

Math 1310 Syllabus

COURSE BASICS

Course Number: MATH 1310: CRN 24047
Course Title: Trigonometry and Conics
Credit Hours: 3
Term: Spring 2024
Meeting and Location: 9:00 – 10:20 TR @LART 106

INSTRUCTOR INFORMATION

Instructor: Dr. Lin Yin
Contact
Instructor email: ylin4@utep.edu
Course coordinator: Guillermo Heredia Jr. at gherediajr@utep.edu

Emails will be answered between 9:00am -5:00pm Monday to Friday. Emails received outside of these windows will be addressed during the next time period or at my discretion, whichever is sooner.

Textbook: Pre-Calculus by Larson, 11th edition with a WebAssign access card.

Required: You must have a WebAssign access code. This gives you the full access to both the assignments and the e-book.

WebAssign

Use the instructions below to access and register for WebAssign using your [UTEP email](#). You will have a 14-day free trial so that you may access your coursework immediately.

Instructions to access and register for WebAssign:

I linked WebAssign to Blackboard, so you don't need a class key. Go to Blackboard and select our class. Before enrolling the class on WebAssign, please watch the video: <https://play.vidyard.com/dAtEqvNNpKTogGj75zGtau>

Please use your [UTEP miners e-mail](#)

You are required to purchase an access code to log in as soon as possible and before the grace period ends. If you purchased a new book from the UTEP bookstore, the code should have come with it. When entering the code, enter all the words and characters in the boxes appropriately.

Activities and Assignments:

All work, including homework, quizzes, and exams, will take place through WebAssign. Please use Mozilla Firefox, Google Chrome, or Safari since WebAssign works best with these browsers. Three exams and a comprehensive final exam will be given. If it benefits you, the score you receive on the final exam will replace your lowest exam score.

Test Out:

If a student receives a grade of "D" or "F", then they may take a comprehensive TestOut exam in June (you will be emailed the exact date). A grade of 70% or better on the TestOut exam will replace a failing course grade with a grade of "C".

Tutoring

The MaRCS tutoring center offers free tutoring for math classes: <https://www.utep.edu/science/math/marcs/>. However, **if you use the tutoring center OR other person(s) to help you take an exam. We will report you to the Office of Student Conduct and Conflict Resolution to investigate academic cheating if we find any evidence that you used any of them.**

The Ask Your Teacher feature of WebAssign is the best way to ask questions about your homework as it shows me the entire problem. You are encouraged to use it whenever you have homework questions.

Class Activity Settings

Homework Assignments: All homework will be completed on WebAssign. Each question has 5 attempts. I recommend you get help after the 3rd incorrect submission rather than waiting until you are out of attempts to get help.

Quizzes: A 60-minute timed quiz covers a few homework materials. The quizzes may contain problems you have not seen previously, but they will be based on the same concepts. Each question has 3 attempts.

Exams: To review for each exam, an exam review will be available one week prior to the exam date, on WebAssign. The review is a homework score, so be sure to complete the reviews. The exams will be available on WebAssign for a 24-hour period on the date specified by the course calendar. The exam itself is timed at 120 minutes (two hours) and will have an accessible scientific calculator. You have two attempts at each problem.

Retake Exams: A retake exam, for improvement, will appear on WebAssign after the original exam according to the class calendar and listed below. The best grade of the two will be recorded. You do not have to take the retake exam if you are satisfied with your original exam score. The retakes will be available on WebAssign for a 24-hour period on the date specified. The exam itself is timed at 120 minutes (two hours) and will have an accessible scientific calculator. You will have two attempts at each problem.

Timed Assignments:

For all timed assignments, the clock begins once you open the assignment. This clock will not stop for any reason, not even if you log out. For this reason, it is important to check for any updates on your computer prior to beginning the timed assignments. The due date will change to reflect the time limit for timed assignments once you begin the quiz or exam. **All timed assignments have a password (ready).**

Course Schedule:

A comprehensive course schedule is attached as the last pages of this syllabus. Semester highlights are included.

