

**MATH-1432-004: SYLLABUS
COLLEGE OF DUPAGE: SPRING 2021**

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1. COURSE INFORMATION

- Course Title: Precalculus II: Trigonometry
- Course Number: 1432
- Credit Hours: 3; Clinical Hours: 0; Lecture Hours: 3; Lab Hours: 0
- Meet Times: TBD
- Meet Location: TBD
- Course Description: Students will learn trigonometry with an emphasis on concepts needed for calculus. Topics include, but are not limited to, formal definition of trigonometric functions and circular functions, radian measure, inverse trigonometric functions, graphs of trigonometric functions and inverse trigonometric functions, trigonometric identities, trigonometric equations, DeMoivre's theorem, solution of triangles, polar coordinates, and applications.
- Repeatable for Credit: NO
- Pre-Enrollment Criteria: N/A
- Prerequisite: MATH 1431 Precalculus I with a grade of "C" or better, or equivalent or a qualifying score on the mathematics placement test

2. INSTRUCTOR INFORMATION

- Name: Michael McCabe, M.S.
 - Email: mccabem85@cod.edu
 - Office: 3436B or Blackboard Collaborate
 - Office Phone: 630 942 2152
 - Office Hours: Labeled on Blackboard (always available by appointment)
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3. GENERAL COURSE OBJECTIVES

Upon successful completion of the course the student should be able to do the following:

- 1 Define the six trigonometric functions as ratios in right triangles as well as within the unit circle
- 2 Demonstrate the use of standard position, as well as coterminal and reference angles
- 3 Perform degree-to-radian and radian-to-degree conversions with and without a calculator
- 4 Use trigonometry to solve applications involving any type of triangle
- 5 Demonstrate the ability to state and use the fundamental identities (reciprocal, Pythagorean, quotient, and negative angles) from memory
- 6 Determine the values of the trigonometric functions at quadrantal and special angles without the use of a calculator
- 7 Use a calculator to find trigonometric values and inverse trigonometric values
- 8 Construct the graphs of the six trigonometric functions without a calculator
- 9 Identify amplitude, period, and horizontal and vertical translations of graphs with and without a calculator
- 10 Deduce limits of trigonometric functions from their graphs

- 11 Calculate angular and linear velocity for circular motion and apply these calculations to applications
- 12 Calculate the area of a sector and arc length and apply these calculations to applications
- 13 Demonstrate the ability to algebraically manipulate expressions containing trigonometric functions
- 14 Demonstrate the ability to verify identities formally
- 15 Demonstrate the ability to state and use the cofunction identities as well as the sum and difference of angles identities for sine, cosine, and tangent from memory
- 16 Use the sum-to-product and product-to-sum identities
- 17 Solve trigonometric equations
- 18 Construct the graphs of the inverse trigonometric functions
- 19 Compute the values of inverse trigonometric functions and algebraic expressions involving inverse trigonometric functions without a calculator
- 20 Apply the law of sines and the law of cosines
- 21 Calculate the area of any triangle
- 22 Perform operations with vectors to include finding magnitude and direction as well as solving applications
- 23 Convert complex numbers between standard and trigonometric form
- 24 Use the trigonometric form to perform multiplication and division and to find powers and roots of complex numbers
- 25 Convert ordered pairs between rectangular and polar form
- 26 Construct the graphs of polar equations

4. TOPICAL OUTLINE

- 1.:** Trigonometric functions
 - a.:** Rectangular coordinate system, distance, and functions
 - b.:** Angles
 - c.:** Definitions of the trigonometric functions
- 2.:** Acute angle
 - a.:** Trigonometric functions of an acute angle
 - b.:** Cofunctions
 - c.:** Trigonometric values of 30° , 45° , 60° and 90° without the use of a calculator
 - d.:** Right triangles
 - e.:** Applications
- 3.:** Fundamental identities
 - a.:** Reciprocal, cofunction, opposite angle, Pythagorean, and quotient identities (to be memorized)
 - b.:** Trigonometric expressions
 - c.:** Verification of identities
- 4.:** Related angles and radian measure
 - a.:** Related angles
 - b.:** Reduction to an acute angle
 - c.:** Radian measure

