Trig for Calculus, Spring 2024
MATH 119B - 001 CRN 45085

Meeting: Mon, Wed, Fri, from 2-2:50pm in Wubben Science 115

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Office hours: MTWRF 10-10:50am **(no appointment necessary)**

Trigonometry is a fascinating exploration of the interplay between angles, circles, and triangles, as well as the natural functions we can define from them. I'm excited to have you on our team of explorers!
-Dr. Miles

Time commitment:	6 hours of work outside class per week
In class:	Lecture/practice/group work
ALEKS homework:	Adaptive, online homework
Written Homework:	Homeworks based on class activities
Exams:	3 Midterms, 1 cumulative Final

Prerequisite: A grade of C or better in Math 119A (Algebra for Calculus). If you do not meet this prerequisite, come see me!

Required Material:

- **Text + ALEKS**: *College Algebra and Trigonometry*, by Miller and Gerkin, bundled with access to ALEKS.
    - Our course is "direct digital," meaning that **you already have full access** to our textbook (ebook) and ALEKS homework through D2L**.** (Text cost of $98 is reflected in student fees.)
    - In our D2L shell: Course Basics >> ALEKS Homework**.**
    - Log in today and complete the **Initial Knowledge Check *(without a calculator)*.**

- **Not a calculator**: To help you develop a more meaningful and flexible understanding of the mathematical concepts we work with, we will not be using calculators in class or during tests. Similarly, cell phones may not be used during tests.

Course Description: In-depth treatment of the trigonometry essential to Calculus, incorporating a selection of algebraic concepts. This is the second course in a two-semester sequence (MATH 119A/MATH 119B) equivalent to MATH 119.
Chapters covered from the text include:

- Chapter 5: Trigonometric Functions
- Chapter 6: Analytic Trigonometry
- Section 7.1: Applications of Right Triangles
- Review of Chapter 1: Relations and Functions, Chapter 2: Polynomial and Rational Functions, and Chapter 3: Exponential and Logarithmic Functions

Course Student Learning Outcomes
Upon satisfactory completion of MATH 119B: Trigonometry for Calculus, students should be able to:

- Apply unit circle and triangle definitions to evaluate trigonometric expressions and functions.
- Identify and describe behavior and properties of trigonometric functions.
- Sketch and interpret graphs of trigonometric functions.
- Solve equations and inequalities and interpret solutions in context of applications.
- Use function notation to evaluate expressions and perform operations on functions.
- Translate between geometric concepts and their algebraic representations.
- Communicate mathematical ideas and solutions to problems using correct mathematical notation and terminology.
- Communicate mathematical analysis symbolically, graphically, and in written language that clarifies/justifies/summarizes reasoning.

Essential Learning Student Learning Outcomes
MATH 119B (Trig for Calculus) is a critical component of CMU's Essential Learning Curriculum and a CMU Degree. In addition to improving your knowledge of the course's content, this class will provide specific learning opportunities in the following areas:

- Demonstrate investigative and analytical thinking skills to solve problems.
- Demonstrate quantitative literacy.

GT Pathways
The Colorado Commission on Higher Education has approved MATH 119B: Trig for Calculus for inclusion in the Guaranteed Transfer (GT) Pathways program in the GT-MA-1 category. For transferring students, successful completion with a minimum C- grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to http://highered.colorado.gov/Academics/Transfers/gtPathways/curriculum.html.

GT-MA1: MATHEMATICS CONTENT CRITERIA
Students should be able to:

a) Demonstrate good problem-solving habits, including:
    - Estimating solutions and recognizing unreasonable results.
    - Considering a variety of approaches to a given problem, and selecting one that is appropriate.
    - Interpreting solutions correctly.
b) Generate and interpret symbolic, graphical, numerical, and verbal (written or oral) representations of mathematical ideas.
c) Communicate mathematical ideas in written and/or oral form using appropriate mathematical language, notation, and style.
d) Apply mathematical concepts, procedures, and techniques appropriate to the course.
e) Recognize and apply patterns or mathematical structure.
f) Utilize and integrate appropriate technology.

GT-MA1 COMPETENCY & STUDENT LEARNING OUTCOMES
Competency: Quantitative Literacy

Competency in quantitative literacy represents a student's ability to use quantifiable information and mathematical analysis to make connections and draw conclusions. Students with strong quantitative literacy skills understand and can create sophisticated arguments supported by quantitative evidence and can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc.).

