

MA146: Trigonometry

Baker University — Fall 2023

MWF, 1:30 to 2:20 PM; Mulvane 202

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1 Instructor Information

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

- Discord: <https://discord.gg/nGHyJk7vnm> (Enroll here for assistance with homework.)
- email: Dylan.Beck@BakerU.edu (Capitalization is used for clarity.)
- office: Boyd Science Center 328
- office hours: MWF, 9:30 to 10 AM; 10:30 to 11 AM; 3:30 to 4 PM; Tu, 10:30 to 11 AM; 11:30 AM to 12 PM; 2:30 to 3 PM; 3:30 to 4 PM; or by appointment
- pronouns: he / him / his
- textbook: *Trigonometry* by Michael Corral
- virtual office: [Click to access my virtual office via Zoom.](#) (passcode: 044163)
- web page: <https://dylan-c-beck.github.io>

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

Combined with calculus, trigonometry is a fundamental and indispensable tool that enjoys ubiquity in the field of mathematics as well as countless physical applications in chemistry, engineering, and physics. 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);
- verify trigonometric identities and solve trigonometric equations using various trigonometric formulas (e.g., the Pythagorean Identities, the Sum and Difference Formulas, etc.);
- use the Law of Sines and the Law of Cosines to solve triangles;
- graph (at least) one period of the trigonometric functions (e.g., sine, cosine, tangent);
- graph the inverse trigonometric functions (e.g., arcsine, arccosine, and arctangent); and
- use polar coordinates to plot points and graph common polar curves.

2.3 Course Corequisites

Enrolled students must matriculate 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 during which students will take notes, ask questions, and participate in discussion. Exam reviews will be hosted during class prior to assessments. Other student-led activities and worksheets will be assigned as time permits.

Each student must submit their phone face-down on the table at the front of the room at the beginning of each class period, and the device must be left there for the duration of the meeting (barring extenuating circumstances that merit phone usage). Failure to comply with this policy will result in a deduction of a quarter of a percentage point from the student's overall grade.

Regular and punctual attendance is vital to understanding the information presented in this course; however, in the event of an unavoidable 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.

Even more, in view of the instructor's obligation to provide timely feedback on assignments, unless granted explicit permission from the instructor, students may not submit work more than 48 hours past the due date; toward this end, the instructor reserves the right to deny any student of comments or credit on any assignment submitted 48 hours past the due date. Crucially, unless granted explicit permission from the instructor, it remains the responsibility of any student that misses class (due to illness or extenuating circumstances) to submit their homework on time.

Conversely, the instructor reserves the right to deny any student of comments or feedback on any assignment submitted in advance of the due date. Explicitly, the instructor may refuse to review, revise, or otherwise provide assistance on an assignment outside of office hours.

2.5 Coursework and Exams

Each week, at the instructor's discretion, pertinent written homework will be issued. Unless otherwise specified, written assignments will typically be posted on Monday evening and subsequently collected at the beginning of class on Friday the week after which they were assigned. Consult the [course schedule](#) for specific due dates. Late work may not be accepted unless proper documentation is provided; however, if a student anticipates and communicates an issue 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 (refer to the policy in Section 2.4).

Exams will be conducted six times throughout the semester. Each exam, students will evaluate true-false questions; compute examples; provide answers on multiple choice; and complete short proofs. Credit for true-false and multiple choice questions is administered to students on an all-or-nothing basis. Credit for computations and proofs is earned by the student primarily through citing theorems, demonstrating a command of appropriate proof techniques, and showing work: when the relevant work is shown and a problem is answered correctly, full credit will be awarded. Partial credit may be awarded if some pertinent details were supplied.

Before each exam, students must demonstrate that their work spaces are compliant with the following regulations and guidelines set out by the instructor. Explicitly, during an exam, students are only allowed a writing utensil and a non-graphing, non-programmable scientific calculator without computer algebra capabilities on their desk; 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 assessment will begin, at which time each student will have 50 minutes to complete the exam. Once a student has finished the assessment (or time has expired), the check-out procedure must be initiated by the student bringing their work to

the instructor; if desired, the student may then leave class for the day.

Below is a brief list of authorized calculators for use on quizzes and exams in MA146.