- d.: Conversion between degrees and radians (with and without the use of a calculator)
- e.: Arc length, area of a sector, linear and angular velocity
- f.: Trigonometric functions of real numbers
- 5.: Graphs of the trigonometric functions
 - a.: Periodic functions
 - b.: Amplitude, period, vertical translations, and phase shifts without a calculator
 - c.: Graphs by addition of ordinates (optional)
 - d.: Graphs involving algebraic operations (optional)
- 6.: Trigonometric identities
 - a.: Sum and difference identities (to be memorized)
 - b.: Half and double-angle identities (to be memorized)
 - c.: Verification of identities
 - d.: Product-to-sum and sum-to-product identities
 - e.: Reduction formula (optional)
- 7.: Trigonometric equations
 - a.: Basic trigonometric equations
 - b.: Equations with multiple and fractional arguments
 - c.: Equations using identities
- 8.: Inverse trigonometric relations and functions
 - a.: Inverse trigonometric relations
 - b.: Inverse trigonometric functions
 - c.: Graphs of inverse trigonometric relations and functions
 - d.: Operations with inverse trigonometric functions
 - e.: Equations with inverse trigonometric functions
- 9.: Triangles, vectors, and applications
 - a.: Law of sines
 - b.: Law of cosines
 - c.: Oblique triangles
 - d.: Area formulas
 - e.: Vectors: components and resultants
 - f.: Applications
- 10.: Complex numbers
 - a.: Complex number arithmetic review (optional)
 - b.: Graphical representation
 - c.: Graphical addition
 - d.: Multiplication and division in trigonometric form
 - e.: DeMoivre's theorem
- 11.: Polar coordinates
 - a.: Conversion between polar and rectangular coordinates
 - b.: Graphs of polar equations
- 12.: Limits involving trigonometric functions (optional)

5. REQUIRED TEXTS, MATERIALS, AND SUPPLIES

5.1. **Required Text.** The reference Textbook is: Trigonometry, 12th Edition, by Lial, Hornsby, Schneider and Daniels.

5.2. **Materials. My Math Lab** Access code, A notebook for class lecture to take notes, A notebook for homework (suggested, not required), writing devices, and access to the internet.

5.3. **Supplies.** Notebooks, writing devices, and internet.

6. SCHEDULE

6.1. Academic Calendar.

- First Day: 1/24/2022
- No Class: 03/28/2022 to 04/03/2022 (Spring Break)
- Last Day to Withdraw: 04/17/2021
- Final Exam: TBD

6.2. Exam Dates (Tentative).

- Exam 1: Week 4
- Exam 2: Week 8
- Exam 3: Week 12

6.3. Content Coverage. Here is the tentative daily schedule:

Week	Monday	Wednesday	Friday
1	1.1	1.2	1.3
2	1.4	2.1	2.2
3	2.3	2.4	2.5
4	3.1	Review	Exam 1
5	3.2	3.3	3.4
6	4.1	4.2	4.3
7	4.4	Review	Exam 2
8	5.1	5.2	5.3
9	5.4	5.5	5.6
10	Spring	Break	(No Class)
11	6.1	6.2	6.3
12	6.4	Review	Exam 3
13	7.1	7.2	7.3
14	7.4	7.5	8.1
15	8.2	8.3	8.4
16	8.5	Review	Review
Finals			

7. METHOD OF EVALUATION

7.1. Assessment Categories:

- (1) Exams [Weight 40%]
 - (a) There will be at least 3 exams throughout the semester.
 - (b) Accommodations will be available, please refer to the Office of Access and Accommodations for the method of requesting accommodations.
 - (c) Each exam:
 - (i) Will be taken in class with the expectation to take 50 minutes to complete.

- (ii) Don't expect to have open book, open notes, or "cheat-sheets".
- (d) Do not expect dropped exams.
- (e) It is important to email prior to the start of the exam if unable to attend the exam. It is better email before the start of the exam, rather than after the exam. I necessary email the day before of any concerns, I will work with you to accommodate.
- (f) Advice:
 - (i) Historically, poor performance on exams are due to miscommunication on shown work.
 - (A) The work done for each problem is more important than the final answer.
 - (B) Each problem involves multiple topics covered throughout the lectures prior to the exam. The goal of the exam is to assess understanding, as many of those topics as possible.
 - (C) Each questions should be answered like it is a presentation for the class.
 - (ii) One week before the exam is assigned, expect to receive an outline of the exam. With this outline attempt to create a mock exam. With the mock exam construct a test taking environment and attempt the mock exam (I will not be creating this mock exam, but I am willing to help). The idea is that, by treating the mock exam as a real exam will hopefully alleviate some of the pressure of the actual exam.
 - (iii) Questions on the exam may not be something you have seen before, this aims to assess understanding and not memorization.
- (2) My Math Lab (MML) Homework Sets [Weight 20%]
 - (a) There will be at least 3 dropped assignments at the end of the semester.
 - (b) There will be no extensions on the MML Homework sets.
- (3) In-Class Polling [Weight 20%]
 - (a) Several times throughout the semester questions will be asked during class and responses will be required for participation credit.
 - (b) The in-class polling will take place using Learning Catalytics.
- (4) Final Exam [Weight 20%]
 - (a) Test on everything covered throughout the semester (Cumulative Exam).
 - (b) Constructed to be completed during a 2 hour time limit on the scheduled Final Exam day.
 - (c) I plan to construct the Final Exam similar to twice the amount of a regular exam.