Students should be able to:

1. **Interpret Information**
    a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
2. **Represent Information**
    a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).
3. **Perform Calculations**
    a. Solve problems or equations at the appropriate course level.
    b. Use appropriate mathematical notation.
    c. Solve a variety of different problem types that involve a multi-step solution and address the validity of the results.
4. **Apply and Analyze Information**
    a. Make use of graphical objects (such as graphs of equations in two or three variables, histograms, scatterplots of bivariate data, geometrical figures, etc.) to supplement a solution to a typical problem at the appropriate level.
    b. Formulate, organize, and articulate solutions to theoretical and application problems at the appropriate course level.
    c. Make judgments based on mathematical analysis appropriate to the course level.
5. **Communicate Using Mathematical Forms**
    a. Express mathematical analysis symbolically, graphically, and in written language that clarifies/justifies/summarizes reasoning (may also include oral communication).

Anyone who has never made a mistake has never tried anything new.
-Albert Einstein

Class Periods: Classes will involve a mixture of lecture, practice, and working in groups. I will often ask the class questions and you should always feel free to ask questions throughout the class period. *To get the most out of class, you should read and try to understand the main point(s) of the section to be covered before class.*

Participation: Each student in this class has chosen to be part of this community of learners, and continuing in this class carries an obligation to contribute to and respect our community (both in-person and online). This looks like coming to class a few minutes early, being prepared for class, asking questions, participating in discussions and activities, and seeking help outside of class when appropriate. Distracting or negative behavior (e.g. using your cell phone during class, consistently coming late, unprofessional communication) disrupts our learning environment and may hurt your grade. (Students who persist in inappropriate behavior may be administratively dropped from the class.) If you come to class and participate in a positive, constructive, focused way, you'll be all set here.

ALEKS Homework: To practice with, and ultimately master, our class concepts and computational techniques, we use the ALEKS online homework system. ALEKS is adaptive, meaning that it responds to you individually – no two students will have the exact same homework. From your current levels of understanding, ALEKS gives you objectives you are ready to learn, and works with you until you've mastered them.

- Each week our ALEKS homework consists of a set of objectives to learn, opening Tuesday morning and **due Saturday at midnight**.

- After you complete the current week's objectives, you can **catch up** on any previously missed objectives (until the new assignment opens the next Tuesday).

- Occasionally ALEKS will give you a Knowledge Check to see if you have mastered some of the skills you've learned. **Take these Knowledge Checks seriously!** Showing ALEKS you've mastered that material means less work for you later.

- Don't let yourself fall behind with ALEKS. To set yourself up for success, **you should be working on ALEKS every day**.

Written Homework: Homework will be assigned after each section and will be based on class activities. **Math is as much about communicating your process as it is about getting the correct answer**, therefore answers must contain clear supporting work, use proper notation, be well-organized, and be cleanly written. Answers without supporting work will generally earn no credit, and partial credit will be given at the instructor's discretion.

Midterm Tests: We will have 3 midterm tests, occurring approximately every fifth week. As with our homeworks, answers must contain clear supporting work using proper notation. *No calculators or notes will be allowed on exams.* If your final exam score is better than your lowest midterm score, then your final exam score will **replace** your lowest exam score. With this provision in mind, make-up exams will not normally be given.

Picture your brain forming new connections as you meet the challenge and learn. Keep on going.
-Carol Dweck

Final Exam: The final exam is on *Mon, May 13, 3-4:50 pm. This will be a cumulative exam.* The exam takes place in our regular classroom. Do not make plans to leave campus before this date; you *have* to take the final at this date and time.

Grade Computation:

ALEKS Homework	10%
ALEKS Pie Progress*	5%
Written Homework	10%
Participation	5%
Midterms	50%
Final Exam	20%

The following percentages of the maximum semester score determine your grade:
90% earns an A, 80% earns a B, 70% earns a C, and 60% earns a D.

*****For the **ALEKS Pie Progress**, points are awarded according to the following scale:

ALEKS completion	90-100%	5/5	Points awarded
	85-89%	4.5/5	
	80-84%	4/5	
	70-79%	3/5	
	60-69%	2/5	
	0-59%	0/5	

Attendance: I value your attendance and contribution very much. It is incredibly important for the atmosphere of collaborative learning we look to create, and is essential for your understanding of the class material - *so come to class every day!* Attendance also directly affects your Participation score: you have 2 "free" absences, then each additional *unexcused* absence lowers your maximum Participation grade by 10% (e.g. after 4 absences, max = 80%). Any student having with 8 *unexcused* absences may be dropped by the instructor without notice to the student. Please do not come to class if you are ill. Accommodations will be made for students absent for COVID-related reasons – <u>in this situation, please email me as soon as possible</u>.

Alternate Exams: Alternate times for midterms will only be given for a documented medical reason or participation in an inter-collegiate activity. Work, travel, vacation or any other non-college sanctioned activity is not an acceptable excuse for missing an exam. Exceptions to this rule are rare and given only in extreme circumstances as judged by me.