- TI-30XIIS
- TI-34
- TI-30XA
- Casio fx-300ESPLUS

2.6 Discord

Considering that it may be difficult for some students to attend weekly office hours, the instructor may elect to maintain a **Discord** server where individuals may reach out for homework assistance, ask questions regarding course policies or assignment due dates, and discuss course material with their colleagues and the instructor. Crucially, engagement on Discord is optional: explicitly,

- participation on Discord is not required as part of the MA146 coursework;
- interactions on Discord will not influence a student's grade in the course; and
- Discord should not be viewed an official medium of communication between the instructor and the students at Baker University. Explicitly, Baker email remains the official mode of communication between the students at Baker University and their instructor.

Even more, students are not permitted to directly message the instructor via Discord, and any comments made by students on Discord may be viewed by their colleagues. Bearing this in mind, it cannot be understated that confidential information must not be shared on Discord. Even more, the instructor is obligated according to official **Baker University policy** to report any "illegal, unethical, or improper activities" on the Discord server to the appropriate authorities.

2.7 Communication and 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 Baker email and **Moodle** regularly for course updates and supplementary materials. Even more, students are encouraged to join the **MA146 Discord** for additional help on assignments.

Generally, the instructor will adhere to Baker University's **Hours of Operation** as it pertains to attending office hours, conducting make-up exams, and responding to emails or other correspondence from students; therefore, students should be conscientious and cognizant of this time frame when seeking assistance with assignments or scheduling appointments with the instructor. Even more, the instructor reserves the right at least 24 hours to respond to any correspondence sent during the business week (Monday through Friday, excluding holidays) or more on weekends.

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 solutions rather than copy from one another; however, students may discuss different techniques or strategies leading to a possible solution. Ultimately, students must clearly indicate their collaborators for each assignment (refer to Section 3).

Outside of class, students should expect to spend (at least) two hours preparing materials and studying for every hour spent in class (refer to Section 5). 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.

Crucially, it should be duly noted that the instructor reserves the right to refuse any accommodations requested by a student after the last day of classes of the semester — especially if the aforementioned arrangements are negotiated in an attempt to improve the student’s overall grade or to achieve a desired mark in the class. Consequently, it is absolutely imperative that students reach out early and often to communicate to the instructor any difficulty or apprehension.

2.8 Grade Distribution

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

type	quantity	weight	total
exam	5	10%	50%
final exam	1	30%	30%
final review	1	5%	5%
homework	6	2.5%	15%

Below is a table with the projected grading scale used for this course.

grade	minimum	maximum
A	90%	100%
B	80%	89.99%
C	70%	79.99%
D	60%	69.99%
F	0%	59.99%

Each student that completes all homework assignments with an average homework score of at least 67% may elect to drop their lowest two homework scores. Even more, toward the beginning of the semester, students will have the opportunity to earn up to one percentage point bonus toward their overall grade by completing the [MA146 Syllabus Quiz](#) on the course Moodle.

2.9 Final Exam

Our final exam will be administered in class on **Monday, November 20** in Mulvane 202; however, each student must meet with the instructor at some point during our university-scheduled final exam period on **Thursday, December 14** from **1:00 to 4:00 PM**. Questions from the first four chapters of the textbook will constitute approximately 40% of the final exam material; questions from the last two chapters will account for the remaining portion of the exam.

3 Academic Misconduct Policy

Per the [Academic Misconduct Policy](#) of Baker University, “students [are expected] to have solely completed or prepared the work or research that bears their name and to acknowledge the mate-

rials 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 these aforementioned terms are in turn defined as follows.

- “Cheating includes possession, use, or receipt of unauthorized aids or assistance,” hence “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 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.” Consequently, in order to avoid charges of academic misconduct, it is imperative that students 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 [Access Services Policies and Procedures](#), “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 in the [ADA Policy](#).

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](#).

6 Update Clause

Ultimately, the instructor reserves the right at any point in the semester to alter this syllabus to reflect changes in policy or schedule due to extenuating or unforeseen circumstances. Consequently, it is the responsibility of the students to remain up-to-date with this syllabus; however, the instructor will inform students of any such changes to this document, and the syllabus will be maintained and subsequently updated on the [instructor’s web page](#) for the students’ convenience.