

Math Course Syllabus (College Level)

College Trigonometry/MAT 122/3 Credit Hours Fall 2016

Instructor:

Aimee Bond

Email:

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Class Time(s)/Section(s)/Room#:

7:30 - 8:20, Room 117

Course Description:

This course is designed primarily for students who are continuing into the calculus sequence. This course examines trigonometric functions and their graphs, identities and equations and solutions of triangles. Vectors, polar coordinates and equations of conic sections are introduced.

Course Prerequisites/Co-requisites:

PREREQUISITE: MAT 121 with grade of "C" or better OR appropriate math placement test score

Required Textbook(s)/Materials:

Trigonometry: Lial, Hornsby, Schneider, 10th edition

MyMathLab Access Code:

This code includes access to the e-text, student solutions manual, online homework and free online tutoring (Smarthinking). You may be required to have access to the textbook in class in either electronic form or in print. Hard copies of the text and student solutions manual are available on reserve in the library.

Calculator:

TI83/84 [graphing calculator required](#). Graphing calculators may be rented through the Math Support Center (M2850).

Optional Course Materials:

Hard copy or unbound version of the textbook. This can be purchased, bundled with a MyMathLab access code.

Grading Scheme:

Tests* - 40%

Quizzes* - 20%

Homework - 8%

Project - 12%

Final Exam* - 20%

* Your final exam will replace your lowest test score (if higher),
your lowest quiz score will be dropped

Make-up/Late Work Policies:

All notes and worksheets will be available on my wiki-page. If you are absent, start with the online notes, then come in with questions.

Tests/Quizzes will be given on Fridays. Make every effort to be present on those days, make-ups will not be given. If you miss a test, it will be replaced with your final exam score. If you miss a quiz, it will count as your dropped quiz.

Homework will not be accepted late

E-mail Communication:

- Electronic correspondence from ACC employees will go to your student email account *only*. When you activate your account you can forward emails to an e-mail account that you already have.
- To activate your student e-mail account, go to the [ACC Website](#), log into **myACC**.
- On top right hand corner, click on the Student Email icon (white envelope).
- A new window will pop up as Microsoft Outlook Web App.
- If you are a brand new student to the Colorado Community College System, your password is your birth date in this format MonthDDYear. For example, if you're birthday was July 4, 1976, then you would enter July041976.
 - Then in the two boxes below that, create a new password and retype a new password in the second box.
 - Then hit "Okay" and follow the prompts (select your language, time zone- "Mountain Time" is the 10th down from the very top, etc.) to complete your e-mail set-up.
- If you previously attended or applied to a Colorado Community College, your PASSWORD remained the same and your inbox should automatically connect.
- If you need technical support, please call the 24/7 toll-free technical support hotline at 1-888-800-9198.

E-mail Policy:

I will be checking my ACC e-mail regularly. Response time is typically within 24 hours during the week. Please use your ACC email to communicate with me. Due to FERPA regulations this is the only means that I can communicate with you.

Tutoring and Student Support Resources:

- Faculty and students provide tutoring for all math classes in Room M2850. They provide assistance with math concepts, homework, online resources and graphing calculators. For information, contact the Math Support Center at 303-797-5258.
- Online Tutoring (Smarthinking) is available through MyMathLab when working on assignments. It is available 24 hours a day, 7 days a week. You can access Smarthinking by logging into your MML website and click on the 'Connect to a tutor' button while working on an assignment.
- In the **ACC Library**, students may watch course related videos and DVDs in the library. The Writing Center is located in the library where you can get help with your papers and other writing questions.

Accommodations Statement:

Arapahoe Community College provides accommodations to qualified students with Disabilities. To request accommodation, contact Disability Services located in M2710 or call 303-797-5937. Except where a student is entitled to make an audio or video recording of class lectures and discussions as an educational accommodation determined through the student's interactive process with college disability services, a student may not record lectures or classroom discussions unless written permission from the class instructor has been obtained and all students in the class as well as guest speakers have been informed that audio/video recording may occur. A student granted permission to record may use the recording only for his or her own study and may not publish or post the recording on YouTube or any other medium or venue without the instructor's explicit written authorization.

Academic Integrity Statement:

Arapahoe Community College is committed to academic honesty and scholarly integrity. The College can best function and accomplish its mission in an atmosphere of the highest ethical standards. All members of the College community are expected and encouraged to contribute to such an environment by observing all accepted principles of academic honesty. Academic dishonesty includes but is not limited to: **plagiarism, cheating, fabrication, grade tampering, misuse of computers and other electronic technology, and facilitating academic dishonesty**. Those found in violation may also be subject to potential disciplinary sanctions under the Arapahoe Community College Code of Conduct.

