MAC1114
Sections: 12672, 12674, 12675
Trigonometry
Spring 25

I. General Information

Class Meetings

- Online: All material is located in the canvas course page.
- Office Hours: Office Hours are held through zoom.

Instructors

- Name: Zachariah Thomas
- Office: LIT 461
- Office Hours: Zoom, W P9 (4:05-4:55) and F P8 (3:00-3:50)
- Email: Thomas.z@ufl.edu

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

The General Education Program provides students with instruction that enables them to communicate, make informed decisions, and participate fully as informed citizens in local, national and global matters. General Education courses in the biological or physical sciences, humanities, mathematics, and social and behavioral sciences should present a breadth of knowledge and should not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession. Any prerequisites for courses that meet a General Education requirement must themselves be courses approved to meet a General Education requirement. Courses approved for the General Education Program must be designed to meet specific university requirements, some of which differ from courses that are not part of the General Education Program.

The content of a course approved for a general education designation (i.e., B, C, H, N, M, P and S) must address the appropriate general education , which describes the context within which the (SLOs) are achieved, and the course should be designed to permit assessment of the SLOs. The course syllabus must meet GE syllabus requirements (in addition to the UF syllabus policy), and the assignments and assessments should conform to the general education grade integrity policy.

Required Materials

There are no required textbooks for this course; we will be using lecture notes provided 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/oscms-prodcms/media/documents/Precalculus-OP_9wwF7YT.pdf

Also, 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.

A calculator is **NOT** required for this course. Furthermore, a calculator is prohibited during all exams and quizzes.

Materials and Supply Fees: n/a

II. Assignments

Description of Graded Work

Assignment	Assignment Description	General Education Mathematics SLOs Met	% of Grade

Quizzes	*A quiz is assigned for each module. This quiz can be found in canvas, listed at the bottom of each module. Each quiz consists of 4 multiple choice, or short answer questions. Quizzes are due each Friday at 11:59pm, unless otherwise stated in the schedule.*	*Communication, Content, Critical Thinking.*	**30%**
Xronos: Online Homework	*Homework will be completed through the online platform Xronos. This program should only be accessed through an assignment link in Canvas. All homework assignments will be due at the end of the week at 11:59pm Friday night.*	*Communication, Content, Critical Thinking.*	**10%**
Three Exams	*All exams are given in canvas. There are three exams total, each consisting of 15 multiple choice and short answer quesitons. Taking an exm in canvas will require students to have the honorlock extension installed in the chrome browser.*	*Communication, Content, Critical Thinking*	**60%**

Description of Ungraded Work

Orientation Module: The first thing you should do for this course is to complete the Orientation Module. This contains a breakdown of how this course will work. There are 7 tasks listed at the bottom of this module (the "Prepare for a Successful Semester" section.) Most of these will not take long (such as "Introduce yourself in a discussion post"). There are two tasks you should pay extra attention to: The Orientation Quiz, and the Needs Assessment. The Orientation Quiz just tests that you understand the general setup of the course. The Needs Assessment tests your proficiency in some prerequisite math concepts.

The Orientation Module is due the at the end of the drop/add period (1/17). In particular, you should complete the Needs Assessment in this time. This is to help you determine if you should continue to take this course, or switch to college algebra.

NOTE: Module 1 is locked until you complete the Orientation Module. Module 1 assignments will be due the following Monday after the first week of the semester (1/20).

Grading Scale

Your final grade will be rounded to the nearest hundredth and a letter grade will be given using the following grading scale. For information on how UF assigns grade points, visit: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

A	≥90%		C	≥70%
A-	≥87%		C-	≥67%
B+	≥84%		D+	≥64%
B	≥80%		D	≥60%
B-	≥77%		D-	≥57%
C+	≥74%		E	<57%

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

Attendance and Participation

Attendance and Class Participation: Class participation is strongly recommended. Students who watch lecture videos and participate in group discussions are more likely to do well in the course.

Any request for an extension or makeup exam must be accompanied by documentation of the reason for the request; such as illness or family emergency. Extension/Makeups are consistent with university policies in the undergraduate catalog and require appropriate documentation:

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

III. Annotated Weekly Schedule

Week	Topic	Summary	Required Readings/Works	Assigned Work Due
Week 1	Orientation and Algebra Review	We will review some basic concepts in functions and algebra.	Syllabus	Module 0, Orientation Quiz, Needs Assessment (Due Jan. 17th)
Week 2	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.	Module 1 in Canvas	Xronos 1, Quiz 1 (Due Jan. 20th)
Week 3	Trigonometric Functions	We will find the exact values of the trigonometric functions sine, cosine, secant, cosecant, tangent, and cotangent of basic angles, identify the domain and range of the sine, cosine, secant, cosecant, tangent, cotangent functions, and use reference angles to	Module 2 in Canvas	Xronos 2, Quiz 2 (Due Jan. 24th)