If you are going to miss a quiz/test (for one of the two reasons stated above), *it is your responsibility to notify me at least one week in advance* so that alternate plans can be worked out. After this deadline, I cannot guarantee an alternate time. Note that no makeup quizzes/exams will be given after they have been returned to students.

Credit Hours Policy: An undergraduate student should expect to spend on this course a *minimum of two hours outside of the classroom for every hour in the classroom*. The outside hours may vary depending on the number of credit hours or type of course. More details are available from the faculty member or the department office and in CMU's Curriculum Policies and Procedures Manual.

Academic Honesty: Cheating is unacceptable on this campus. Students caught cheating may be removed from the class and given an F for the course. Copying solutions that you did not produce, whether from the internet or a person sitting next to you, is a form of cheating (plagiarism). Again, from the university's code of integrity: *By submitting work which is not your own, you may forfeit the opportunity to continue as a student.*

Tutoring: CMU offers ***FREE*** *walk-in tutoring* at the Tutorial Learning Center, located in Houston 113. Do you have a quick question? Do you need homework clarification or feedback on a paper? Are you reviewing for a test? Help is available at the TLC! See their website for schedules and locations: www.coloradomesa.edu/tutoring or call at 248-1392 with any questions.

EAS: In coordination with Educational Access Services, reasonable accommodations will be provided for qualified students with disabilities. Students should contact Educational Access Services at 970-248-1856 or Houston Hall, Suite 108 as soon as possible.

Citizenship: To keep the classroom environment as conducive to learning as possible, students agree to behave as mature, respectful adults. Be considerate of others and help the class focus. In particular…

- Using your cell phone distracts you and those around you, *so keep phones stored away during class.*
    - A few friendly reminders may be granted early in the semester, but for persistent violators each observed unapproved instance of a cell phone or technology violation will result in a 1 point deduction from their final exam score.

- Come to class on time. If you need to come late or leave early, that's fine – but don't make it a habit.

- Any guests must be authorized beforehand by the instructor.

- Do let me know if you have a question, if you didn't see what happened at a certain step, or didn't catch why we did something, or if you have no idea what just happened.

- Do let me know if my writing is illegible, if I need speak up, or if you don't want me to erase something from the board yet.

- Do speak ***LOUDY*** and positively during group work *(no whispering!) and* collaborate with your group members, working together and asking and answering questions.

Please read the student code of conduct in your student handbook or online:
http://www.coloradomesa.edu/student-services/maverick-guide.html

The *Tentative Schedule* below contains our class plan, as well as drop/withdraw deadlines:

Math 119B Spring 2024	Monday	T	Wednesday	R	Friday
22-Jan	Intro & Syllabus		Equations Review		Equations Review
29-Jan	5.1 Angles		5.1		5.4 Trig Fcns
5-Feb	5.4	**(last day to drop)**	5.2 Right Angle Trig		5.2
12-Feb	5.3 Any Angle Trig		5.3		Review
19-Feb	TEST 1		Functions Review		Functions Review
26-Feb	Functions Review		4.5 Sin Cos Graphs		4.5
4-Mar	5.6 Other Trig Graphs		5.6		5.7 Inverse Trig Fcns
11-Mar	5.7		6.1 Trig Identities		6.1
18-Mar	Spring Break				
25-Mar	5.7/6.1		Review		TEST 2
1-Apr	6.2 Sum Diff Formluas		6.3 Other Formulas		6.2/6.3
8-Apr	Polynomial Review **(last day to withdraw)**		Polynomial Review		Exp/Log Review
15-Apr	Exp/Log Review		6.5 Trig Equations		6.5
22-Apr	6.5		7.1 Right Triangle Applications		Review
29-Apr	TEST 3		Intro to Optimization		Intro to Optimization
6-May	Intro to Limits		Review		Review
13-May	FINAL EXAM 3-4:50 pm				

The above schedule may be changed at the discretion of the instructor.

Trig for Calculus Questionnaire Assignment – Fill out and turn in the 2nd day of class

A. Syllabus Confirmation

I have read and understood the syllabus for this course.

_____ _____

Signature Date

B. Background Information

Name (Print Clearly)	
How Your Name is Pronounced	
Year in College	

Fill in the following table with your previous college math course information. If you have not taken any college math courses, then fill in the information from you last couple high school math classes.

	Course Name	**Instructor Name**	**When (Semester/Year)**	**School**	**Letter Grade**
1					
2					
3					

What is your intended major? _____

Does your major require you to take Calculus? _____

Do you intend to take Calculus after this class? _____

What is your hometown? _____

What's something interesting about you?

Other (Please comment below on any other information that you would like me to be aware of.)