- January 31st Census Day (Last day to drop without a W)
- March 11-15th Spring Break (No Classes)
- March 28th Drop Day (Last day to drop with a W)

Grading Policy

You will be graded on homework, quizzes, in-class exams, and a final exam

Assessment	Percentage
Homework	15%
Quizzes	10%
Exams (three in total)	25% each

Drop Policy

The Drop Date for this semester is Thursday, March 28, 2024, before 5:00 PM Mountain Time. No drops will be approved after this date or time.

Make-up Policy

Homework: **An automatic homework extension can be requested within 7 days after the due date. You may not view the answer key to a homework assignment prior to requesting the automatic extension for it.**

Quiz: **An automatic homework extension can be requested within 5 days after the due date for 20% penalty.** Quizzes are available before their due date. Please make plans to take the quiz early to avoid the penalty.

Exams: A make-up exam will only be given in extraordinary circumstances such as, severe illness or death in immediate family, and with appropriate documentation (e.g. doctor's note).

Please contact me **immediately** if you fall ill during the semester so that we can work together to formulate a strategy to help you get caught up as soon as you are physically able. So you won't get any extensions if you contact me after **10 days of the due dates**. I believe you can have 5 minutes to send me a short notes within 10 days. **Personal reasons won't be considered after 7 days of the due dates! Note: no last week to improve grade request will be approved.**

WK	Sections Covered	Events
1	Getting Started with WebAssign 4.1 Radian and Degree Measure 4.2 Trig Functions: The unit Circle	
2	4.3 Right Triangle Trigonometry 4.4 Trigonometric Functions of Any Angle QUIZ 1 (4.1-4.4)	
3	4.5 Graphs of Sine and Cosine 4.6 Graphs of Other Trig functions 4.7 Inverse Trigonometric functions	January 31 – Census Day
4	4.8 Applications and Models QUIZ 2 (4.7-4.8) 5.1 Using fundamental Identities	
5	5.2 Verifying Trigonometric Identities QUIZ 3 (5.1-5.2) 5.3 Solving Trigonometric Equations QUIZ 4 (5.3)	
6	5.4 Sum and Difference Formulas 5.5 Multiple Angles/Product-To-Sum Formulas QUIZ 5 (5.4-5.5)	
7	Exam 1 Review EXAM 1 6.1 Law of Sines 6.2 Law of Cosines QUIZ 6 (6.1-6.2)	Opens one week prior to due date. Available 2/28 at 12:00 AM MST
8	6.3 Vectors in the Plane 6.4 Vectors and Dot Products QUIZ 7 (6.3-6.4) Exam 1 Retake	Available 3/7 at 12:00 AM MST
Spring Break		
9	6.5 The Complex Plane 6.6 Trigonometric Form of a Complex Number QUIZ 8 (6.5-6.6)	
10	Exam 2 Review Exam 2	Opens one week prior to due date. Available 3/26 at 12:00 AM MST March 28 – Drop Day
11	10.2 Introduction to Conics QUIZ 9 (10.2) Exam 2 Retake	Available 4/4 at 12:00 AM MST
12	10.3 Ellipses 10.4 Hyperbola QUIZ 10 (10.3-10.4)	
13	10.5 Rotation of Conics 10.6 Parametric Equations QUIZ 11 (10.5-10.6)	
14	10.7 Polar Coordinates 10.8 Graphs of Polar Equations	
15	QUIZ 12 (10.7-10.8) Exam 3 Review EXAM 3	Opens one week prior to due date. Available 5/1 at 12:00 AM MST
16	Exam 3 Retake	Available 5/6 at 12:00 AM MST

