

# MATH 120, Section 8 Precalculus

## Course Syllabus

### Fall Semester 2009

Instructor: Dr. Ken Suman (e-mail: [ksuman@winona.edu](mailto:ksuman@winona.edu))  
 Office: Gildemeister 306  
 Office Hours: MWF 8:15 – 9:45 a.m., TH 8:15 – 10:30 a.m.  
 Course Hours: MF 1:00 – 1:50 and W 1:00 – 2:50 Somsen 321  
 Textbook: *Precalculus – Mathematics for Calculus* by Stewart, Redlin and Watson  
 5<sup>th</sup> Edition

Course Homepage: <http://course1.winona.edu/ksuman/courses/>

Course Software: Geogebra, <http://www.geogebra.org/cms/> (free download)

Additional Resources:  
 (not required)

Student Solutions Manual for Stewart/Redlin/Watson's  
 Precalculus: Mathematics for Calculus, 5th Edition  
 (\$47.47 new on Amazon, \$34.50 used on Amazon)

<http://www.cramster.com/>

(Online step-by-step solutions for problems taken from  
 your textbook. I have never used this so I cannot  
 vouch for its value or accuracy. Some solutions are  
 provided free of charge, others require a subscription.)

<http://hotmath.com/help/gt/miniprecalcgt/index.html>

(Online step-by-step solutions for precalculus problems  
 but not taken from your textbook. Free.)

Evaluation:

Quizzes	30%
Exams	30%
Projects	15%
Final	25%

Grading Scale:

90 – 100 %	A
80 – 89 %	B
70 – 79 %	C
60 – 69 %	D
Below 60 %	F

## Homework / Weekly Quizzes:

Daily homework will be assigned but not collected for grading. Quizzes will be given on Wednesdays (except for those Wednesdays when exams are scheduled) and will include problems taken directly from (or similar to) the assigned homework and from the class lectures (including problems, definitions, discussions, etc). The weekly quizzes will be open homework and open notes but not open book. By “notes”, I mean the notes you take in class and the notes you take while studying and doing your homework.

**I encourage you to study together and to work together on your homework.** However, the homework solutions, class notes and study notes that you refer to during a quiz cannot consist of anything photocopied. (So you cannot refer to a photocopy of someone else’s homework solutions or a photocopy from a solutions manual.)

You will not be allowed to use your calculator or your computer on the quizzes.

The Wednesday quizzes will start promptly at 1:00 and will end exactly at 1:15. You will not be given extra time on your quiz if you arrive late for class. You may find that fifteen minutes is not enough time to complete the quiz if you do not have good homework solutions and complete class notes to refer to.

**The first Wednesday quiz will be on Wednesday, August 26 and covers all of Chapter 1.**

Because there is so much material for you to review in such a short amount of time and because mastering the material in Chapter 1 is imperative for success in this course, I will be giving you a second and third chance on this quiz outside of the normal class period.

The second chance will be offered in the MAC (Math Achievement Center) in Gildemeister 135 on Tuesday, September 1 at any one of these times 8:15 a.m., 8:30, 8:45, 9:00, 9:15, 9:30, 9:45, 10:00, 10:15, 12:15, and 1:15. Your third chance will be at offered in the MAC on Tuesday, September 8 at the same times.

I will only count the highest score from the Wednesday, August 26 quiz, the Tuesday, September 1 second chance and the Tuesday, September 8 third chance. So it is not necessary for you to take all three quizzes if you are satisfied with a previous score.

Note: There will be no second chances for any of the other Wednesday quizzes.

## Exams:

Wednesday, September 16

Wednesday, October 14

Wednesday, November 18

Each of these exams will have two parts. The first part will be closed book, notes and homework and you will not be able to use a calculator. The second part will be open book, notes and homework and you will be able to use your calculator. You will not be allowed to use your computer during an exam.

#### Final Exam:

The final exam is scheduled for Monday, December 7, from 1:00 – 3:00 p.m. in Somsen 321. **The final exam will be cumulative.** The final exam will have two parts. The first part will be closed book, notes and homework and you will not be able to use a calculator. The second part will be open book, notes and homework and you will be able to use your calculator. You will not be allowed to use your computer during the final.

#### Projects:

##### Project 1

Assigned on Monday, August 31

Due on Friday, September 11

##### Project 2

Assigned on Monday, September 21

Due on Friday, October 30

Neatness will be a consideration in your project grades. Late projects will not be accepted. You will be required to use the software package Geogebra on these projects.

#### Missed Exams or Quizzes:

No makeup quizzes or exams will be given. However, I will drop your lowest quiz score and your lowest exam score when calculating your final grade. The only exception to this is that I will not drop your first quiz score even if that is your lowest quiz score.

#### Email Communication:

I will be communicating with you via email during the year. I will notify you via email if I have to cancel class for any reason (illness, inclement weather, etc.). I will sometimes send you emails with attachments (such as a pdf file).

