MA146: Trigonometry

Baker University — Fall 2022

MWF, 2:30 to 3:20 PM; Collins Library 104

Contents

1 Instructor Information

Dr. Dylan C. Beck, Visiting Assistant Professor of Mathematics

- Discord: https://discord.gg/sVauZxe2jj (Enrollment here is optional.)
- email: Dylan.Beck@BakerU.edu (Capitalization is used for clarity.)
- office: Boyd Science Center 328
- office hours: MWF, 3:30 to 4:20 PM; Tu, 12:30 PM to 3:20 PM; or by appointment
- pronouns: he / him / his
- textbook: *Trigonometry* by Michael Corral (PDF)
- virtual office: Click to access my virtual office via Zoom. (passcode: 044163)
- web page: https://dylan-c-beck.github.io
- WeBWorK: http://math.bakeru.edu/webwork2/Fall2022_MA146/

2 Course Information

2.1 Course Description

Per the course catalog, MA146 is a two credit-hour course in which students "study trigonometric functions and their inverses, solve triangles, solve trigonometric identities and equations, and learn to graph trigonometric functions and their inverses"; MA171 (Calculus I) is a corequisite.

2.2 Course Objectives

Beyond college algebra, trigonometry is a fundamental and indispensable tool in all of mathematics. By the end of the course, successful students will be able to

- provide the definitions of the basic trigonometric functions (e.g., sine, cosine, tangent);
- graph (at least) one period of the basic trigonometric functions (e.g., sine, cosine, tangent);
- verify and solve trigonometric identities using various formulas for the basic trigonometric functions (e.g., the Pythagorean Theorem, the Sum and Difference Formulas);
- use the Law of Sines and the Law of Cosines to solve triangles; and
- graph the basic inverse trigonometric functions (e.g., arcsine, arccosine, and arctangent).

2.3 Course Corequisites

Enrolled students must be enrolled in MA171 (Calculus I) simultaneously. Even more, students should be comfortable with basic arithmetic operations such as those learned in college algebra.

2.4 Course Policies

Class meetings will typically consist of an instructor-led lecture component followed by a period in which the students may work on their WeBWorK assignments individually or in groups. Lectures will feature materials from the textbook *Trigonometry* by Michael Corral; supplementary notes and examples may be provided to the students at the instructor's convenience.

Every class period other than those during which an exam is scheduled, each student will have the opportunity to earn 0.1 percentage-points toward their overall grade by leaving their phone face-down on the table in the front of the room for the entire duration of the meeting; in total, the students can earn 3.3 percentage-points toward their overall grade in this way.

Regular and punctual attendance is vital to understanding the information presented in this course; however, in the event of a mandatory absence, it is the responsibility of the student to inform the instructor by filling out the Excused Absence Request Form and to make arrangements with the instructor to make up any materials or assignments missed during class.

Unless otherwise specified, the instructor requires that students wear masks in the classroom. We will adhere to Baker University guidance on other matters pertaining to COVID-19.

2.5 Coursework and Exams

Each week, homework will be assigned on WeBWorK at the instructor's discretion and completed (in part) during each class session. Unless otherwise specified, homework will be due on WeBWorK at 11:59 PM one week after they are given in class. Late work may not be accepted by the instructor unless proper documentation is provided; however, if a student anticipates an absence and communicates it to the instructor prior to the due date of an assignment, the student may be allowed to submit their work even after the due date with no deduction in points.

Exams will be administered five times throughout the semester (including the final exam). Questions on exams will range from true-false and multiple choice to short answer and free response. Credit for true-false and multiple choice questions is administered to the student on an all-or-nothing basis. On the other hand, credit for short answer and free response answers is earned by the student primarily through showing work: when the relevant work is shown and a problem is answered correctly, full credit will be awarded. Partial credit may be awarded when it is obvious that a problem was attempted and some coherent and pertinent details were supplied.

Before exams, each student must demonstrate that their work space is compliant with the regulations and guidelines set out by the instructor. Explicitly, a student is only allowed to have a writing utensil and a scientific calculator on their desk; all other papers and electronic devices must be stored in the student's backpack and placed under or next to their desk. Once all students have cleared their work spaces, the exam will begin, at which time the student has (at least) 50 minutes to complete the assessment. Once the student has finished the exam (or time has expired), the check-out procedure will be initiated by the student bringing their work to the instructor; if they so choose, the student may subsequently leave class for the day.

2.6 Student Expectations

Communication between students and the instructor will occur primarily in the classroom and during the instructor's (virtual) office hours; however, each student should check their email and the instructor's web page regularly for course updates and supplementary materials.

Collaboration with classmates on homework is encouraged; however, each student is expected to submit their own work on all assignments, and each student will be graded on their own work as it appears. Consequently, for students working together, it is critical that no party completes any work on behalf of another party and moreover that each party determines their own solutions. Explicitly, students should write original proofs rather than copy from one another; however, students may discuss different techniques or strategies leading to a possible proof. Ultimately, students must clearly indicate their collaborators for each assignment (see Section 3 below).