Exponents and Radicals

$$a^0 = 1, a \neq 0$$

$$a^{-x} = \frac{1}{a^x}$$

$$a^x a^y = a^{x+y}$$

$$\frac{a^x}{a^y} = a^{x-y}$$

$$(a^x)^y = a^{xy}$$

$$(ab)^x = a^x b^x$$

$$\left(\frac{a}{b}\right)^x = \frac{a^x}{b^x}$$

$$\sqrt{a} = a^{1/2}$$

$$\sqrt[n]{a} = a^{1/n}$$

$$\sqrt[n]{a^m} = a^{m/n} = (\sqrt[n]{a})^m$$

$$\sqrt[n]{ab} = \sqrt[n]{a}\sqrt[n]{b}$$

$$\sqrt[n]{\left(\frac{a}{b}\right)} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}$$

Quadratic Formula

If $p(x) = ax^2 + bx + c$, $a \neq 0$ and $b^2 - 4ac \geq 0$, then the real zeros of p are $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.

Special Factors

$$x^2 - a^2 = (x - a)(x + a)$$

$$x^3 - a^3 = (x - a)(x^2 + ax + a^2)$$

$$x^3 + a^3 = (x + a)(x^2 - ax + a^2)$$

$$x^4 - a^4 = (x - a)(x + a)(x^2 + a^2)$$

$$x^4 + a^4 = (x^2 + \sqrt{2}ax + a^2)(x^2 - \sqrt{2}ax + a^2)$$

$$x^n - a^n = (x - a)(x^{n-1} + ax^{n-2} + \dots + a^{n-1})$$

$$x^n + a^n = (x + a)(x^{n-1} - ax^{n-2} + \dots + a^{n-1}), \text{ for } n \text{ odd}$$

$$x^{2n} - a^{2n} = (x^n - a^n)(x^n + a^n)$$

Examples

$$x^2 - 9 = (x - 3)(x + 3)$$

$$x^3 - 8 = (x - 2)(x^2 + 2x + 4)$$

$$x^3 + 4 = (x + \sqrt[3]{4})(x^2 - \sqrt[3]{4}x + \sqrt[3]{16})$$

$$x^4 - 4 = (x - \sqrt{2})(x + \sqrt{2})(x^2 + 2)$$

$$x^4 + 4 = (x^2 + 2x + 2)(x^2 - 2x + 2)$$

$$x^5 - 1 = (x - 1)(x^4 + x^3 + x^2 + x + 1)$$

$$x^7 + 1 = (x + 1)(x^6 - x^5 + x^4 - x^3 + x^2 - x + 1)$$

$$x^6 - 1 = (x^3 - 1)(x^3 + 1)$$

Binomial Theorem

$$(x + a)^2 = x^2 + 2ax + a^2$$

$$(x - a)^2 = x^2 - 2ax + a^2$$

$$(x + a)^3 = x^3 + 3ax^2 + 3a^2x + a^3$$

$$(x - a)^3 = x^3 - 3ax^2 + 3a^2x - a^3$$

$$(x + a)^4 = x^4 + 4ax^3 + 6a^2x^2 + 4a^3x + a^4$$

$$(x - a)^4 = x^4 - 4ax^3 + 6a^2x^2 - 4a^3x + a^4$$

$$(x + a)^n = x^n + nax^{n-1} + \frac{n(n-1)}{2!}a^2x^{n-2} + \dots + na^{n-1}x + a^n$$

$$(x - a)^n = x^n - nax^{n-1} + \frac{n(n-1)}{2!}a^2x^{n-2} - \dots \pm na^{n-1}x \mp a^n$$

Examples

$$(x + 3)^2 = x^2 + 6x + 9$$

$$(x^2 - 5)^2 = x^4 - 10x^2 + 25$$

$$(x + 2)^3 = x^3 + 6x^2 + 12x + 8$$

$$(x - 1)^3 = x^3 - 3x^2 + 3x - 1$$

$$(x + \sqrt{2})^4 = x^4 + 4\sqrt{2}x^3 + 12x^2 + 8\sqrt{2}x + 4$$

$$(x - 4)^4 = x^4 - 16x^3 + 96x^2 - 256x + 256$$

$$(x + 1)^5 = x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$$

$$(x - 1)^6 = x^6 - 6x^5 + 15x^4 - 20x^3 + 15x^2 - 6x + 1$$