

# MAC1114 Trigonometry

## Section: 074H

### Spring 2025

## I. General Information

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### Class Meetings

- TR6 (Tuesday/Thursday, 12:50-1:40pm), in WEIL 234

### Instructor

- Name: David Maynoldi
- Office: LIT 431
- Office Hours: M5 (Monday 11:45am-12:35pm), T9 (Tuesday 4:05-4:55pm), and R7 (Thursday 1:55-2:45pm)
- Email: david.maynoldi@ufl.edu

**Preferred Method of Contact:** For personal matters, reach out directly via Canvas Inbox or UF email. For general course or math-related questions, ask them in office hours/class or use the Course Questions Forum on the Canvas page.

### Course Description & Objectives

This course is the sequel to MAC1140 Precalculus Algebra and serves as an introduction to Trigonometry. Topics include a basic introduction to trigonometric functions, graphing trigonometric functions, inverse trigonometric functions, and analytic trigonometry. Although this course has no official UF course prerequisite, it assumes prior knowledge of intermediate algebra (Algebra 2 from high school). Students should be able to do arithmetic **without** a calculator.

After completing this course, students will be able to define and analyze trigonometric functions, their inverses, their graphs, and their properties, formulate mathematical models and solve problems using trigonometric functions and their inverses, trigonometric equations, right triangle trigonometry, and various trigonometric formulas (e.g., laws of sines and cosines, sum difference, multiple angles, product-to-sum), and verify trigonometric identities. They will also develop and solve mathematical models of real-world word problems involving trigonometric functions and communicate mathematical solutions clearly and effectively.

## General Education Credit

- Mathematics

*This course accomplishes the [General Education](#) objectives of the subject area listed above. A minimum grade of C is required for General Education credit. Courses intended to satisfy General Education requirements cannot be taken S-U.*

## Course Materials

**Textbook:** There are no required textbooks for this course; lecture notes will be posted in Canvas. However, an open-resource textbook which is a good source for additional explanations and supplementary exercises is available here:

[https://d3bxy9euw4e147.cloudfront.net/oscmsprodcms/media/documents/Precalculus-OP\\_9wwF7YT.pdf](https://d3bxy9euw4e147.cloudfront.net/oscmsprodcms/media/documents/Precalculus-OP_9wwF7YT.pdf)

**Online Homework:** In this course we will use the online platform, Xronos, which has been developed at UF and is supported by the Office of the Provost and the College of Liberal Arts and Sciences. Xronos is accessible through the Canvas site. More details will be provided in Canvas and in class.

**Calculator Policy:** A calculator is not required for this course. Furthermore, calculators are **NOT** allowed during exams. It is recommended that students do not use calculators on their assignments so that they are prepared for the exams.

**Materials and Supply Fees:** You do not need to purchase any textbook or access code for this course.

## II. Graded Work

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### Description of Graded Work

Assignment	Assignment Description	General Education Mathematics SLOs Met	% of Grade
Take-Home Quizzes	<i>There will be 9 take-home quizzes, each consisting of around 3 free-response problems. Quizzes will be submitted via Canvas as a scanned pdf document. They will be graded based on accuracy and work shown; answers without supporting work will receive no credit. The lowest two quiz scores will be dropped.</i>	<i>Communication, Content, Critical Thinking</i>	<b>15%</b>

<b>Xronos Homework</b>	<i>Homework will be completed through the online platform Xronos. This program should only be accessed through an assignment link in Canvas. There will be 12 homework assignments, one associated to each module. You have unlimited attempts on the homework before it is due. The lowest two homework scores will be dropped.</i>	<i>Communication, Content, Critical Thinking</i>	<b>25%</b>
<b>Three Exams</b>	<i>The exams are in-person during class time, in the usual room. The tentative exam dates are indicated in the weekly schedule below. Each exam will count for 20% of your total grade.</i>	<i>Communication, Content, Critical Thinking</i>	<b>60%</b>
<b>Extra Practice Xronos</b>	<i>There will be 3 extra practice assignments through Xronos. Each of these assignments cover 4 of the course modules. You have unlimited attempts on these before they are due.</i>	<i>Communication, Content, Critical Thinking</i>	<b>3% (extra credit)</b>

## Grading Scale

Your final grade will be given using the following grading scale. Grades within 0.50% of a grade cutoff will be rounded up (e.g. 89.50% is an A, 89.49% is an A-). For information on how UF assigns grade points, visit:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

A	90-100%		C	67-73%
A-	87-89%		C-	64-66%
B+	84-86%		D+	60-63%
B	80-83%		D	57-59%
B-	77-79%		D-	54-56%
C+	74-76%		E	0-53%

*A minimum grade of C (not C-) is required for General Education credit. Courses intended to satisfy General Education requirements cannot be taken S-U.*

**\*Note:** Grading concerns must be brought up within one week of an assignment being graded/returned.

## Attendance and Participation

**Attendance and Class Participation:** Class attendance is strongly recommended. Students who come to class and participate are more likely to do well in the course.