#### Class Policies:

- turn off your cell phone ringers before coming into class
- do not use your cell phones (including for texting or checking messages) during class
- do not use your computers during class to do anything unrelated to this course (I will ask you to leave if this is occurring)

- leave as much space as possible between you and your nearest classmate when taking a quiz or exam
- other than your calculator, do not have any electronic devices out (in your lap, in your hand, on your desk, etc.) during class

#### Hearing Problem:

I have significant hearing loss. There are certain voices that are especially difficult for me to hear. The bottom line is that I need you to be patient if I cannot make out what you are saying to me.

#### Cheating:

You will receive an F for the course for the first occurrence of cheating.

#### Course Outline (Subject to change):

<b>MONDAY</b> <b>1:00 – 1:50</b> <b>Somsen 321</b>	<b>WEDNESDAY</b> <b>1:00 – 2:50</b> <b>Somsen 321</b>	<b>FRIDAY</b> <b>1:00 – 1:50</b> <b>Somsen 321</b>
August 24 Chapter 1 Review	August 26 Quiz 2.1-2.3	August 28 2.4, 2.5
August 31 2.6-2.8	September 2 Quiz 3.1, 3.2	September 4 3.3
September 7 Labor Day, no class	September 9 Quiz 3.4, 3.5	September 11 3.6
September 14 Review	<b>September 16</b> <b>Exam 1</b>	September 18 4.1
September 21 4.2	September 23 Quiz 4.3, 4.4	September 25 4.5
September 28 4.5	September 30 Quiz	October 2 5.2

	5.1	
October 5 5.3	October 7 Quiz 5.4	October 9 5.5
October 12 Review	<b>October 14 Exam 2</b>	October 16 6.1
October 19 6.2	October 21 Quiz 6.3	October 23 6.4
October 26 6.5	October 28 Quiz 7.1, 7.2	October 30 7.3
November 2 7.4	November 4 Quiz 7.5	November 6 8.1
November 9 8.2	November 11 Veteran's Day, no class	November 13 Review
November 16 Review	<b>November 18 Exam 3</b>	November 20 9.1, 9.2
November 23 10.1, 10.2	November 25 Thanksgiving Break, no class	November 27 Thanksgiving Break, no class
November 30 10.3	December 2 Quiz 11.1 – 11.3	December 4 Review

Monday, December 7 Final Exam, 1:00 – 3:00 p.m.

Homework:

1.1	Real Numbers	# 1,3,4,5,7,8,11,12,13,14,15,17,21,23,25,27,29,31,33,34,35,38,39,41,43,45,49,53,55,37,61,63,67,69,71,76
1.2	Exponents and Radicals	# 1,3,5,6,9,10,11,12,13,14,16,23,27,33,39,43,45,57,65,83, 87,99,101
1.3	Algebraic Expressions	# 1,3,4,5,7,9,13,17,19,23,29,31,33,35,43,45,47,49,53,

		55,57,58,67,71,73,81,84,92,98,107
1.4	Rational Expressions	# 1,3,5,7,9,11,13,17,21,31,33,35,50,51,53,60,73,75,79,83,84,85,86,87,88,89,90,91,92,97
1.5	Equations	# 1,3,4,5,7,9,11,17,19,22,23,24,25,27,28,29,30,37,39,45,47,53,55,59,69,71,75,55,79,81,87,91,96,97,113
1.6	Modeling with Equations	# 1,2,3,6,7,8,13,14,15,19,21,23,26,28,29,31,32,33,35,36,41,44,45,47,49,50,52,53,57,59,61,65,67,71,74,76,81
1.7	Inequalities	# 7,9,13,15,17,25,27,29,31,33,44,49,53,59,61,63,67,71,75,77,79,81,86,87,91,107,109
1.8	Coordinate Geometry	# 7,9,13,14,17,19,21,25,27,30,32,33,35,36,37,40,43,47,48,51,53,61,71,73,77,78,79,81,83,84,85,87,89,91,93
1.9	Graphing Calculators; Solving Equations and Inequalities Graphically	# 1,3,7,9,23,25,27,29,37,39,41,43,44,45,47,48,49,51,54,59,61,63
1.10	Lines	# 1,3,11,13,15,19,21,23,25,27,28,29,30,31,32,33,34,35,37,38,41,43,49,53,55,56,57,59,60,61,62,74
1.11	Modeling Variation	# 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,23,24,26,27
2.1	What is a Function?	# 23,25,26,27,28,29,33,37,39,41,43,62,65
2.2	Graphs of Functions	# 3,13,17,23,25,27,29,37,51,55,61,63,69,71,73,75,77,94
2.3	Increasing and Decreasing Functions: Average Rate of Change	# 5,7,11,13,15,17,19,27,29,37,38,39
2.4	Transformation of Functions	# 1,3,5,7,9,10,11,12,13,14,15,16,17,18,21,27,29,31,33,35,37,38,45,46,54,55,61,69,72
2.5	Quadratic Functions: Maxima and Minima	# 1,3,5,7,11,19,27,29,37,41,43,47,49,51,55,57,59,60,72
2.6	Modeling with Functions	#1–18,20,21,29,32,34
2.7	Combining Functions	# 1,3,7,17,19,21,22,23,25,29,31,33,41,45,46,47,48,49,50
2.8	One-to-One Functions and Their Inverses	# 1,3,7,9,10,11,17,19,21,23,25,29,31,37,47,51,53,55,61,65,68,80,81,82
3.1	Polynomial Functions and Their Graphs	# 1,5,9,11,15,19,23,27,31,35,45,57,61,65,66,67,70,73,82
3.2	Dividing Polynomials	# 1,5,9,11,17,23,27,33,37,39,41,43,45,47,51,53,55,57,61,63,65
3.3	Real Zeros of Polynomials	# 1,3,7,9,9,11,15,19,39,41,45,49,51,55,59,63,65,69,73,79,92,100,101,102
3.4	Complex Numbers	# 1,5,9,11,15,23,27,31,35,41,45,51,53,57,61,71,75,79,80
3.5	Complex Zeros and the Fundamental Theorem of Algebra	# 1,5,11,15,23,31,35,41,45,59,61,63,69
3.6	Rational Functions	# 5,11,15,21,25,33,43,57,61,69,73,83