		evaluate the trigonometric functions secant, cosecant, tangent, and cotangent. We will also analyze properties of even and odd trigonometric functions, and how to recognize, and use fundamental identities.		
Week 4	Right Angle Trigonometry &Trigonometric Functions of Any Angle	We will use right triangles to evaluate trigonometric functions and study how to use the cofunctions of complementary angles. We will also define the trigonometric functions of any angle and use right triangle trigonometry to solve applied problems.	Module 3 in Canvas	Xronos 3, Quiz 3 (Due Jan. 31st.)
Week 5	Graphs of Sine & Cosine Functions	We will analyze the graphs of variations of the sine and cosine functions and shifts of sine and cosine curves.	Module 4 in Canvas	Xronos 4, Quiz 4 (Due Feb. 7th)
Week 6	Exam 1		Modules 1-4	Exam 1 (Opens Feb. 12th-Due Feb.. 14th)
Week 7	Graphs of Other Trigonometric Functions	We will analyze the graphs of the secant, cosecant, tangent, and cotangent trigonometric functions, and of their variations.	Module 5 in Canvas	Xronos 5, Quiz 5 (Due Feb. 21st)
Week 8	Inverse Trigonometric Functions	We will analyze the inverse sine, cosine, and tangent functions, find the exact value	Module 6 in Canvas	Xronos 6, Quiz 6 (Due Feb. 28th)

		of expressions involving the inverse sine, cosine, and tangent functions, and find exact values of composite functions with inverse trigonometric functions.		
Week 9	Applications & Models	We will determine the amplitude and period of sinusoidal functions, model equations and graph sinusoidal functions, model periodic behavior, and model harmonic motion functions.	Module 7 in Canvas	Xronos 7, Quiz 7 (Due March 7th)
Week 10	Trigonometric Equations & Identities	We will verify the fundamental trigonometric identities and simplify trigonometric expressions using algebra and the identities.	Module 8 in Canvas	Xronos 8, Quiz 8 (Due March 14th)
Week 11	Exam 2		Module 5-8	Exam 2 (Opens March 26th-Due March 28th)
Week 12	Solving Trigonometric Equations	We will solve various types of trigonometric equations and right triangle problems	Module 9 in Canvas	Xronos 9, Quiz 9 (Due April 4th)
Week 13	Sum & Difference Formulas- Product to Sum Formulas	We will study a method of finding trigonometric values of new angles not previously known to us from the standard angles of the unit circle.	Module 10 in Canvas	Xronos 10, Quiz 10 (Due April 11th)

Week 14	Double Angle, Half Angle, and Power Reducing Formulas	We expand on the angle sum identities to create a series of identities involving doubling/halving an angle.	Module 11 in Canvas	Xronos 11, Quiz 11 (Due April 18th)
Week 15	Laws of Sines and Cosines	We expand on our tools for solving for components of right triangles, to solve for components of non-right (oblique) triangles.	Module 12 in Canvas	Xronos 12, Quiz 12 (Due April 25th)
Week 16	Exam 3		Modules 9-12	Exam 3- (Opens April 30th- Due May 2nd)

IV. Student Learning Outcomes (SLOs)

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, lecture and discussion 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).

VI. Policies

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/

Students may only participate in classes if they are registered officially or approved to audit with evidence of having paid audit fees. The Office of the University Registrar provides official class rolls to instructors. Students are responsible for satisfying all academic objectives as defined by the instructor. Absences count from the first-class meeting.

Acceptable reasons for absence from or failure to engage in class include illness; Title IX-related situations; serious accidents or emergencies affecting the student, their roommates, or their family; special curricular requirements (e.g., judging trips, field trips, professional conferences); military obligation; severe weather conditions that prevent class participation; religious holidays; participation in official university activities (e.g., music performances, athletic competition, debate); and court-imposed legal obligations (e.g., jury duty or subpoena).

For all planned absences, a student in a situation that allows an excused absence or make-up exam or other assignment must inform the instructor as early as possible prior to the class. For all unplanned absences because of accidents or emergency situations, students should contact their instructor as soon as conditions permit.

In all other cases, or if you are unsure, please e-mail me as soon as feasible. **Absences are generally not excused for non-emergency travel and personal schedule conflicts.** You are required to provide appropriate documentation for absences (except for religious holidays), missed work, or inability to fully engage in class.

Technical difficulties are not generally an excuse for missing an assessment; students should have contingency plans in case any such issues arise (see below).

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 Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructors in this class.

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.

In addition to attending your discussion section regularly and visiting the office hours of your instructor and teaching assistant, for help, the **Little Hall Math Lab** located in Little Hall 215 offers **free drop-in assistance** with math homework Monday through Friday from 9:30 to 4:00, as well as **test reviews** before each math exam 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) within of 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: https://math.ufl.edu/files/incomplete-grade-contract.pdf 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/department/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 a extension.

Calculator Policy

Calculators are NOT allowed during exams or quizzes. It is recommended that students do NOT use calculators during any assignments so that they are prepared for the exams/quizzes.

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.

Honor Code

All students are required to abide by the Academic Honesty Guidelines which have been accepted by the University. The academic community of students and faculty at the University of Florida strives to develop, sustain and protect an environment of honesty, trust and respect. Students are expected to pursue knowledge with integrity.

Violations of the Academic Honesty Guidelines shall result in judicial action and a student being subject to the sanctions in paragraph XIV of the Student Code of Conduct. The conduct set forth hereinafter constitutes a violation of the Academic Honesty Guidelines (University of Florida Rule 6C1-4.017). You may find the Student Honor Code and read more

about student rights and responsibilities concerning academic honesty at the link https://www.dso.ufl.edu/sccr/ .

Extra Credit Policy

No individual extra credit will be given. All students have the opportunity to complete 3 practice exams, which will replace the lowest quiz grades if completed. (For example, if you complete practice exam 1 and 2, then the score for these practice exams will replace the lowest 2 quiz grades. This will happen ONLY if it improves the overall grade of the student. If the practice exam score is lower than the lowest quiz grade, then it will not be used to replace the lowest quiz grade.)

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.