

Math 1060 – 090: Trigonometry

3 credit course, online

Instructor: Loren Santana

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Office Hours:

- **In person:** Friday 12:00 pm - 2:00 pm in LCB 305, or by appointment.
- **Online office hours:** Thursday 5:00 pm - 6:00 pm.

To participate in online office hours, either click on the email titled, “Web Conference Invitation: MATH 1060-090 Summer 2018 Trig” or click on Conference on the left hand panel of Canvas and join the conversation.

Instructor Communication Expectations: The instructor will try her best to be helpful, responsive, and available. However, it is the student's responsibility to ask questions well in advance of homework due dates. You can expect instructor replies within one business day of sending. It is imperative that you get started on the assignments early so that you allow time for responses to any questions you might have. *In general, you should not expect an answer to a homework question posed past 6:00 pm until the next day.* Note that this includes Friday evenings (when assignments are due), so plan accordingly.

Course Objectives: Upon successful completion of this course, a student should be able to:

1. Be fluent using radians and degrees to describe angles and solve problems about them.
2. Understand and apply trigonometric function definitions in the context of the right triangle and on the unit circle.
3. Graph trigonometric functions, using transformations as well as information about the domain, asymptotes, symmetry, and intercepts.
4. Given the graph of a function, be able to identify the domain, asymptotes, symmetry and zeros, as well as find the formula for the function if it is obtained from a standard function through transformations.
5. Use trigonometric inverses correctly, understanding the domain/range restrictions.
6. Verify trigonometric identities, using proper logic and use trigonometric identities to evaluate expressions.
7. Solve trigonometric equations.
8. Solve for all measurements in any triangle using the Pythagorean Theorem, trigonometric functions of angles, the Law of Sines and Law of Cosines, and relate this information to real world problems.
9. Understand the algebraic and graphical definitions of a vector, complex numbers (standard and trigonometric form), and polar coordinates. Perform computations with these objects and relate this information to real world problems.

10. Convert between standard and trigonometric form of complex numbers, know which form of a complex number makes a computation easiest, and perform computations on complex numbers including finding roots and powers.
11. Graph polar functions using tables and describe their symmetry.

Prerequisite: At least a C (preferably a B) in mathematics 1050, an Accuplacer CLM score of at least 80 or an ACT score of at least 23. Students are expected to have mastered the basic algebra skills contained in Chapter A: Review of Basic Algebra.

Important Note: The mathematics department DOES enforce prerequisites for all undergraduate courses. If you were able to register for this class based on your enrollment in the prerequisite course last semester and you did not receive the minimum grade in that course to enter this class, then you will be dropped from this class on Friday of the first week of classes. If you are in this situation, it is in your best interest to drop yourself from this class and enroll in a class for which you have the prerequisites before you are forcibly dropped.

Textbook: PRECALCULUS, 9/e edition, Larson; Chapters 4 – 6 and two sections from Chapter 10. I'd recommend buying/renting/borrowing a physical book, but some students use only the e-book, which you get for free when you purchase WebAssign access. Information about how to purchase the textbook can be found here: [A: WebAssign & Textbook](#).

Online Materials: Materials for this course can be found on TWO websites:

- [Canvas](#). It is a good idea to save this address, so that you can get to Canvas without going through CIS. Usually once or twice a term, CIS goes down, so the alternative access is useful.
- WebAssign. This is the website that accompanies the textbook. It has the weekly homework assignments, the Personal Study Plan, and additional videos and tutorials. As soon as the semester officially starts, you can create a WebAssign account and access our course site. Visit the WebAssign link on the class homepage to create an account.
 - There is a free 14-day trial for WebAssign. After this, you must either pay to use the site, or purchase a textbook, which comes with an access code for WebAssign. To learn more about WebAssign, go to [A: WebAssign & Textbook](#). Note that access to this free trial means that you can start homework before you purchase your textbook/access, therefore not having access to your book or waiting for your textbook to be shipped is not a valid excuse as to not completing homework.

Calculators: The majority of the course work can be done without a calculator. *No calculators will be allowed on exams or the final.* If you are caught using a calculator during an exam, you will receive a zero on the exam. Calculators will be useful on some homework assignments and may be allowed on portions of quizzes. If you do not have a scientific or graphing calculator, there are free calculator applications online.