Excused absences are consistent with university policies in the undergraduate catalog:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

## III. Annotated Weekly Schedule

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The schedule below is tentative; any changes will be announced on Canvas. Homework and quizzes are due at 11:59pm on the indicated due date.

Dates	Topics/Modules	Summary	Assigned Work Due
Jan.14	Module 0: Orientation and Algebra Review	We will go over general information to help get started with the course. We will also review some basic concepts in functions and algebra.	Orientation Quiz, Needs Assessment  (*These do not count towards the final grade, but they must be completed to access the rest of the course modules.)
Jan.16, 21	Module 1: Angles and Circles	We will discuss how to draw angles in standard position, convert between degrees and radians, find coterminal angles, find the length of a circular arc, and use linear and angular speed to describe motion on a circular path.	M1 Xronos, Quiz  Due. Jan.27
Jan.23,28	Module 2: Trigonometric Functions	We will evaluate the trigonometric functions sine, cosine, secant, cosecant, tangent, and cotangent at special angles, and identify the domain and range of trigonometric functions. We will also analyze properties of even and odd trigonometric functions, and how to recognize and use these properties	M2 Xronos, Quiz  Due. Feb.3

Jan.30, Feb.4	Module 3: Right Triangles and Reference Angles	We will calculate trigonometric values of internal angles of a right triangle using side lengths and cofunction properties of complementary angles. We will determine the reference angle of arbitrary angles, and calculate trigonometric values of angles using principle trigonometric identities and reference angles.	M3 Xronos, Quiz  Due. Feb.10
Feb.6,11	Module 4: Graphs of Sine and Cosine Functions	We will analyze the graphs of variations of the sine and cosine function, including shifts and stretches of sine and cosine curves. We will find the amplitude, period, frequency, and vertical shift of these graphs.	M4 Xronos Extra Practice 1  Due. Feb.17
Feb.11,13	Module 5: Graphs of Cosecant, Secant, Tangent and Cotangent Functions  Review, Q/A	We will analyze the graphs of the secant, cosecant, tangent, and cotangent trigonometric functions, and of their variations (shifts and stretches).	M5 Xronos, Quiz  Due. Feb.24
Feb.18	<b><u>Exam 1</u></b> covers Modules 1-4		<b><u>Exam 1</u></b> on February 18, in class

Feb.20,25	Module 6: Inverse Trigonometric Functions	We will analyze the inverse sine, cosine, and tangent functions, find the exact value of expressions involving the inverse sine, cosine, and tangent functions, and find exact values of composite functions with inverse trigonometric functions.	M6 Xronos, Quiz  Due. Mar.3
Feb.27	Module 7: Inverse Trigonometric Functions - Applications and Models	We will use inverse trigonometric functions to solve for unknown angles in right triangles, and solve for unknown distances using bearings.	M7 Xronos, Quiz  Due. Mar.7

Mar.4,6	Module 12: Law of Sines and Law of Cosines	We will use the law of sines and law of cosines to solve for unknown lengths of sides and measures of angles of non-right (oblique) triangles.	M12 Xronos Due. Mar.12
Mar.11	Review, Q/A		
Mar.13	<b>Exam 2</b> covers Modules 5-7, 12		<b>Exam 2</b> on March 13, in class
Mar.25,27	Module 8: Trigonometric Equations and Identities	We will use the principle trigonometric identities to simplify trigonometric expressions and to verify other identities.	M8 Xronos, Quiz Extra Practice 2 Due. Apr.2
Apr.1,3	Module 9: Solving Trigonometric Conditional Equations	We will apply trigonometric identities and the unit circle to solve trigonometric equations of a linear type, of a quadratic type, and of multiples of angles.	M9 Xronos, Quiz Due. Apr.9
Apr.8,10	Module 10: Sum and Difference Formulas - Product to Sum Formulas	We will apply the sum and difference formulas to calculate exact values of the sine, cosine, and tangent functions, and apply product to sum formulas to simplify and calculate exact values of trigonometric expressions.	M10 Xronos, Quiz Due. Apr.16
Apr.15,17	Module 11: Double Angle, Power Reducing, and Half Angle Formulas  Review, Q/A	We will apply double-angle, power reducing, and half-angle identities to solve trigonometric equations, and apply half-angle identities to calculate exact values of trigonometric functions on angles.	M11 Xronos Extra Practice 3 Due. Apr.21
Apr.22	<b>Exam 3</b> covers Modules 8-11		<b>Exam 3</b> on April 22, in class

## IV. Student Learning Outcomes (SLOs)

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At the end of this course, students will be expected to have achieved the [General Education](#) learning outcomes as follows:

