

MAT 140 Precalculus

Fall 2012

**CRN:** 26790/20633

**Meeting times:**

MW 0830-0945, F 0830-0920 CC 118

MW 1300-1440 D 204

**Credits:** 4

**Prerequisite** Two years of High School Mathematics

**Professor:** Vincent J. Motto

**Phone:** 860.768.4306

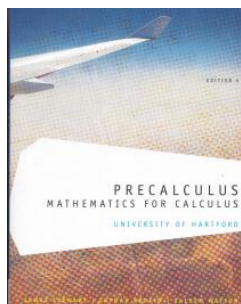
**Email:** [Motto@hartford.edu](mailto:Motto@hartford.edu)

**Office:** Room: 112 Office 2

**Office hours:** See web site for listing

**Web Site:** [www.vincesplace.com](http://www.vincesplace.com)

## Texts & Supplies



You will need the following

- A calculator (TI-89)
- A straight edge
- Graph paper
- Flash Memory

The textbook for the course is **Precalculus: Mathematics for Calculus** (6<sup>th</sup> Edition, University of Hartford) by Stewart, Redlin, and Watson. You will need access to the internet.

## Catalog Description

A study of linear and quadratic equations and inequalities; the Cartesian coordinate system for the plane; and the algebra and graphing of functions with special emphasis on polynomial, exponential and logarithmic functions. Definitions and graphs of the trigonometric functions; solutions of triangles; analytic trigonometry including circular and inverse trigonometric functions. Solutions of word problems are stressed throughout.

## Course Objectives

At the completion of this course the student will have acquired the following mathematical skills:

- to use functions and their representations to model and summarize data.
- to solve linear equations graphically, numerically, and symbolically.
- to solve nonlinear equations, including quadratic, polynomial, and rational functions.
- to graph, evaluate and solve exponential and logarithmic functions.
- to verify trigonometric identities and to solve trigonometric equations.
- to apply right angle trigonometry to technical problems.
- to evaluate trigonometric functions for any angle.
- to identify and sketch trigonometric functions.
- to use analytic geometry to describe the straight line and conic sections ---circle, parabola, ellipse and hyperbola

## Evaluation

Teaching Methods:

**Demonstrations:** Important material from the text and outside sources will be covered in class. Students should plan to take careful notes as not all material can be found in the texts and readings. Discussion and group work is encouraged.

**Homework:** Problems and readings will be assigned daily to help support and supplement material found in the text, but not always collected. There will usually be time to answer questions about the homework at the beginning of class.

**WeBWork:** This online homework system is available through the internet. All you need is a computer with internet access. Homework sets have due dates posted and are scored automatically. There is an email help button that you can use to send me questions anytime. We will go over the system in class and you'll have a detailed handout with instructions. The webpage link is: <http://math.hartford.edu/webwork/M140Motto/>

**Forward Testing:** Sample test questions for your practice.

**Tests:** There will be three tests. If due to emergency or illness you miss a test, you must notify me before or during the test. You must provide documentation explaining why you missed the test. If you fail to contact me or fail to provide written documentation for a missing test, or will receive a zero on the test. The make-up will be more difficult than the original and must be made up within a week. All test dates are published on the course schedule.

**Quizzes:** Through the semester, there will be in-class, announced quizzes. There are **NO** make-ups for quizzes.

**Laboratories:** There will be two lab projects during the course of the semester.

**Worksheets:** These will be used for group work to provide review, extension, and practical problems.

**Final Exam Date:** There is a common departmental final Wednesday, December 19 from 8:00 AM to 10 PM, room TBA.

**Internet:** All materials will be distributed on the Internet. Class notes, instructional material, and student assignments will be posted on the web site as well.

More information is available on the Web Site for this course.

## Grading

Your final grade will be determined based on the total points that you have accumulated. The areas from which points can be accumulated are:

Assignment	Points
Three (3) tests	45%
Ten (10) homework assignments	10%
Quizzes	5%
WebWorks	10%
Two (2) laboratories	10%
Final Examination	20%

No grade will be assigned until all of the assignments are completed. Submission of assignments in electronic form (e-mail) is preferred when possible.