Overview: This is an exclusively online class, run primarily through the Canvas interface. Students should check the Canvas page regularly for course information and resources. Email notifications and correspondence will be sent to the student's UMail address ([u-number]@utah.edu); **this email account must be checked regularly.**

There are video lectures posted on Canvas discussing the main points of the chapter (and are also available for download at <https://www.math.utah.edu/lectures/math1060.html>); however, students will need to supplement these lectures with careful reading of the book sections. Students have many resources available to use in learning the course material in addition to the text, posted videos, and the assigned problem sets. These include

- **Interaction with the Instructor:** The instructor will be available to meet in person and/or online for office hours, will respond to emails, and participate in discussion boards.
- **Interaction with Other Students:** The Canvas interface makes connecting with other students easy. Though it is required that every student do his or her own work, you are encouraged to form study groups and/or ask questions of your peers. Students are encouraged to post and answer discussions on Canvas (see section on Extra Credit below).
- **Math-Department Tutoring Lab:** Room 155 of the T. Benny Rushing Mathematics Center (the underground passage between the LCB and JWB math buildings). This is free to all students. For more information, see <http://www.math.utah.edu/undergrad/mathcenter.php>.
- **Private Tutoring:** University Tutoring Services, 330 SSB (they offer inexpensive tutoring). There is also a list of tutors at the Math Department office in JWB 233.
- **Anything Else:** There are many free resources available on the web that may be helpful. Beware, however, that the quality and accuracy of these resources vary. If you find a helpful website or video, feel free to share it with the other students.

This course is not a learn-at-your-own-pace course. It follows the University's semester-based academic calendar and has hard due dates for homework, quizzes, and exams. According to the University of Utah, a 3-unit course should have about 3 hours of lecture and 6 hours of outside study/homework time. This means that our online course will take the average student about 9 hours per week. Further, note that summer semester is 12 weeks, not 15 weeks, therefore the weekly workload increases slightly. Because course learning is guided through an online interface, it does provide greater time flexibility than a traditional lecture course. However, with this time flexibility comes the responsibility to use your time wisely and effectively.

Grading: The following are the grade components and the percentage each contributes to a student's final grade:

- **Reading Announcements on Canvas (2%):** Course documents and announcements are given in quiz format and have a short quiz about the content at the end. These "quizzes" begin with "A: ". Suggested due dates are shown but these can be completed at any time.
- **WebAssign Assignments (14%):** Homework will be due weekly on Friday at 11 pm and will utilize the WebAssign environment. For specific due dates, please consult the course calendar. Students *must* access the assignments from the Assignments tab on the left panel of Canvas. This allows grades to be transferred automatically to canvas. You will not be able to access the assignments by going directly to WebAssign. The lowest 3 homework scores will be dropped therefore I will not accept any late homework.

- **Quizzes (14%):** These are given weekly on Canvas; the time limit is 30 – 40 minutes and there is no pausing. The quizzes will open at 12:01 am on Fridays and will close on Sundays at 11:50 pm. The 2 lowest quiz scores will be dropped. Except for quizzes 1 and 2, there are no late or make-up quizzes. If you have technical problems with your quizzes, you need to contact me at least one day BEFORE their deadlines are up so that they can be reset. Also, you may contact the UOnline support team to resolve the problem (801-581-6112).

On Monday at 4 am, the quiz will be unlocked so that you can see your answers and the Canvas key answers. Detailed solutions will also be posted by 9 am on Monday. Between Monday and Thursday, you should review your quiz and request retroactive partial credit, if appropriate. Find out more information about quizzes here: [A: Quizzes](#).

- **Midterm Exams (40%):** There will be two 90-minute exams given during the semester. There will be a practice exam provided prior to each exam. You are not allowed to use notes, calculators, textbooks, or phones during the exam. Exams will be administered at the UOnline testing center in the Marriott Library, at the satellite testing center in Sandy or if you are out of area, with a proctor that you set up and register with the UOnline testing center. If there are no out of area proctors listed by UOnline that are accessible to you, you are responsible for finding a suitable proctor and emailing me their information **one week** prior to the start of exam week. You can sign up for exams by clicking the 'Schedule Exams' tab in Canvas. For more information about exams, including how to set up a proctor, visit [A: Exams](#).
- **Final Exam (30%):** One 120 minute (plus 10 minute grace period) exam will be given at the end of the semester. Follow the same instructions as above to sign up for a time and location. . You are not allowed to use notes, calculators, textbooks, or phones during the exam.

A score of 73% is required for a C, which is the prerequisite to take the next class. You should monitor your course grade throughout the semester by looking at the Grades tab on the left panel on Canvas.

Final course letter grades will be determined from the final course percentage as follows:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
[93,100]	[90,93)	[87,90)	[83,87)	[80,83)	[77,80)	[73,77)	[70,73)	[67,70)	[60,67)	[50,60)	[0,50)

The instructor retains the right to modify this grading scheme during the course of the semester; students will, of course, be well notified of any adjustments.

Extra Credit- Participating in the Canvas Discussions allows you to earn a small amount of extra credit. Everyone who posts a discussion question or reply *with mathematical content* will receive additional points on that week's homework assignment (one point per mathematical comment). You will also find that the benefits you receive by participating in the discussions go well beyond the extra credit. Keep in mind, though, that to receive the maximum benefit you

need to start participating early in the semester. Everyone benefits when there is more class participation in the Discussions.