Outside of class, students should expect to spend (at least) two hours preparing materials and studying for every hour spent in class (see Section 5 below). Unlike in high school, students that do not understand the material covered should not assume that their instructor will repeat material until it is understood and mastered; rather, each student is expected and encouraged to ask questions as they occur in class. Certainly, all students should devote time to studying course materials outside of class, but if that does not work, students should consider visiting the instructor during his office hours. Do not hesitate to ask questions, as this course is cumulative.

2.7 Grade Distribution

Below is a table with the distribution of grades for this course.

type	*quantity*	*weight*	*total*
WeBWorK	26	1%	26%
exams	4	10%	40%
final exam	1	34%	34%

We will use the traditional grading scale (e.g., an A is $\geq 90\%$; a B is $\geq 80\%$ and $< 90\%$; etc.)

2.8 Final Exam

Our final exam will be administered on **Monday, November 21** from **2:30 to 3:20 PM**, i.e., during our usual class meeting. We will not meet during our university-scheduled final exam time slot on Wednesday, December 7; instead, the students may use this time as they wish. Questions from the first four chapters of the text will constitute approximately 40% of the exam material; questions from Chapters 5 and 6 will account for the remaining portion of the exam.

2.9 WeBWorK

Per the official WeBWorK website, "WeBWork is an open-source online homework system for STEM courses. WeBWorK is supported by the [Mathematical Association of America] and the [National Science Foundation] and comes with a [library] of over 35,000 homework problems." We will use WeBWorK as a tool to practice and master the course topics. Each student will receive a username and password with which to log in; the students may subsequently visit the MA146 WeBWorK page to update this password and complete assignments. Beginning on the first day of class, all WeBWorK assignments will be available for the students to attempt. Each class meeting, students will also be allotted some time to work on their WeBWorK assignments for the semester. Generally, the WeBWorK assignments will be due one week from the date the topic was covered in class. Consult the course schedule or itinerary for the specific due dates. Ultimately, each of the 26 WeBWorK assignments will constitute 1% of the student's total grade.

3 Academic Misconduct Policy

Per the official Baker University guidelines, "students [are expected] to have solely completed or prepared the work or research that bears their name and to acknowledge the materials and sources of others; [...] to do their own work and research; to prepare their own reports and papers; and to take examinations without the assistance of others or aids not allowed in the testing procedure." Even more, Baker University holds that "academic misconduct includes but is not confined to plagiarizing; cheating on tests or examinations; turning in counterfeit reports, tests, and papers; stealing of tests and other academic material; knowingly falsifying academic records or documents; and turning in the same work to more than one class without informing the instructors involved." Each of the aforementioned terms are in turn defined as follows.

- "Cheating includes possession, use, or receipt of unauthorized aids or assistance. Notes, charts, books, and mechanical devices used in a quiz, test, or examination, but not specifically allowed by the examiner, constitutes cheating. Visually or verbally receiving or giving information during a quiz, test, or examination that is not specifically allowed by the examiner is also cheating." Cheating can may benefit one's self or one's neighbor.
- "Counterfeit work includes work submitted as one's own that was created, researched, or produced by someone else. Submission of the work of another person, joint work as if that work was solely one's own, or production of work to be submitted in the name of another person are all forms of counterfeit work." Be sure to clearly indicate the names of any and all collaborators on any assignment that is not completed solely on one's own.
- "Plagiarism includes presenting as one's own efforts the work of someone else without proper acknowledgment of that source. It is not enough to copy the work of someone else and provide a citation. Exact copying must be enclosed in quotation marks or properly blocked with an appropriate citation of its origin. Failure to cite paraphrasing in which the basic sentence structure, phraseology, and unique language remain the same constitutes plagiarism as well as failure to acknowledge unique, unusual, or new ideas or facts not the product of one's own investigation or creativity. It is the student's responsibility to understand what constitutes plagiarism and how to properly paraphrase and cite sources. When in doubt, it is the student's responsibility to seek guidance from the instructor."

If a student engages in academic misconduct, it will be documented by the instructor and the student's grade will be reduced or an XF will be appended to the student's academic transcript, in accordance with and as permitted by Baker University. Consequently, the instructor urges that students become familiar with the academic misconduct policy from the student handbook.

4 Accommodations Policy

Per the official Baker University guidelines, "Baker University is committed to providing 'reasonable accommodations' in keeping with Section 504 of the Rehabilitation Act and the Americans with Disability Act of 1992. Students must provide appropriate documentation of the disability, which should include appropriate diagnostic testing and a recommendation form prepared by qualified personnel outside of Baker University. 'Reasonable accommodations' will be determined by university staff in consultation with the student, faculty, and / or staff member. Accommodations are not retroactive." Further information is provided here and here.

5 Credit Hour Definition

Baker University adheres to the federal definition of a credit hour as "an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than (1.) one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester [...] hour of credit [...]; or (2.) at least an equivalent amount of work as required in [the first] definition for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, distance learning, and other academic work leading to the award of credit hours." Courses at Baker University are typically 50 minutes in duration. Further information is provided here.