email when you will miss class.

It is socially responsible to take extra care to not spread germs. If you have a fever or are concerned based on symptoms like coughing/sneezing, please stay home.

** Missing class on the day of a Quiz or Exam will likely result in a score of zero! **

Assignments: Each class period, a list of problems will be assigned from the textbook. This will be a minimal list of problems needed to understand the content to do well in this course. Work must be shown for full credit. Check your work with the solutions. Fix the mistakes and/or ask for help understanding errors.

Doing the assigned problems is extremely important. Plan to work on math everyday after class The textbook assignments for each unit will be scored/turned in on the day of the exam. Late submission of assignments is docked 10% per day, zero points after 1 week.

Quizzes:

- *Announced* quizzes worth 20 points will occur at the end of a class period, after a short lesson. The six quizzes take no more than 15-20 minutes. The projected dates are listed on the tentative schedule.
- *Unannounced* quizzes ("Short/Pop") worth 3 points will be given weekly at the beginning of class, taking no more than 5 minutes. *Unannounced* quizzes **cannot** be made up.

There are no retakes allowed on Quizzes. However, the two lowest quiz scores will be dropped.

Exams: Three exams worth 100 points will be given on the dates listed on the schedule. You must complete the exam by the end of the class period. Attendance on the scheduled exam date is critical. Make-up exams will not be allowed. In the very rare instance of a documented excused absence with the Dean of Students, an alternate exam may be given. Communication must occur prior to the exam. There are no retakes allowed on Exams.

Incompletes: A course grade of "Incomplete" may be given if circumstances arise which are beyond your control which prevent you from completing the course. To qualify for an incomplete, you must have had a passing grade in the course when the circumstances arose. A written agreement between instructor and student must be completed and filed with the Dean's Office detailing the amount of work that must be completed and the agreed upon deadlines.

Disability Accommodations: Reasonable accommodations are available for students who have a documented disability. For information on accommodations available to students with disabilities, visit the Disability Resource Center (DRC)website: https://www.uwsp.edu/disability-resource-center/

All students are expected to know the UWSP Community **Rights & Responsibilities** and the **Student Academic Standards and Disciplinary Procedures** found on the Dean of Students webpage at https://www.uwsp.edu/dos/Pages/Student-Conduct.aspx

Available Support:

- **Ask questions** as they occur during class. Talk to me before or after class. Come to office hours or schedule an appointment. It is my goal for all students to learn and build confidence in mathematics. I am committed to helping each student, experience & exposure are needed to achieve success.
- **Talk with classmates** about your work. Communication helps to identify the questions needed to be asked and can solidify understanding of the concepts. Exchange a cell phone number or email with another student in class.
- The **Tutoring-Learning Center (TLC)** offers free one-on-one, group, and drop-in tutoring to support you in your math classes. The tutors are UWSP students who have done well in their classes and who are here to share their successful study habits and math content knowledge to help others succeed. The TLC helps students in all disciplines become more effective, confident learners. We believe all learners benefit from sharing work with knowledgeable, attentive tutors. To make an appointment, students can self-schedule using Navigate, contact us at tlctutor@uwsp.edu or 715-346-3568, or stop into CCC 234. https://www3.uwsp.edu/tlc/Pages/CA-tutoring.aspx
- **UWSP Technology Support** Seek assistance from the IT Service Desk, IT Service Desk Phone: 715-346-4357, or IT Service Desk Email: itsvdesk@uwsp.edu

Understand When You May Drop This Course:

It is the student's responsibility to understand when they need to consider unenrolling from a course. Refer to the UWSP Academic Calendar for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons includes: (1) documented and significant change in work hours, leaving student unable to attend class, or (2) documented and severe physical/mental illness/injury to the student or student's family.

UWSP student responsibilities:

All students are expected to know the UWSP student responsibilities found on the Dean of Students webpage. Information on Academic Concerns is available at https://www.uwsp.edu/dos/Pages/stu-academic.aspx. Information on Conduct Concerns and on Personal Concerns is also available on the Dean of Students site.

