

Trigonometry — Spring Semester 2012

Syllabus

Math 1613.3 MWF 8:30 — 9:20 CLB 301

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Course Description

As the name suggests, the point of this class is for you to learn about trigonometry (literally “triangle measuring”). This is an ancient mathematical subject (it was already being studied more than 2000 years ago) that continues to have many direct applications, as well as forming part of the basis for higher mathematical subjects like calculus and differential equations.

The textbook is the 10th edition of “Analytic Trigonometry with Applications” by R. Barnett *et al.* The class will cover much of the book. You can find a detailed list of the sections that we shall discuss on the course schedule. You should read over each section before it is covered in class. There are several reasons for this: for example, it makes it easier to retain the material from the lectures, and it helps to focus classroom discussion. I will not always be able to cover everything in each section in class but, unless I tell you otherwise, you are still responsible for learning all the material in the sections that we discuss.

The background subjects for studying trigonometry are algebra and geometry. This means that you are going to have to remember and use algebra and geometry knowledge from earlier mathematics classes. If you are rusty on either of these subjects then you should begin trying to remind yourself about them now. There will be some review in class, but it will probably not be sufficient to teach you the subjects if you did not learn them properly the first time or have forgotten them.

Grades

Your grade in this class will be based on your performance on three preliminary exams, a final exam, in-class quizzes, and homework quizzes. You may also earn an attendance bonus. The weights of each of these categories are as follows:

EXAM 1 18%
EXAM 2 18%
EXAM 3 18%
FINAL EXAM 25%
QUIZZES 21%
ATTENDANCE BONUS UP TO 5%

The dates of the preliminary exams are shown on the course schedule, along with the chapters of the textbook that each exam covers. The final exam will be comprehensive. It will be held in CLB 207 on Tuesday, May 1 from 12:00 — 1:50.

There will be eleven quizzes in this class, six in-class quizzes and five homework quizzes. The dates are shown on the course schedule. The subjects of the quizzes are as follows:

- Quiz 1 Algebra and geometry background
- Quiz 2 §1.3 (Trigonometric Ratios and Right Triangles)
- Quiz 3 §1.4 (Right Triangle Applications)
- Quiz 4 §2.3 (Trigonometric Functions: Unit Circle Approach)
- Quiz 5 §3.2 (Graphing $y=k+A \sin(Bx)$ and $y=k+A \cos(Bx)$)
- Quiz 6 §3.3 (Graphing $y=k+A \sin(Bx+C)$ and $y=k+A \cos(Bx+C)$)
- Quiz 7 §4.2 (Verifying Trigonometric Identities)
- Quiz 8 §4.3 (Sum, Difference, and Cofunction Identities)
- Quiz 9 §5.1 (Inverse Sine, Cosine, and Tangent Functions)
- Quiz 10 §5.3 (Trigonometric Equations: An Algebraic Approach)
- Quiz 11 §§6.1 & 6.2 (Law of Sines & Law of Cosines)

The quiz score will be based on the best eight quizzes (the lowest three quiz scores will be dropped).

Class attendance is one of the strongest predictors of success (meaning a grade of C or better) in mathematics classes. Attendance will be taken every class period, beginning on Wednesday, January 18 and ending on Friday, April 20. If you miss no more than three class periods during this time then you will receive a 5% attendance bonus. This will be reduced by 1% for each absence beyond the third, to a minimum of 0% for eight or more absences. You must arrive on time and be present for the entire class period to be counted as present. Students with excused absences will be counted as present.

A total score of at least 90% will ensure an 'A', a score of at least 80% will ensure at least a 'B', a score of at least 70% will ensure at least a 'C', and a score of at least 60% will ensure at least a 'D'.

Calculators

You will require at least a scientific calculator for this class. It should be able to evaluate the trigonometric functions (sine, cosine, tangent) of angles expressed in degrees or in radians and evaluate the inverse trigonometric functions (arcsin or \sin^{-1} and so on). A more sophisticated calculator is permissible, but not necessary. The Mathematics Department has graphing calculators available for check out to students who are enrolled in mathematics courses. Note that you will not be permitted to use any device that can establish a connection to a cellular or wireless network during in-class quizzes and exams. This means, for example, that you cannot use a cellphone calculator app or a tablet computer at these times.

Missed Work

The Mathematics Department suggests a policy on missed work, which I shall be following in this class. Here it is in full:

- (A) Every student shall be offered reasonable accommodation in the event that he or she misses a major assessment activity for a valid and documented reason.
- (B) Appropriate documentation shall be provided by the student in a timely fashion to support his or her request for accommodation.
- (C) Major assessment activities are those such that a zero on that activity could reasonably be foreseen to impact the student's grade substantially; this category includes, but is not limited to, exams.
- (D) Valid reasons include official University activities, activities associated with military service, illness, family emergencies, mandatory court appearances, and any other events of comparable gravity.