Grade	Range	Grade	Range
A	94 - 100	C	74 -76.9
A-	90 - 93.9	C-	70 -73.9
B+	87 - 89.9	D+	67 - 69.9
B	84 - 86.9	D	64 - 66.9
B-	80 - 83.9	D-	60 - 63.9
C+	77 -79.9	F	below 60

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## Policies

Below you will find a summary of course and college policies. Information about my course policies can be found on the websites that support this course. These summaries are given for your convenience.

- Attendance---All students are expected to attend every class.
- Work Integrity---Honesty and integrity are expected in all academic work. Your work should be yours alone.
- Social Interaction
  - Civility---All people at the college deserve to be treated with respect and courtesy.
  - Electronic Devices---Please place you phones in a “courtesy” mode and put away your portable music playing devices. If you need to carry on a conversation please leave the classroom.
  - Emails---When communicating with me please include your class in the subject heading and your name.
  - Sexual Harassment will not be tolerated.
  - Smoking/Drug Use---ACC is a smoke-free building. Smoking is permitted in designated outside areas.
- Special Needs---Students with documented special needs will be accommodated.
- Student Rights---The process is Academic Grievances can be found in the University catalog.
- Change---Any changes to the syllabus will be discussed with you.

## Proposed Schedule of Events

Week	Chapters	
	<b>2</b>	<b>Functions</b>
1	1.10	Lines
	2.1	What is a function?
2	2.2	Graphs of functions
	2.2	cont'd
	1.11	Making Models Using Variation
	1.5	Equations
3	1.6	Modeling with equations
	2.3	Getting Information from the Graph of a Function
	2.4	Average rate of change: incr. & decr. functions
	2.5	Transformations of functions
4	3.1	Quadratic Functions and Models
	p.213	Modeling with functions

<b>Week</b>	<b>Chapters</b>	
5	2.7	Combining Functions
		<b>Review</b>
		<b>TEST 1</b>
	<b>3</b>	<b>Polynomials and Rational Functions</b>
6	3.2	Polynomial functions and their graphs
	3.5-3.6	Complex numbers and complex roots
	3.7	Rational functions & Laboratory 1 Assigned
	<b>4</b>	<b>Exponential and Logarithmic Functions</b>
7	2.7	One-to-one functions and their inverses
	4.1	Exponential functions
	4.2	The Natural Exponential Function
	4.3	Logarithmic functions
8	4.4	Laws of logarithms
	4.5	Exponential and logarithmic equations
	4.6	Modeling with exponential and logarithmic functions
9		<b>Review</b>
		<b>TEST 2</b>
		Laboratory 1 Assigned
	<b>5</b>	<b>Trigonometric Functions: Unit Circle Approach</b>
10	5.1	The unit circle
	5.2	Trigonometric functions of real numbers
	5.3	Trigonometric graphs
11	5.3	cont'd
	5.4	More trigonometric graphs
	5.5	Inverse trigonometric functions and their graphs
	5.5	cont'd and Laboratory 2 Assigned
	<b>6</b>	<b>Trigonometric Functions: Right Triangle Approach</b>
12	6.1	Angle measure
		<b>Thanksgiving</b>
		<b>Break!</b>
13	6.2	Trigonometry of right triangles
	6.5	Law of Sines
	6.6	Law of Cosines

<b>Week</b>	<b>Chapters</b>	
	<b>7</b>	<b>Analytic Trigonometry</b>
14	7.1	Trigonometric Identities
		<b>Review</b>
		<b>TEST 3</b>
15	8.1	Polar Coordinates
	8.2	Graphs of Polar Equations
		Review for Final Exam
		Final Exam Wednesday, December 19 at 8:00 AM Room TBA

\*\*\* This course syllabus is subject to change at the discretion of the instructor \*\*\*

If you have any problems with class/instructor, discuss them first with your instructor and then, for additional assistance contact the Mathematics Department Chair, Dr. John Williams (860.768.4825).