Lisa Kennedy's Spring 2024 Schedule:

	Monday	Tuesday	Wednesday	Thursday	Friday
10:00-10:50		Office Hours Science D221			
11:00-11:50 Elementary Statistical Methods (35)	MATH 255 - 06 Science Building A202	MATH 255 - 06 Science Building A202	MATH 255 - 06 Science Building A202	MATH 255 - 06 Science Building A202	
12:00-12:50	LUNCH	LUNCH	LUNCH	LUNCH	
1:00-1:50	Office Hours Science D221		Office Hours Science D221		
2:00-2:50 Mathematics for the Social and Management Sciences (35)	MATH 109 - 01 Science Building A225	MATH 109 - 01 Science Building A225	MATH 109 - 01 Science Building A225	MATH 109 - 01 Science Building A225	
3:00-3:50 Elementary Statistical Methods (35)	MATH 255 - 05 Science Building A202	MATH 255 - 05 Science Building A202	MATH 255 - 05 Science Building A202	MATH 255 - 05 Science Building A202	

Week	Dates	Sections	Topic
1	Jan 22 – 25	M: Intro T: 0.3 W: 0.4 TH: 1.2	Course Intro Integral Exponents Radicals and Rational Exponents Functions
2	Jan 29 – Feb 1	M: 1.3 T: 1.6 W: 2.1 TH: 2.2	Linear Functions Apps of Functions in Business & Economics Quadratic Equations Quadratic Functions & **Quiz 1 Thursday, February 1**
3	Feb 5 – 8	M: 2.3 T: 2.4 W: Appendix A TH: 9.1 & 0.6	Business Applications The Special Functions Using a Graphing Calculator or Graphing App Limits: Graphically & Algebraically (and Factoring Review)
4	Feb 12 – 15	M: 9.3 T: 9.3 W: 9.4 TH: 9.4	Average Rate of Change Instantaneous Rate of Change: The Derivative Derivative Formulas (shortcuts) (continued) and **Quiz 2 Thursday, February 15**
5	Feb 19 – 22	M: 9.8 T: 9.4 W: Review **Th: Exam 1**	Higher Order Derivatives Applications of Derivatives Review for Exam 1 **Exam 1 Thursday, February 22 Unit 1 Assignments due at the start of class**
6	Feb 26 – 29	M: 9.5 T: 9.5 W: 9.6 Th: 9.6	The Product Rule The Quotient Rule The Chain Rule The Chain Rule (continued)
7	Mar 4 – 7	M: 5.1 & 11.2 T: 5.2 & 11.1 W: 10.1 TH: 10.1	Derivative of Exponential Functions Derivative of Logarithmic Functions 1st Derivative and Graphs (continued) and **Quiz 3 Thursday, March 7**
8	Mar 11 – 14	M: 10.2 T: 10.3 W: 10.4 TH: 10.4	2nd Derivative and Graphs Absolute Extrema Applications of Max and Mins Optimization: More Applications of Max & Min & **Quiz 4 Thursday, March 14**
	Mar 18 – 21	No Classes	SPRING BREAK
9	March 25 – 28	M: 10.4 T: Review W: Review **TH: Exam 2**	(continued) Review for Exam 2 Review for Exam 2 **Exam 2 Thursday, March 28 Unit 2 Assignments due at the start of class**
10	April 1 – 4	M: 6.1 T: 6.2 W: 6.3 TH: 6.4	Simple Interest Compound Interest Future Value of Annuities Present Value of Annuities
11	April 8 – 11	M: Problem T: Problem W: Rate TH: 6.5	Jack & Jill Problem (2 days) (continued) Calculating the Rate of Return Loans and Amortization
12	April 15 – 18	M: Review **T: Quiz 5** W: 3.1 TH: 3.2	Review for Quiz 5 **Quiz 5 Tuesday, April 16** Introduction to Matrices Matrix Multiplication
13	April 22 – 25	M: 3.2 T: 3.1 W: 3.2 **GC** TH: 3.3 **GC**	(continued) Solving a System using Matrices **with a Graphing Calculator** Matrix Application Problems (with no solution) **with a Graphing Calculator** Matrix App Problems (w/ multiple solutions) **with a Graphing Calculator**
14	April 29 - May 2	M: 4.1 T: 4.2 W: 4.2 TH: 4.1	Linear Inequalities in Two Variables Introduction to Linear Programming **Quiz 6 Tuesday, April 30** (continued) Linear Programming: Graphical Models (2 days)
15	May 6 – 9	M: Review **T: Exam** W: Review TH: Review	Review for Exam 3 **Exam 3 Tuesday, May 7 Unit 3Assignments due at the start of class** Go over Exam 3 results, Review for Final Exam Review for Final Exam
	Monday, May 13	**Final Exam**	**May 13, 5-7 pm (Definitive date) CCC 213**