



MATH 4A: TRIGONOMETRY  
SPRING 2018

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### Instructor Information

- Ms. Kelsey Friesen
- Office is FEM 1G (far corner of the Math Center)
- Office Hours: Monday 9 am, Tuesday 2 pm, Wednesday 9 am
- Best way to get ahold of me is email: [kelsey.friesen@reedleycollege.edu](mailto:kelsey.friesen@reedleycollege.edu). When sending an email please include your full name and which class you are in. You can also call my office phone at 559-638-0300 x 3799.

### Course Information

Welcome to Math 4A, trigonometry! Our section number is 52115. We meet in FEM (Forestry, Engineering, Math) room 4 Monday through Thursday 10:00 – 11:50 am. Due to the length of the class, we will take a ten minute break everyday at about 10:50 am. This is a short-term class that lasts 9 weeks. The last day of our class is **Thursday March 8<sup>th</sup>**. This is the day that we will have our final exam. I will have the final exams graded as fast as humanly possible. If you are planning on taking the short-term Math 4B (Precalculus) that starts on Monday March 12<sup>th</sup>, you must pass Math 4A.

### Course Description

The study of trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometric expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, and introduction to vectors.

- Advisories: Eligibility for English 125 and 126
- Prerequisite(s): Mathematics 102 and 103 or equivalent
- Credits: 4

### Course Materials

Required: Lial, M., et al. Precalculus, 5 ed. Pearson, 2013. ISBN 13: 978-0-321-78380-6. You must have some access to the textbook in order to do the homework assignments.

Required: Calculator. I recommend a graphing calculator, such as a TI-83, TI-84, or TI-89 (TI stands for Texas Instrument). The library has calculators available to students to check out for the semester. You also can use a scientific calculator, just make sure that it has all of the trigonometric functions (sin, cos, tan). Please check a model with me before you buy if that makes you more comfortable.

## Student Learning Outcomes

Upon completion of this course, students will be able to:

- Provide and analyze graphs of trigonometric functions.
- Apply trigonometric techniques to solve problems in real world contexts.
- Derive, use and prove trigonometric properties and identities.
- Produce solutions to equations using skills developed in trigonometry.

## Course Objectives

In the process of completing this course, students will:

- Identify special triangles and their related angle and side measures;
- Evaluate the trigonometric function of an angle in degree and radian measure;
- Manipulate and simplify a trigonometric expression;
- Solve trigonometric equations, triangles, and applications;
- Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs;
- Evaluate and graph inverse trigonometric functions;
- Prove trigonometric identities;
- Convert between polar and rectangular coordinates and equations;
- Graph polar equations;
- Calculate powers and roots of complex numbers using DeMoivre's Theorem; and
- Represent a vector (a quantity with magnitude and direction) in the form  $a_i + b_j$ .

## Lecture Content

- Rectangular coordinates, angles and circular/radian measure;
- Definitions of the six trigonometric functions according to the right triangle, the unit circle, and the rectangular coordinate system;
- Applications of the right triangle;
- Simplification of trigonometric expressions;
- Proofs of trigonometric identities;
- Graphs of trigonometric functions: period, amplitude, phase shift, asymptotes;
- Inverse trigonometric functions and their graphs;
- Trigonometric equations;
- Solving Triangles: Law of Sines and Law of Cosines;
- Polar coordinates and equations; and
- DeMoivre's Theorem and applications
- Introduction to vectors.

## Grading

You can see your assignment grades and overall class grade anytime in Canvas. Your overall class percentage is broken down as follows:

- Homework Assignments / In Class Assignments 30%
- Regular Exams and Final Exam 70%

Example of class grade calculation: Let's say you have an 85% grade in homework / in class assignments and a 76% grade in exams. Then your overall class percentage would be

$$.30*85 + .70*76 = 25.5 + 53.2 = 78.7$$

You would have a 78.7% as your overall class grade, and would thus have a C in the class. See the below grade distribution.

89.5 - 100% A

79.5 - 89.4% B

69.5 - 79.4% C

59.5 - 69.4% D

0 - 59.4% F

## Homework

All homework assignments will be from the textbook. They will be posted to Canvas, so even if you miss class you are still expected to turn the homework in on the due date. Homework problems will be given at the end of each class session, and the weeks worth of problems will be due the following Monday. For example, all problems assigned during the week of Jan 8-11 will be due at the beginning of class on Monday Jan 15. At the beginning of class each day students will have a chance to ask questions on problems they have been working on, so take advantage and try to start the problems the day they are given so you have the opportunity to ask questions. Homework will be graded on neatness, completeness, and correctness. You will mainly have odd numbered problems so that you can check your work with BOB (back of the book)

**Late Homework Policy:** If you know ahead of time you will miss class when an assignment is due, you can turn it in early either in class or at my office or email it to me. All homework assignments will be out of 10 points. You can turn in late homework, but it will be docked 2 points for each day past the due date.

