# **Trigonometry [CMAT 1223] Syllabus**

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**Course Number and Title:** Trigonometry [CMAT 1223]
(From the [statewide common course information](https://regents.la.gov/wp-content/uploads/2021/11/CmnCrsCatalog-2021-22-FINAL-APPROVED.pdf).)

**Course Brief Description:** Trigonometric functions and graphs; inverse trigonometric functions; fundamental identities and angle formulas; solving equations; triangles with applications; polar coordinate system. (From the [statewide common course information](https://regents.la.gov/wp-content/uploads/2021/11/CmnCrsCatalog-2021-22-FINAL-APPROVED.pdf).)

**Credit Hours:** 3

**Prerequisite Knowledge:** To be successful in this course, students should have taken College Algebra [CMAT 1213] as a prerequisite.

**Course Goals:**

At the end of this course, students will be able to:

1. Apply the definitions of angles, triangles, and the rectangular coordinate system to the six trigonometric functions.
2. Solve problems using right triangle trigonometry.
3. Extending the six trig functions on each quadrant by defining a reference angle with + - signs.
4. Solve problems for arc length and area of a sector.
5. Calculate linear and angular speed to solve related problems.
6. Graph trigonometric functions and their transformations.
7. Solve problems involving the inverses of trigonometric functions.
8. Verify trigonometric identities and solve problems involving sum, difference, double-angle, half-angle, sum-to-product, and product-to-sum formulas.
9. Solve trigonometric equations.
10. Solve triangles and applications using the Laws of Sines, the Law of Cosines and area formulas.
11. Plot points and rewrite equations between the rectangular and polar coordinate systems.
12. Apply the De Moivre’s and nth root Theorems

**Course Materials:**

1. This course uses a free Pressbook resource: Trigonometry (<https://louis.pressbooks.pub/trigonometry/>)
2. This course is taught with MyOpenMath, a free online assessment platform (<https://www.myopenmath.com/>)

**Instructor Contact Information:** [*Kept as a placeholder for future adopters]*

* Name:
* Email:
* Phone:
* Office:
* Office Hours:
* Communication policy:

**Course Schedule:**

| **Week** | **Topics and Concepts** | **Corresponding Course Materials**  |
| --- | --- | --- |
| 1 | Getting started on the course. | Welcome, Learner Support, and Getting Started Modules |
| 2 | Chapter 1: Triangles and Circles* 1.1 Triangles and Angles
* 1.2 Similar Triangles
* 1.3 Circles
 | Module 1: Triangles and Circles* Read Chapter 1 in the Pressbook
* Practice problems on Exercise Sections 1.1 – 1.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 3 | Chapter 2: Trigonometric Ratios* 2.1 Side and Angle Relationships
* 2.2 Right Triangle Trigonometry
* 2.3 Solving Right Triangles
 | Module 2: Trigonometric Ratios* Read Chapter 2 in the Pressbook
* Practice problems on Exercise Sections 2.1 – 2.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 4 | Chapter 3: Laws of Sines and Cosines* 3.1 Obtuse Angles
* 3.2 The Law of Sines
* 3.3 The Law of Cosines
 | Module 3: Laws of Sines and Cosines* Read Chapter 3 in the Pressbook
* Practice problems on Exercise Sections 3.1 – 3.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 5 | Chapter 4: Trig Functions* 4.1 Angles and Rotation
* 4.2 Graphs of Trigonometric Functions
* 4.3 Periodic Functions
 | Module 4: Trig Functions* Read Chapter 4 in the Pressbook
* Practice problems on Exercise Sections 4.1 – 4.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 6 | Chapter 5: Equations and Identities* 5.1 Algebra with Trigonometric Ratios
* 5.2 Solving Equations
* 5.3 Trigonometric Identities
 | Module 5: Equations and Identities* Read Chapter 5 in the Pressbook
* Practice problems on Exercise Sections 5.1 – 5.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 7 | *Break Week before Midterm Exam* |  |
| 8 | Midterm Exam | Midterm Assessment Module |
| 9 | Chapter 6: Radians* 6.1 Arclength and Radians
* 6.2 The Circular Functions
* 6.3 Graphs of the Circular Functions
 | Module 6: Radians* Read Chapter 6 in the Pressbook
* Practice problems on Exercise Sections 6.1 – 6.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 10 | Chapter 7: Circular Functions* 7.1 Transformations of Graphs
* 7.2 The General Sinusoidal Function
* 7.3 Solving Equations
 | Module 7: Circular Functions* Read Chapter 7 in the Pressbook
* Practice problems on Exercise Sections 7.1 – 7.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 11 | Chapter 8: More Functions and Identities* 8.1 Sum and Difference Formulas
* 8.2 Inverse Trigonometric Functions
* 8.3 The Reciprocal Functions
 | Module 8: More Functions and Identities* Read Chapter 8 in the Pressbook
* Practice problems on Exercise Sections 8.1 – 8.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
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| 12 | Chapter 9: Vectors* 9.1 Geometric Form
* 9.2 Coordinate Form
* 9.3 The Dot Product
 | Module 9: Vectors* Read Chapter 9 in the Pressbook
* Practice problems on Exercise Sections 9.1 – 9.3
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 13 | Chapter 10: Polar Co-ordinates and Complex Numbers* 10.1 Polar Coordinated
* 10.2 Polar Graphs
* 10.3 Complex Numbers
* 10.4 Polar Form for Complex Numbers
 | Module 10: Polar Co-ordinates and Complex Numbers* Read Chapter 10 in the Pressbook
* Practice problems on Exercise Sections 10.1 – 10.4
* Complete homework assignments for each Section
* View Chapter Summary and Review
* Practice problems on Chapter Review Exercises
 |
| 14 | *Break Week before Final Exam* |  |
| 15 | Final Exam | Final Exam Module |

