

**MATH 118-W01 – Pre-Calculus Algebra**  
**Fall 2022 Syllabus**

**Instructor:** Grant Kopitzke  
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**Classroom:** Wausau 193  
**Class Meeting Time:** 8:00 – 8:50 MTWR

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**Office Hours:**

Office hours are a time I set aside each week for any of my students to come to my office to meet with me and get their course-related questions answered. My office hours this semester will be 12:00-1:00 MTRF in my office (location listed above). If you are not attending classes physically at the Wausau campus, then please feel free to attend office hours virtually via Zoom. The link will be provided on the course Canvas page. Please feel free to drop in unannounced during office hours (but if you want to meet over Zoom, then a quick email beforehand would be appreciated).

**Textbook:** *Precalculus: Mathematics for Calculus, 7<sup>th</sup> ed.*, by Stewart et. al. (ISBN: 978-1-305-07175-9)  
This textbook is required – you may rent it from UWSP. Homework problems will be posted to Canvas from this text each day.

**Calculators:** You will need a scientific calculator during portions, but not all of the semester. Graphing calculators may be used at times, but you will not always be allowed to use a calculator on all parts of quizzes and tests – do not become too dependent on using either type of calculator. The use of computers, phones, smart watches, tablets, or calculators with a CAS (computer algebra system) will not be allowed during exams or quizzes.

**Prerequisites:** Math 107 or a suitable placement test. This course prepares you for Math 225, if you did not place into Math 225.

**Quantitative Literacy Learning Outcomes:** Students will develop the following communication skill and problem-solving approaches to applied problems in fields such as business, economics, life science, and social sciences:

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

**Course Description/Content:**

Topics include concepts, graphs, and properties of functions, inverse and algebraic functions, techniques of graphing, conic sections, linear and nonlinear systems, arithmetic and geometric series, mathematical induction and the binomial theorem. This course serves to prepare you for Math 225, if you did not place into 225. Prerequisites include Math 107, or suitable placement test score.

### **Course Objectives:**

- Solving equations algebraically and graphically
- Solving rational-function inequalities
- Functions
  - Definitions and properties (sums, differences, products, quotients, roots, compositions, inverses, average rate of change, difference quotients)
  - Polynomial and rational functions (Factor theorem, rational zeros theorem, long and synthetic division)
- Conic Sections (circles, parabolas, ellipses, and hyperbolas)
- Solving systems of linear equations (substitution, elimination, and RREF)
- Partial Fraction Decomposition
- Sequences (arithmetic, geometric)
- Sigma Notation and Geometric Series

### **Attendance:**

You will be expected to attend each class in person. If you become ill, I expect you to make a reasonable effort to keep up with what was taught by checking Canvas, following in your textbook, and making every attempt to do the homework. Lessons will not be recorded, but if you miss class due to an excused absence (I must excuse this absence in advance), then I'll help you find the textbook sections you should review, or online materials that may assist you in catching up. We will routinely have in-class activities that you must be present for in order to complete. If you miss a class period, for any reason I will (upon request) provide you with these activities for your own study purposes, but you will not be able to make up points for those missed assignments/activities that were completed in that day's class.

### **Homework:**

Nearly every day after class a *minimal* list of homework problems (from the textbook) which you need to understand in order to do well in this course will be posted on Canvas. These homework problems will not be graded, but I will "spot check" (check for completion – not correctness) your homework notebook at the start of class each Monday. As such, you should attempt all these problems in an organized homework/notes notebook and bring any questions or comments for discussion at the start of the next class. These spot checks will count toward a minor portion of your overall grade in the course. If you have completed 90% of the homework problems in the unit immediately prior to a given exam, and I have confirmed that proportion in a homework spot check (prior to the exam), then you will receive 5 points of extra credit toward the corresponding unit exam.

### **Quizzes & in-class activities:**

We will have at least one quiz in each unit leading up to an exam. These Quizzes will give you an opportunity to get feedback on your work for the types of questions I deem important. There are no retakes allowed on quizzes.

We will also frequently have in-class activities related to that day's material. These activities will be completed in class and collected at the end of class for grading. Quizzes will be worth significantly more points than in-class activities, but they will both be graded within the same weighted grade category.

**Exams:**

There will be three in-class exams and one two-hour final. All exams will be timed, proctored, and taken in person at the Wausau campus at the scheduled date and time. Tentative exam dates are listed in the calendar at the end of the syllabus. These dates may change based on changing class needs. There are no retakes allowed on exams. Exams will be closed-book, and closed-note, but you will be allowed the use of a non CAS calculator (and for some exams, a non-graphing calculator).