(E) Reasonable accommodation means that the student will be given the opportunity to earn a grade on the assessment activity that is based on criteria as similar as possible to those used to grade his or her classmates. This opportunity should normally be made available in a timely fashion.

What all this means is that if you have to miss a quiz or exam for a *serious* reason, *and you are able to provide acceptable documentation verifying that reason*, then you will be allowed to make up the missed work. If you have a scheduled University activity (like a field trip or sporting event) then it is normally best to do this beforehand. I try to be flexible and fair, so if you encounter an unusual circumstance then it is worth at least asking about make-up work, although I might say no.

D2L and E-Mail

I use OSU's online classroom (D2L) to post important information about the class. I suggest that you add a little basic information to your D2L profile, particularly if you are interested in studying with other students in the class. I use email to contact individual students and the class as a whole. This means that you must check your OSU email regularly. If you prefer to use another email address then you should arrange to have your OSU email forwarded to that address.

Getting Help

Many students will need help at some point in this course. Your goal in getting assistance should always be to learn to do the work independently. You must take exams and quizzes independently and if you must rely on study partners or tutors to complete your work, you will be unable to pass the exams.

Working through the examples in the book is extremely helpful. It is not a good idea to take a homework problem and do the steps of the example using the homework problem's numbers. This may lead to the correct answer but does not always lead to understanding. You may also wish to work in a group. Students particularly benefit from describing their work and thought processes to others.

The MLRC ("Mathematics Learning Resource Center") provides free tutoring for lower level math courses. It is currently located on the fourth floor of the Classroom Building (CLB). The Information Desk is in CLB 420. You can find the MLRC home page at <http://www.math.okstate.edu/mlrc/>. There are other tutoring resources provided on campus. You can discuss these with your academic advisor. Be cautious when using a private tutor. Students often find that they can do the work with the tutor there to guide them at each step but then are unable to pass exams when they must work independently.

My office hours are normally scheduled on Monday and Wednesday mornings. This may not be a convenient time for many of you. You can make an appointment for another time by emailing me with a few proposed times. If there is interest, I may also schedule additional office hours near exam dates.

Miscellaneous Information

You should read the syllabus attachment for Spring 2012, which I shall post on D2L. This is a document that outlines some of the general academic policies of the University, as well as listing important dates. You are subject to the University's policy on academic integrity. Information about this policy may be reached from the Division of Academic Affairs web page at <http://academicaffairs.okstate.edu/>

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	Monday	Wednesday	Friday
Week 1	1/9 §1.1	1/11 §1.2; Homework Quiz 1 due	1/13 §1.3
Week 2	1/16 University Holiday	1/18 §1.4; Quiz 2 (in class)	1/20 §1.4
Week 3	1/23 §2.1	1/25 §2.3; Quiz 3 (in class)	1/27 §2.3
Week 4	1/30 §2.5	2/1 §2.5; Quiz 4 (in class)	2/3 Review for Exam 1
Week 5	2/6 Exam 1 (Chapters 1 and 2)	2/8 §3.1	2/10 §3.2
Week 6	2/13 §3.2	2/15 §3.3; Quiz 5 (in class)	2/17 §3.3
Week 7	2/20 §4.1	2/22 §4.2; Homework Quiz 6 due	2/24 §4.2
Week 8	2/27 §4.2	2/29 §4.3; Quiz 7 (in class)	3/2 §4.3
Week 9	3/5 §4.4	3/7 §4.4; Homework Quiz 8 due	3/9 Review for Exam 2
Week 10	3/12 Exam 2 (Chapters 3 and 4)	3/14 §5.1	3/16 §5.1
Week 11 Spring Break	3/19	3/21	3/23
Week 12	3/26 §5.3	3/28 §5.3; Quiz 9 (in class)	3/30 §5.3
Week 13	4/2 §6.1	4/4 §§6.1 & 6.2; Homework Quiz 10 due	4/6 §6.2
Week 14	4/9 §6.3	4/11 §6.4; Homework Quiz 11 due	4/13 §§6.4 & 6.5
Week 15	4/16 §6.5	4/18 Review for Exam 3	4/20 Exam 3 (Chapters 5 and 6)
Week 16 Pre-Finals Week	4/23 §7.1	4/25 Review for Final Exam	4/27 Review of Final Exam