## Extra Credit

There will be a few extra credit opportunities, so take advantage of them! Extra credit opportunities will be made clear and available to everyone in the class. To be fair, no individual extra credit assignments will be given (so don't count on that at the end of the semester).

## In Class Assignments

In addition to homework, you will have occasional in class assignments. Sometimes these will be done individually and other times in groups. If you are absent when we have an in class assignment, you will receive a grade of 0 that **cannot be made up**.

## Exams

There will be 4 free response exams – one each for chapters 5 through 8. Each question will be graded on work shown and correctness - partial credit is possible on most questions. All exams will have equal weight in your overall class grade percentage. **No make up exams will be given for any reason** (see final exam portion for more information). If you know you won't be able to make the exam ahead of time, then we can schedule for you to take it ahead of time, that is no problem.

## Final Exam

There will be a mandatory final exam at the end of the semester. It will be cumulative (meaning on all material covered throughout the class) and free response, with partial credit available as with the regular exams. Because there are no make-up exams, if a student misses an exam then the final exam score will go in for that grade. If a student has not missed any exams, then the final exam will go in for the lowest exam given the final score is higher. **The final exam for this class will take place on Thursday March 8<sup>th</sup> from 10:00 am -11:50 am in our normal room.**

## Technology

As a student of SCCCD, you are given a free student email account. Make sure you are able to login to this account and check it on a regular basis (at least once a day). You can also set it up through your smart phone if you have one and set up email alerts so that you never miss anything important. For example - you wouldn't want to come to campus when your class has been canceled. Your student email is the official way your instructors communicate with you outside of class. In addition to your email account, you also have a Canvas account set up by the college. I will use Canvas to post homework, make announcements, keep track of grades, ect. Make sure you have access and sign in on a regular basis.

## Resources

- Your instructor
- Your fellow students
- Your textbook
- FREE tutoring in the Math Center located in FEM 1. Hours are Monday-Thursday 8 am to 4 pm and Fridays 8 am to 12 pm.
- FREE tutoring in the Learning Center (aka tutorial center) located in the library.
- Online resources: Khan Academy, YouTube, any other websites you find that are helpful (please share with the rest of the class).

## College Policies

### *Accommodations for Students with Disabilities*

If you have a verified need for an academic accommodation or materials in alternate media (ie: Braille, large print, electronic text, etc.) per the American With Disabilities Act or Section 504 of the Rehabilitation act please contact me as soon as possible.

### *Academic Dishonesty*

``Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences" (Reedley College Catalog pg 49).

### *Cheating*

``Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely" (Reedley College Catalog pg 49).

### *Disruptive Students*

Disruptions will not be tolerated. It is my goal to provide the most comfortable and welcoming environment in our class. Cell phones are only allowed in class when taking a picture of something on the board, researching a topic in class, using them for activities during class (such as Kahoot!). ``Reedley College's Student Code of Conduct Policy (Board Policy 5520 and Educational Code 76032) authorizes an instructor to remove a disruptive student from his or her class for the day of the removal and the next class meeting. The instructor shall immediately report the removal to the Vice President of Student Services. During the period of removal, a student shall not be returned to the class from which he or she was removed without the concurrence of the instructor of the class" (Reedley College Catalog pg 49).

### *Student Rights*

``Student rights are protected by federal and state laws, and by policies established by the trustees of the State Center Community College District. It is therefore essential for the protection of students' rights that procedures be established and followed which would identify violations of student conduct standards and the resolutions of such violations. Students have a right to an oral or written notice (reasons for disciplinary action), an opportunity for a review, and a decision given orally or in writing. For more information contact the Vice President of Student Services' office. (Board Policy 5520, Administrative Regulation 5520)" (Reedley College Catalog pg 49).

## Important Dates

- Monday January 8<sup>th</sup> : Start of spring semester
- Monday January 15<sup>th</sup> : Martin Luther King, Jr. Day observance (no classes, campus closed)
- Tuesday February 6<sup>th</sup> : Final drop date for our class (if dropped by this date you will receive a W on transcript instead of letter grade)
- Friday February 16<sup>th</sup> : Lincoln Day observance (no classes, campus closed)
- Monday February 19<sup>th</sup> : Washington Day observance (no classes, campus closed)
- Thursday March 8<sup>th</sup> : Last day of class, this is when we will have our final exam from 10:00 – 11:50 am.

\*\*\* This syllabus is subject to change at the discretion of the instructor.