When asking about a problem via discussion posts, please make sure to include the following information: (1) state the problem in your own words, (2) state your general strategy to solve the problem and any relevant intermediate computations, and (3), your answer. Often, you will find that if you take the time to write out the above information clearly, your mistake will become apparent. Also, the above information is important because the homework problems are randomized. No two students will get the same homework problems, so references to answers without the problem context will not be meaningful. When all three elements are included, the instructor can very often diagnose any problems in the student's computations and/or strategy and suggest a correction. The instructor will most likely not supply a complete answer in reply. The goal of instructor interaction is to facilitate learning. It is the student's responsibility to complete their own calculations to earn credit.

Further, you can earn one point for each error you spot in course materials. This will also be added to that week's homework assignment.

Extra Resources: You will see practice assignments listed on Canvas. These are very similar to your homework assignments and provide additional help. Doing these before your homework can help you understand the material better and get a better score. These will be open throughout the whole semester. They are not graded and are not mandatory.

In WebAssign, you will see a section labeled Personal Study Plan. These are a set of review quizzes with questions randomly selected from the chapters. You can take them any time and in the past they've been helpful in studying for exams. These are not graded nor are mandatory.

Keys to Success: To be successful in this online course format, students must be active participants in their own learning. This requires motivation, time management, and discipline. Here are some strategies that will be effective:

- *Get Started Early-* Get started learning the material early in the week. You will retain and understand the material better if you do a small amount of work each day for a few days than if you try to cram the week's material into one day. Plus, starting early gives you plenty of time to get questions answered from discussion or email. Set aside specific times each week that you will devote to the course work. If you work a job during the day or are more of a night owl, pretend that the homework is due the night before it actually is; that way, you will be sure to get it done in time, and you will have the next day to get any remaining questions answered. Do not wait until the last minute!
- *Work Examples-* A math textbook is not good bedtime reading. You should be actively working while you are reading. Get out paper and pencil and read through the text and examples, working through each step on your paper. If you do not understand a step, go back and work through it again. Progress may be quite slow, but your time will be rewarded by a better understanding of the material.
- *Print Out Homework-* Print out or write out the WebAssign problems and do them first carefully with paper and pencil. Remember that, although WebAssign only requires an answer, exams will be taken with paper and pencil. On exams, it will be important that you

show your work and that your work is clear and legible. Your method is as important as your final answer! Practice this on your WebAssign assignments.

- *Use Homework as a Tool-* You should view the WebAssign homework as a tool for accessing and evaluating your understanding of the course material. Getting a high homework score is desirable, of course. However, that should not be your only goal. WebAssign questions vary in difficulty and relevance, but they will often follow an example in the book quite closely. All you are required to input is the answer, and it may be possible to get that answer by shortcut methods (following computations in the book, finding a pattern in previous answers, etc). It is not in your best interest to take shortcuts; any additional points you get by these methods will be negated by points you miss on an exam where the problems will be different and you will be expected to show all of your work. There is nobody looking over your shoulder to make sure you are doing the WebAssign problems honestly, so you need to police yourself. If you get a correct answer but are not totally confident of the method, go back and work it again.
- *Seek Help if Needed-* If you are having difficulty with a concept or question, it is up to you to seek help from the instructor, other students, or a tutor. You should attempt to be an honest evaluator of your own understanding. Constantly ask yourself, 'How well do I understand this concept?' One way to evaluate this is to pick a problem from the end of the section in the book. If you can't get started or keep getting stuck, then you clearly are lacking some necessary component of understanding. So seek out help. There is no shame in getting assistance. Learning mathematics alone is difficult for everyone and often you just need a nudge back in the right direction. Make sure the help you are getting is directed at your conceptual understanding and not just how to get the final answer. Whether or not you get a particular answer correct or not on your homework will have a negligible effect on your course grade, but whether or not you understand the underlying concept will ultimately have an effect on your course grade through higher exam scores.

To help you determine whether an online course is right for you, please look at [A: Online](#) and this [questionnaire](#).

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Student Responsibilities and Conduct: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from and class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

<http://regulations.utah.edu/academics/6-400.php>

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

Veteran's Center: If you are a student veteran, the University of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: <http://veteranscenter.utah.edu/>. Please also let me know if you need any additional support in this class.

LGBT Resource Center: If you are a member of the LGBTQIA* community, I want you to know that my classroom is a safe zone. Additionally, the University of Utah has an LGBT Resource Center on campus. They are located in Room 409 in the Olpin Union Building. Hours: M-F 8-5pm. You can visit their website to find more information about the support they can offer, a list of events through the center and links to additional resources: <http://lgbt.utah.edu/>. Please also let me know if there is any additional support you need in this class.

Wellness statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Important Dates

Weekly Due Dates:

- **WebAssign:** All homework open at the beginning of the semester. Homework will be due every Friday at 11:50 pm. Check calendar on Canvas for specific dates.
- **Online Quizzes:** Open Friday at 12:01 am and close Sundays at 11:50 pm.

Exams:

Midterm 1: June 11 – 16

Midterm 2: July 9 – 14

Final Exam: August 2 – 3

Other Important Dates:

Last day to add class without permission code: May 18

Last day to add, drop class: May 23

Last day to withdraw: June 22