**Policy on Missed Exams:**

If a conflict prevents you from taking an exam, you should contact me well before the exam, if possible, and arrange for an early exam. Not all absences will be excused. The most common examples of potentially excused absences are:

1. An illness with a doctor's note submitted to the instructor prior to the date of the exam.
2. A documented school athletics event.
3. Jury duty or a court date, with documentation.
4. Military obligations, with documentation.

**Grading Policy:**

Your course grades will be computed as follows:

Assignment	Percent of Grade
Homework Checks	5%
Quizzes & Activities	20%
Midterm Exams	55%
Final Exam	20%

**Grading Scale:**

Course Grade (%) 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

**Academic Misconduct:**

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>

Any instances of perceived academic misconduct will be investigated following the Student Academic Disciplinary Procedures:

<https://www3.uwsp.edu/dos/Documents/UWS%2014-1.pdf>

## Tentative Schedule:

Week	Dates	Sections	Topic
1	September 6-8	1.1	Introduction; Real Numbers
		1.2	Exponents, Radicals
		1.3	Algebraic Expressions
2	September 12-15	1.4	Rational Expressions
		1.5	Equations
		1.8	Inequalities
		1.8	The Boundary Point Method
3	September 19-22	1.9	The Coordinate Plane; Graphs of Equations; Circles
		1.10	Lines
		1.11	Solving Equations & Inequalities Graphically
		<b>2.1 &amp; Quiz 1</b>	<b>Functions; Quiz 1</b>
4	September 26-29	2.2	Graphs of Functions
		2.3	Getting Information from the Graph of a Function
		2.4	Average Rate of Change of a Function
		2.5	Linear Functions & Models
5	October 3-6	2.6	Transformation of Functions
		2.7	Combining Functions
		2.8	One-to-One Functions & Their Inverses
		<b>2.8 &amp; Quiz 2</b>	<b>One-to-One Functions &amp; Their Inverses; Quiz 2</b>
6	October 10-13	Review	Review Chapter 1-2
		<b>Exam 1</b>	<b>Tuesday, October 10<sup>th</sup></b>
		3.1	Quadratic Functions & Models
7	October 17-20	3.2	Polynomial Functions & Their Graphs
		3.3	Dividing Polynomials
		3.4	Real Zeros of Polynomials
		3.6	Rational Functions
		<b>3.6 &amp; Quiz 3</b>	<b>Rational Functions (continued); Quiz 3</b>
8	October 24-27	3.7	Polynomial & Rational Inequalities
		Review	Review Chapter 3
		<b>Exam 2</b>	<b>Thursday, October 27<sup>th</sup></b>
9	Oct 31 – Nov 3	4.1	Exponential Functions
		4.2	The Natural Exponential Function
		4.3	Logarithmic Functions
		4.4	Laws of Logarithms
10	November 7-10	4.5	Exponential & Logarithmic Equations
		<b>4.5 &amp; Quiz 4</b>	<b>Exponential &amp; Logarithmic Equations (continued); Quiz 4</b>
		10.1	Systems of Linear Equations in Two Variables
11	November 14-17	10.2	Systems of Linear Equations in Several Variables
		10.7	Partial Fractions
		10.3	Matrices & Systems of Linear Equations ( <b>Graphing Calculator</b> )
		<b>Quiz 5</b>	<b>Quiz 5</b>
12	November 21-23	10.7	Partial Fractions
		Review	Review Chapters 4 & 10
		<b>Exam 3</b>	<b>Wednesday, November 23</b>
13	Nov 28 – Dec 1	<b>Chpt 11 &amp; 1.9</b>	<b>Intro to the Conic Sections; Circles</b>
		11.2	Ellipses
		11.3	Hyperbolas
		11.1	Parabolas
14	Dec 5-8		Completing the Square
		11.4	Shifted Conics
		12.1	Sequences & Sigma Notation
		12.2	Arithmetic Sequences
15	Dec 12-15	12.3	Geometric Sequences
		12.6	The Binomial Theorem

		<b>Quiz 6</b>	<b>Quiz 6</b>
		Review	Chapters 1-4, 10 & 11
16	Dec 20	<b>Final Exam</b>	<b>Time: 8:00 - 10:00 AM</b> <b>Room: Wausau 193 (Our classroom)</b>