Safety Statement:

The safety and security of all our students, faculty, staff and visitors is of the utmost importance to the Campus Police Department. We rely on each of you to be an additional set of ears and eyes to help maintain campus safety. Please be diligent in your efforts to report suspicious or unusual behavior or circumstances to the Campus Police Department. Trust your instincts when something doesn't look, seem or feel right and tell someone. The Campus Police can be reached at 303-797-5800 or in M2600 on the second floor behind Information Central. Additional safety information can be found

on the ACC website under Student Resources, [Campus Safety](http://www.arapahoe.edu/student-resources/campus-safety) (<http://www.arapahoe.edu/student-resources/campus-safety>).

Syllabus Statement Regarding Mandatory Reporting

Arapahoe Community College is committed to preserving a safe and welcoming educational environment for all students. As part of this effort, I have an obligation to report certain issues relating to the health and safety of campus community members. I must report to the appropriate College officials any allegation of discrimination or harassment. Sexual misconduct, which includes sexual harassment, non-consensual sexual contact, non-consensual sexual intercourse, and sexual exploitation, is considered a form of discrimination.

In addition to reporting all discrimination and harassment claims, I must report all allegations of dating violence or domestic violence, child abuse or neglect, and/or credible threats of harm to yourself or others. Such reports may trigger contact from a College official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like more information, you may reach the Title IX/EO, Angela Williams at angela.williams@arapahoe.edu or 303.797.5715 or the Deputy Title IX/EO Coordinator, Heather Wilcox at heather.wilcox@arapahoe.edu or 303.797.5674. Reports to law enforcement can be made at 303.797.5800.

If you would like a confidential resource, please contact the Student Life Office (M2820 or 303.797.5668) who can connect you to free on or off campus counseling resources; you can also contact The Blue Bench at 303.322.7273. Further information may be found on the College web site: <https://www.arapahoe.edu/campus-life/sexual-misconduct-and-title-ix>.

Contact Information for Learning Support Services

Library

Room M2500, 303-797-5090, for more information visit <http://www.arapahoe.edu/library>

Technical Support

303-797-5700, extension 3199

Student Success Center

Room M2720, 303-797-5669, for more information visit <http://www.arapahoe.edu/student-resources/tutoring>

Math Support Center

Room M2850, 303-797-5258, for more information visit <http://www.arapahoe.edu/student-resources/tutoring>

Writing Center

Library, 303-797-5893, for more information visit
<http://www.arapahoe.edu/student-resources/tutoring>

Advising/Counseling

Room M2010, 303-797-5664

Instructional Testing Center

Room M2280, 303-797-5993

Bookstore

Room M1200, 303-797-5676

Computer Lab

Room M1650, 303-797-5907

Career Center

Room M2025, 303-797-5805

eLearning

Room M1710, 303-797-5080

Online Course Evaluations:

As this course nears completion, you will have the opportunity to complete a confidential evaluation of the class online. Login instructions will be sent to your 'student.cccs.edu' e-mail address. Your feedback is important, and ensures that ACC continues to offer quality instruction that meets your needs. Please take time to complete the survey – I appreciate your feedback.

Learning Outcomes for Student Enrichment

Preparing learners for life success is an important commitment at Arapahoe Community College. These learning outcomes address the knowledge, skills, and values that are fundamental to the personal and professional growth of our students, employees and community.

1. Communication

Construct, deliver, and engage in effective, knowledgeable communication for a variety of audiences and purposes.

2. Information Management

Identify, retrieve and synthesize information in order to think critically, reason creatively and make informed judgments.

3. Personal Development

Identify and continually develop one's aptitudes and abilities in pursuit of goals.

4. Responsibility and Accountability

Employ personal and social accountability, recognize ethical issues, practice ethical behavior, and balance personal freedom with the interest of the community.

5. Quantitative Reasoning

Retrieve, interpret and evaluate information and numerical concepts to determine trends, make predictions, and develop informed opinions.

6. Cultural Awareness

Identify, distinguish, or express a diversity of aesthetic, cultural, and historical perspectives.

Course Content: Emphasis of right triangle trigonometry is recommended and introduction of trigonometric functions through right triangles before the unit circle definitions is the instructor's prerogative.