- **Content:** Students demonstrate competence in the terminology, concepts, theories, and methodologies used within the discipline. After completing this course students will be able to employ strategies in solving problems involving trigonometric functions and their inverse functions, trigonometric equations, right triangle trigonometry, and various trigonometric formulas (e.g., laws of sine and cosine, sum difference, multiple angles, product-to-sum), and verifying trigonometric identities. (Content for Gen Ed Math, assessed through homework, quizzes, and exams)
- **Communication:** Students communicate knowledge, ideas, and reasoning clearly and effectively in written and oral forms appropriate to the discipline. Throughout this course students will formulate and solve mathematical models using trigonometric functions and their inverses, right triangle trigonometry, trigonometric equations, and trigonometric formulas (laws of sine and cosine, sum difference, multiple angles, product-to-sum) and will communicate mathematical solutions clearly and effectively. (Communication for Gen Ed Math, assessed through homework, quizzes, and exams)
- **Critical Thinking:** Students analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems. In this course, students will reason in abstract mathematical systems, and they will develop solutions to mathematical models using trigonometric functions and their inverse functions, right triangle trigonometry, the laws of sine and cosine, and various other trigonometric formulas (sum difference, multiple angles, product-to-sum) to solve problems. They will also develop and solve mathematical models of real-world word problems involving trigonometric functions. (Critical Thinking for Gen Ed Math, assessed through homework, quizzes, and exams)

## V. Policies

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### Attendance and Make-up Policies

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

The above policies include a list of acceptable reasons for failing to engage in class; generally, an acceptable reason is something that is beyond your control. Non-emergency travel and personal schedule conflicts are generally **NOT** acceptable reasons to miss an assignment. Technical difficulties are generally **not** an acceptable reason to miss an assessment; students should have contingency plans in case any such issues arise (see below).

The specific make-up policies for this class are as follows:

- **Exams:** If you are unable to take an exam on the assigned date for an acceptable reason (see above), reach out to the instructor as soon as possible. You must provide documentation verifying the situation before taking a make-up exam. For make-up exams taken within one week of the exam date, no documentation results in a 15% penalty on the make-up. Otherwise, no documentation results in a zero on the exam.
- **Quizzes:** If you are unable to submit a quiz by the due date for an acceptable reason (see above), reach out to the instructor as soon as possible. You must provide documentation verifying the situation to be allowed a makeup quiz; otherwise, you will receive a zero on the missed quiz.
- **Homework:** An extension will only be considered if you have an acceptable reason (see above) for not completing the assignment on time. No homework will be accepted after April 21, unless there is a serious documented emergency.

## Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get--started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

## UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email, they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

## University Honesty Policy

UF students are bound by The Honor Pledge which states “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. See the UF Conduct Code website for more information. If you have any questions or concerns, please consult with the instructor.

## Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/> , 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.



## Free Help Resources

For all concerns with this course, please talk to your instructor! Office hours will be posted and are regular times when they are available to answer questions, discuss grades, advise students on future classes, or help students in any available way. You do not need an appointment to visit during office hours. If you need to meet outside of office hours, please contact your instructor for an appointment. There is also a 'Course Questions Forum' on the Canvas course page, where you can post questions you have. I will monitor this forum and respond to student questions as needed. If you have a question, you should check the forum to see if it has already been answered.

In addition to visiting the office hours of your instructor for help and posting on the 'Course Questions Forum', the **Little Hall Math Lab** located in Little Hall 215 offers **free drop-in assistance** with math homework Monday through Friday from 10:30 to 4:00, and other resources. It is staffed by mathematics graduate students and undergraduate tutors. Please note that this space is not designed for intense one-on-one tutoring, but rather as a resource for quick questions and explanations. You should not expect the staff to help you if you have not at least begun your homework and have specific questions. Moreover, they absolutely will not assist you with quizzes or any other such work.

More details are available here: <https://oas.aa.ufl.edu/students/tutoring/>

## Incomplete Policy

A student who has completed a major portion of the course with a passing grade but is unable to complete the final exam or other course requirements due to illness or emergency may be granted an incomplete, indicated by a grade of I. This allows the student to complete the missed assignments (typically the final exam) during the following semester. You must contact the instructor before the final exam (or as soon as conditions allow you in case of an emergency) to sign an incomplete grade contract, and you must provide documentation of the extenuating circumstances preventing you from completing the final course assignments. The grade of I does not allow a student to redo work already graded or to retake the course. See the official policy at <http://www.math.ufl.edu/departments/incomplete-grades/>.

## Technical Difficulties

For technical difficulties with Canvas, please contact the UF Help Desk at:

Website: <https://helpdesk.ufl.edu>

Phone: (352) 392-HELP (4357)

Walk-in: HUB 132

Note: Any requests for extensions due to technical issues **MUST** be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You **MUST** e-mail your instructor within 24 hours of the technical difficulty if you wish to request an extension.

## **Class Demeanor and Netiquette**

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats.

## **In-Class Recordings**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

## **Changes**

I reserve the right to make changes as necessary. Any such changes will be announced on Canvas.