4.1	Exponential Functions	# 1,5,11,15,19–24,25,37,39,51,58,63,69
4.2	Logarithmic Functions	# 1,5,9,13,15,17,21,23,25,29,33,35,37,41–46,47,49,59,71,73,77
4.3	Laws of Logarithms	# 1,5,9,13,19,23,27,37,39,41,48,49,51,57,66
4.4	Exponential and Logarithmic Functions	# 1,3,9,11,19,23,24,27,31,35,41,45,50,53,54,55,59,63,65,80,85
4.5	Modeling with Exponential and Logarithmic Functions	# 1,15,21,23
5.1	The Unit Circle	# 1,7,9,13,15,21,29,33,37,49,53
5.2	Trigonometric Functions of Real Numbers	# 1,3,5,7,11,15,17,21,23–26,49,53,59,63,71,75
5.3	Trigonometric Graphs	# 1,5,13,19,27,33,39,41,45,65,67
5.4	More Trigonometric Graphs	# 1–6,7,15,27,41,51,53
5.5	Modeling Harmonic Motion	# 1,7,11,15,19,35
6.1	Angle Measure	# 1,5,13,15,25,29,31,37,43,49,50,51,52,55,59,60,61,63,67,69,71,72,76
6.2	Trigonometry of Right Triangles	# 1,5,7,9,13,15,17,21,23,27,31,33,39,41,43,44,47,51,55,61,62,63,64
6.3	Trigonometric Functions of Angles	# 1,5,9,21,35,37,41,45,49,51,57,65,67,68
6.4	The Law of Sines	# 1,3,7,13,15,19,23,27,31,33
6.5	The Law of Cosines	# 1,5,7,9,15,17,21,25,29,33,35,36,41,46,50,51
7.1	Trigonometric Identities	# 1,3,5,7,9,11,13,15,23,25,27,31,35,37,43,49,51,55,59,61,69,73,81,89,99
7.2	Addition and Subtraction Formulas	# 1,5,11,15,17,19,25,35,37,39,41,49,53
7.3	Double-Angle, Half Angle, and Sum-Product Formulas	# 5,13,21,25,31,25,41,51,53,59,63,65,75,81,92
7.4	Inverse Trigonometric Functions	# 1,5,9,11,17,23,27,31,35,39,43,47,53,59
7.5	Trigonometric Equations	# 3,9,17,19,25,33,39,45,53,57,61,67,77,81,82

8.1	Polar Coordinates	# 1,3,7,11,13,25,33,41,43,45,47,51,53
8.2	Graphs of Polar Equations	# 1–6,7,27,29,33,41,43–46,47
9.1	System of Equations	# 1,3,7,11,15,17,19,29,39,51,55
9.2	System of Linear Equations in Two Variables	# 1,5,7,13,19,27,33,37,39,50,57
10.1	Parabolas	# 1–6,7,13,21,25,31,35,37,39,49
10.2	Ellipses	# 1–4,9,17,19,21,23,25,29,37,41,47
10.3	Hyperbolas	# 1–4,5,13,19,25,31,35,40
11.1	Sequences and Summation Notation	# 1,3,11,15,23,25,27,29,35,38,39,45,59,63
11.2	Arithmetic Sequences	# 1,5,9,17,23,31,39,45
11.3	Geometric Sequences	# 1,3,5,9,13,17,21,27,33,39,47,49,53,55,57,59,69,75

*The policies and outline of this course are subject to change at the discretion of the instructor.*