Topical Outline:

Chapter 1: TRIGONOMETRIC FUNCTIONS

- 1.1 Angles
- 1.2 Angle Relationships and Similar Triangles
- 1.3 Trigonometric Functions
- 1.4 Using the Definitions of the Trigonometric Functions

Chapter 2: ACUTE ANGLES AND RIGHT TRIANGLES

- 2.1 Trigonometric Functions of Acute Angles
- 2.2 Trigonometric Functions of Non-Acute Angles
- 2.3 Finding Trigonometric Function Values Using a Calculator
- 2.4. Solving Right Triangles
- 2.5 Further Applications of Right Triangles

Chapter 3: RADIAN MEASURE AND CIRCULAR FUNCTIONS

- 3.1 Radian Measure
- 3.2 Applications of Radian Measure
- 3.3 The Unit Circle and Circular Functions
- 3.4 Linear and Angular Speed

Chapter 4: GRAPHS OF THE CIRCULAR FUNCTIONS

- 4.1 Graphs of the Sine and Cosine Functions
- 4.2 Translations of the Graphs of the Sine and Cosine
- 4.3 Graphs of the Tangent and Cotangent Functions
- 4.4 Graphs of the Secant and Cosecant Functions
- 4.5 Harmonic Motion

Chapter 5: TRIGONOMETRIC IDENTITIES

- 5.1 Fundamental Identities
- 5.2 Verifying Trigonometric Identities

- 5.3 Sum and Difference Identities for Cosine
- 5.4 Sum and Difference Identities for Sine and Tangent
- 5.5 Double-Angle Identities
- 5.6 Half-Angle Identities

Chapter 6: INVERSE CIRCULAR FUNCTIONS AND TRIGONOMETRIC EQUATIONS

- 6.1 Inverse Circular Functions
- 6.2 Trigonometric Equations I
- 6.3 Trigonometric Equations II
- 6.4 Equations Involving Inverse Trigonometric Functions

Chapter 7: APPLICATIONS OF TRIGONOMETRY AND VECTORS

- 7.1 Oblique Triangles and the Law of Sines
- 7.2 The Ambiguous Case of the Law of Sines
- 7.3 The Law of Cosines
- 7.4 Vectors, Operations, and the Dot Product
- 7.5 Applications of Vectors

Chapter 8: COMPLEX NUMBERS, POLAR EQUATIONS AND PARAMETRIC EQUATIONS

- 8.1 Complex Numbers
- 8.2 Trigonometric (Polar) Form of a Complex Number
- 8.3 The Product and Quotient Theorems
- 8.4 DeMoivre's Theorem; Powers and Roots of Complex Numbers
- 8.5 Polar Equations and Graphs
- 8.6 Parametric Equations, Graphs and Applications (optional)

Competencies:

After successful completion of this course the student should be able to:

Number	Competency
1	Evaluate the trigonometric functions and find their graphs
2	Identify and discuss trigonometric vocabulary
3	Measure angles in degrees and radians
4	Calculate the values of trigonometric functions of acute angles using right triangles.
5	Evaluate trigonometric functions for general angles
6	Use reference angles to evaluate trigonometric functions

7	Construct the graphs of the trigonometric functions
8	Read and interpret angular and linear velocity type problems
9	Manipulate trigonometric expressions and equations
10	Recall and apply the reciprocal, quotient, Pythagorean, and even-odd identities to simplify expressions.
11	Use the fundamental identities to verify trigonometric identities
12	Employ the formulas for sums and differences to find exact values of the trigonometric functions for selected angles, and to simplify expressions.
13	Derive and use the double-angle and half-angle formulas
14	Use the product and sum formulas, and graph combinations of sine and cosine functions
15	Describe the relationship between the trigonometric functions and their inverses
16	Calculate solutions for trigonometric equations with variable side conditions.
17	Solve right triangles
18	Use the law of sines to solve a general triangle, including the ambiguous case
19	Use the law of cosines to solve a general triangle.
20	Add, subtract, and find scalar multiples of vectors, and to use the standard basis vectors.
21	Convert from Cartesian to polar coordinates and vice versa, and graph polar equations.
22	Read, interpret, and use a drawing to solve nautical type problems.
23	Describe the standard form of the equation of an ellipse and graph the equation.
24	Recognize and obtain the standard form of the equation of a parabola and graph the equation.
25	Recognize and obtain the standard form of the equation of a hyperbola and graph the equation.
26	Change to a new pair of coordinate axes in order to simplify graphing.

Tentative Schedule of Class Assignments:

The following is a Tentative Schedule. We may cover more or less material each day but this *will give you a guideline. I reserve the right to change the calendar as needed.*

Week	Course Content Covered	Assignments
1	1.1, 1.2, 1.3	
2	1.4, 2.1, 2.2, 2.3	
3	2.4, 2.5, Chapter 1 and 2 Exam	
4	3.1, 3.2, 3.3	
5	3.4, 4.1, 4.2	
6	4.3, 4.4, 4.5	
7	Chapter 3 and 4 Exam, 5.1	
8	5.2, 5.3, 5.4	
9	5.5, 5.6, 6.1	
10	6.2, 6.3, 6.4	
11	Chapter 5 and 6 Exam, 7.1	
12	7.2, 7.3, 7.4, 7.5	
13	8.1, 8.2, 8.3, 8.4	
14	8.5, 8.6, Chapter 7 and 8 Exam	
15	Review for final, Department final exam	