7.2. Grade Scale.

- A:** 90% to 100%
 - B:** 80% to 89%
 - C:** 70% to 79%
 - D:** 60% to 69%
 - F:** 59% or less
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8. ACADEMIC HONESTY

As members of the College of DuPage community, we share a commitment to the highest standards of learning and ethical behavior. The College and its faculty strive to build meaningful and productive relationships with our students. The expectation of honesty and effort is the foundation of that relationship. Academic dishonesty damages the learning partnership built between student and faculty and is considered a serious breach of the principles of learning and growth. Violations of the Code of Academic Conduct will be dealt with appropriately and may become part of a student's educational record. Please don't risk it! For further information about the expectations, please review the Code of Academic Conduct found at the following website: Code of Academic Conduct.

9. ACCESS AND ACCOMMODATIONS

- As a course policy, I do not accept late work/make up for My Open Math assignments, attendance, and participation. I am committed to providing fair, equal, and unbiased accommodations. If you believe that your circumstances qualify you for accommodations, please contact the Center for Access and Accommodations at access@cod.edu. Staff from the Center can help you better understand if your situation qualifies you for an accommodation.
- If you are student who is registered with the Center for Access and Accommodations, please send me your Letter of Accommodation as soon as possible.
- Please do not send me personal medical records or similar personal documents.
- Here is a to start the process for accommodations: Center for Access and Accommodations Intake Form (https://cod-accommodate.symplicity.com/public_accommodation/).

The College of DuPage is committed to the equitable access of educational opportunities for students with disabilities in accordance with The Americans with Disabilities Act, As Amended and Section 504 of the Rehabilitation Act of 1973. Any student who feels they may need an accommodation on the basis of an illness, injury, medical condition, or disability should contact the Center for Access and Accommodations to determine eligibility for accommodations and to obtain an official Letter of Accommodation. The Center for Access and Accommodations can be reached via email at access@cod.edu. Students may also initiate a request for services by going to www.cod.edu/access and clicking on the green box labeled "complete form to request accommodations." If you are already registered with the Center for Access and Accommodations, please email me your Letter of Accommodation as soon as possible. Please DO NOT send any private health documentation or Doctor's notes to me.

10. WITHDRAW POLICY

Withdrawal from a Class. The final day for a student to withdraw from any course will be equal to 75% of the time for the respective academic session (see the Registration Calendar) through MyAccess or in person at the Registration office, Student Services Center (SSC), Room 2221.

Administrative Withdrawal. After the deadline, students will be required to appeal for late withdrawal and provide appropriate documentation to the Student Registration Services Office for all requests. Students who are granted approval to withdraw by petition will not be eligible for refunds of tuition or fees and will receive a 'W' grade on their transcript. Appeals must be submitted prior to the designated final exam period for 16-week classes and before the last class meeting for all other session classes.

Coronavirus Information. Stay up to date with information provided by the college about alternative withdrawal policies. [Coronavirus Information](#)

11. CORONAVIRUS INFORMATION

11.1. Coronavirus Information. For up to date information about what the College of DuPage is doing in response of the Coronavirus please visit the website <https://www.cod.edu/coronavirus/>.

As of 8/17/2021:

- Due to the highly contagious Delta variant of COVID-19, the Centers for Disease Control and Prevention (CDC) updated their masking guidelines, recommending that fully vaccinated people wear a mask in public indoor settings in areas of substantial or high transmission. Our mask protocol (<https://www.cod.edu/coronavirus/mask-protocol.aspx>) has been updated for unvaccinated or not fully-vaccinated individuals and for fully-vaccinated individuals.
- The College of DuPage Library is open to employees, students, and the public. For hours of operation, visit the Library's website (<https://library.cod.edu/>).
- All doors are now unlocked from 5 a.m. to 11 p.m. on days the College is open. Additional staff from areas around the College will be called back to work, in-person, to ensure appropriate support for the summer and beyond. The Bookstore is also open.
- Those who enter a facility are expected to follow safety guidelines.
- College faculty and staff should continue to work from home to the maximum extent possible.

For information on how we are keeping students safe and support services that are available, view [Frequently Asked Questions](#).