**Course Policies:**

**Technology Requirements**

You will need regular computer access, preferably a home computer with broadband Internet access. You should also have an alternative plan to complete online assignments in the event of computer or internet failure. This course is delivered via Moodle and MyOpenMath (integrated in Moodle).

**Computer Skills**

To be successful in this course, you should be comfortable with the following:

* using computer access with broadband internet
* using email for communication, especially sending an email attachment
* using Moodle
* using a calculator
* using a webcam (making sure it is connected and works properly)

**Evaluation of Learning**

* Assessments: The student will be assessed and graded using all the following assessment tools:

20% Homework

20% Discussion Forums

30% Midterm Exam

30% Final Exam

Homework is designed to give you practice on the learning objectives. Don't wait until last minute to start these! They will be given for each topic/section covered and students should work on them to reinforce the material in the course. No homework assignments will be accepted after the last day of the semester and after the Final Exam. No low or missing homework assignment grades will be dropped at the end of the semester.

Discussion Forums are designed for you to illustrate your knowledge of concepts covered, help your classmates learn something they struggle with in the course, and keep active participation between the course, your classmates, and the instructor. Specific directions for what to post in each forum are provided in the actual discussion. No graded discussion forum will be dropped at the end of the semester.

Exams are designed to demonstrate that you learned the material in the course and can apply it. These are the ultimate guide and indication of concepts learned in the course. The Midterm Exam and Final Exam will be given at the midway point and end of the semester, respectively. No low Exams scores will be dropped at the end of the semester. Exams will only be extended or made-up dependent on the student’s reason for missing or needing an extension.

* Activities:
	1. In the Moodle course there are links to the sections of the textbook and videos provided from YouTube. These should be used for learning the material in the course.
	2. In the Pressbook you will find H5P content (interactive activities with feedback). These should be used for self-practice – they are not part of the grade in the course.

**Grading Policy**

* Grading Scale:

|  |  |
| --- | --- |
| 90 – 100 | A |
| 80 – 89 | B |
| 70 – 79 | C |
| 60 – 69 | D |
| 0 – 59 | F |

* Late Policy for Homework: Homework assignments can be completed late with a penalty, using the MyOpenMath LatePass. The following is the LatePass policy for the course:
1. Any homework assignments completed during the LatePass period will have a X%-point deduction. This is better than a zero though!
2. You can use a LatePass on each individual Section Assignment and you can only ask for a LatePass once per assignment.
3. Using a LatePass will extend the due date of the homework assignment until the end of the semester. No homework assignments will be accepted after the last day of the semester and after the Final Exam.
* Late Policy for Other Assessments: No other assessments will be accepted submitted late.

**University Policies and Support:** [*Kept as a placeholder for future adopters]*

* **Code of Conduct**
* **Online Etiquette**
* **Academic Integrity**
* **Diversity Statement**
* **Accessibility and Disability Services**
* **Technology Support**
* **Academic Support Services**