11.2. What to Expect on Campus. As of 8/17/2021:

- Individuals who are unvaccinated or not fully vaccinated for COVID-19 are required to wear a facemask covering their mouth and nose while inside campus buildings and when outside on College property.
- Individuals who are fully vaccinated for COVID-19 are required to wear a facemask covering their mouth and nose while inside campus buildings. COD's mask protocol outlines exceptions to the protocol, which include actively eating and drinking.
- All screening will be eliminated at the main campus and centers and employees no longer need supervisor approval to enter the College.
- Maintain social distancing. Stand six feet apart when meeting, talking or standing in line.

While regular classroom cleaning will be followed and hand sanitizer will be available, students are encouraged to bring their own wipes for cleaning their space and their own hand sanitizer.

11.3. **Additional Information.** As of 8/17/2021

11.3.1. *COVID-19 Protocols and Instruction.* The following documents are used to screen and self-report COVID-19 symptoms to help prevent the spread of the virus on campus:

- Coronavirus (COVID-19) Student Self-Reporting Form
(https://cm.maxient.com/reportingform.php?CollegeofDuPage&layout_id=9)
- Student Concern Form – Communicable Disease
(https://cm.maxient.com/reportingform.php?CollegeofDuPage&layout_id=10)
- Suspected or Confirmed Exposure
(https://www.cod.edu/coronavirus/pdf/suspected_confirmed_exposure.pdf)
- Instructions
(<https://www.cod.edu/coronavirus/pdf/instructions.pdf>)

11.3.2. *ICCB/College of DuPage COVID-19 Case Reporting.* College of DuPage is keeping track of confirmed cases of students and employees:

- View information on confirmed COVID-19 cases.
(<https://www.cod.edu/coronavirus/case-reporting.aspx>)

11.3.3. *If you Experience COVID-19 Symptoms.* If you or a person you know is experiencing symptoms such as fever, cough and difficulty breathing, seek medical care right away. Report your symptoms by filling out the Student Concern Form (https://cm.maxient.com/reportingform.php?CollegeofDuPage&layout_id=10).

For additional questions, contact the Dean of Students Office at (630) 942-2485 or email deanofstudents@cod.edu. Include your name and student ID number in your message.

There is more information at the COD HEERF website
(<https://www.cod.edu/coronavirus/heerf.aspx>)

11.4. **Mask Protocol.** Wearing a facemask that covers the mouth and nose can help reduce the transmission of the virus responsible for COVID-19 and its variants.

As of 8/17/2021. If someone refuses to comply with COD's mask protocol, according to <https://www.cod.edu/coronavirus/mask-protocol.aspx>.

- Staff and Faculty: If an employee declines or fails to wear a facemask as required, the employee's supervisor is responsible for addressing the issue with the employee. Employees should refrain from addressing noncompliance or perceived noncompliance directly with other employees, and should instead report issues to their supervisor.
- Students: If a student declines or fails to wear a facemask as required, they should be asked to comply with the protocol, or leave the campus immediately. If they fail to comply or refuse to leave the campus, the College Police should be called to handle the situation, and the student should be reported to the Dean of Student Affairs.

If the situation occurs in a classroom or other academic setting, it is considered a classroom management issue, and the faculty member should remind the student of the requirement and give the student a chance to comply. If

the student refuses to comply, the faculty member should ask the student to leave the classroom or academic setting immediately, and should report the student to the Dean of Student Affairs. If the student refuses to leave the classroom or academic setting, the College Police should be called to handle the situation, and the student should be reported to the Dean of Student Affairs.

- Visitors/members of the Public: If a visitor or member of the public declines or fails to wear a facemask as required, they should be asked to comply with the protocol, or leave the campus immediately. If they fail to comply or refuse to leave the campus, the College Police should be called to handle the situation.

11.5. Contact Information:

- For Student Affairs Related Questions
 - Campus Central
 - (630) 942-3000
 - campuscentral@cod.edu
- For Campus Health and Safety or COVID-related Specific Questions
 - Phil Gieschen
 - Coordinator of Risk Management
 - (630) 942-2993
 - giesche@cod.edu

12. SHUTDOWN OR QUARANTINE

If me/I (the instructor) or you (the student) are required to quarantine or the campus shuts down. Here are some (not all) things to consider if a quarantine or shutdown is implemented.

- (1) Blackboard Collaborate will be used for remote instruction. If you are required to quarantine notify Access and Accommodations and they will contact me with instructions.
- (2) Twitch, in the event Blackboard Collaborate fails to work, I do have a twitch page (twitch.tv/codmccabe).
- (3) It is okay to request videos from me on any topic covered in class.
- (4) It is possible for the method of administering exams to change in the event of a campus shutdown. All other methods of assessments will be and are already be tracked electronically.
- (5) More information will be provided via Blackboard Announcements in the event of campus shutdown or other events causes the presentation of lecture to change.