Trigonometry
WW-MATH 142
EagleVision
Course Syllabus
Worldwide 2024-08 August

Course Information

Term Dates: Aug 5, 2024 - Oct 6, 2024
Credit Hours: 3
Meetings: 18:00 PM - 21:20 PM Monday Time Zone: Eastern
Location: *EagleVision Classroom
Delivery Method: EagleVision Classroom/Blended

Instructor Information

Name: Daniel Ritsema

Email: ritsemad@erau.edu

Office Hours: By Appointment only

Catalog Course Description

Students will be introduced to trigonometric functions and their graphs; identities; radian measure with applications; compound, half and double angle identities; solving elementary trigonometric equations, right and oblique triangles, law of sines and cosines; inverse trigonometric functions; vectors and trigonometric form of a complex number.

Prerequisite(s):MATH 142 Prerequisite is MATH 111 or MATH 140 or qualifying score on the mathematics skills assessment or ALEKS.

Course Goals

This course is designed to provide the student with the mathematical skills to support further work in Computer Science, Aerospace Engineering, Electrical Engineering, Engineering Physics, Aircraft Engineering Technology, and the Avionics degree program.

Student Learning Outcomes

1. Identify the six trigonometric functions and express them as the ratio of the sides of a right triangle, solve right triangle problems.
2. Find the trigonometric function value of any angle, and know the values of six trigonometric functions for quadrantal and special angles.
3. Convert from degrees to radian measure.
4. Solve problems involving arc length, angular speed and linear speed.
5. Define amplitude, period, and phase shift for the trigonometric functions
6. Graph the trigonometric functions using information on amplitude, period, and phase shift.
7. Verify trigonometric identities using the fundamental identities, along with the sum and difference formulas, double angle formulas and half angle formulas.
8. Define the domain and range of the inverse trigonometric functions.
9. Graph the inverse trigonometric functions, using information on the domain and range.
10. Solve trigonometric equations on either a restricted domain or a general domain.
11. Use the Law of Sines and the Law of Cosines to solve problems involving oblique triangles.
12. Convert from rectangular to polar coordinates, and perform operations with complex numbers in polar form.
13. Perform vector addition, subtraction and scalar multiplication.
14. Use vectors to solve displacement and force problems.
15. Write equations of parabolas, ellipses, and hyperbolas in standard form, graph them, rotate axes to eliminate any xy term in the equation, and solve problems involving these conic sections.
16. Understand the purpose and utility of a parameter in rendering graphs of traditional functions. Trace out other important curves that have no traditional functional representation, such as conics, cycloids, etc. Compare and contrast between the rectangular form, the polar form, and a parametric form of a trigonometric equation.

Required Course Materials

Title: Calculator

Format: Calculator

Notes

Students are required to have a calculator – handheld or virtual.

Graphing calculators are not necessary for this course, but would be useful (TI-83, TI-84, or equivalent are recommended).

A scientific calculator that offers the trigonometric functions of SIN, COS, and TAN will suffice in this course.

Title: Algebra and Trigonometry

ISBN: 978-0138092665

Authors: Blitzer

Publisher: Pearson Education, Inc.

Publication Date: 2021

Edition: 7th

Format: Textbook and Access Code

Notes

MyLab Math Canvas for Algebra and Trigonometry with Direct Integration for ERAU WW: Ebook and digital access code

You must purchase the ebook and access code through the Worldwide Bookstore or Pearson via Canvas. If you purchase the access code through online retailers that specialize in used items, it will not be guaranteed by Pearson.

This course uses the same custom direct integration textbook title and edition of other MATH courses you may have taken or will take. MyLab access is charged per course. Your course materials purchase will only provide you with Mylab access for this course. It will not work for any other course. Your purchase provides access for a period of 18 weeks.

For students who are retaking this course, you will need to purchase access for this text title if (a.) your MyLab access is expired or will expire before the registered term ends, or (b.) the numeric textbook edition has changed.

Grading

Scale	Grade
90 - 100	A (Superior)
80 - 89	B (Above Average)
70 - 79	C (Average)
60 - 69	D (Below Average)
Below 60	F (Failure)

Evaluation Items & Weights

Skills Practice	10%
Reading Quizzes	10%
Skills Check	20%
Show Work	30%
Discussions	20%
Class Activities	10%
Total	**100%**

Skills Practice

MyLab Skills Practices are delivered via MyLab in Modules 1-9. You will receive the same questions but different variable values in these assignments. You can work on the problem set and make use of systematic instructions, examples of similar problems, access the online textbook, and other multimedia resources up until the due date. You have unlimited chances to submit an answer to each question. A 10% per day penalty is applied to questions answered after the due date.

Reading Quizzes

There are seven reading quizzes in this course. The quizzes cover the content you learn in each respective module. You have 60 minutes to complete each quiz. There is only one attempt allowed for each quiz and it is only available in the module week it is assigned.

Skills Check

The Midterm MyLab Skills Check and Final MyLab Skills Check will include problems related to sections of the online course textbook assigned in the previous modules. The Midterm covers Modules 1-5, and the Final covers Modules 6–9. The checks are administered via MyLab.

Each Skills Check has a single opportunity to answer the set of questions with no time limit. Once the Skills Check has begun, you must complete it. You are required to submit your mathematical computations in the Show Work Assignment, where the instructor can give precise feedback about procedural errors.

Important Note | Integrity Declaration: There is a student integrity declaration activity before each Skills Check. You cannot access the Skills Check in Module 5 (Midterm) and Module 9 (Final) until you complete the integrity declaration activity. In the activity, you must "Agree" to the integrity statement. "By selecting 'Agree" to the integrity declaration statement, you declare that the work in the Show Work document is entirely your own and you have not shared it with anyone else. Read the next paragraph for details about Show Work.

Show Work

Following the Midterm MyLab Skills Check and Final MyLab Skills Check, you must upload the mathematical computations you worked out by hand on paper during each Skills Check within 30 minutes of completing the MyLab Skills Check. The instructor is looking for particular steps on some questions and will deduct points if no work is shown, even if MyLab marked your answer correctly. Partial credit may be added to the score in MyLab if the work shows that the machine grading did not reflect your understanding of the topic being assessed. Most grading adjustments based on the submitted work will happen in MyLab, and the Show Work assignment will earn the same score as the exam; on rare occasions, a mismatch will be explained in the grading feedback from the instructor. If no Show Work is submitted within the time limit, a zero will be recorded.

Reminder: Your Show Work must be your work. Do not share it with anyone else.

You are encouraged to complete the optional activity in Module 2 on submitting Show Work to obtain feedback from your instructor.

Discussions

Discussion assignments are included in each module week. It is essential to post by the end of the fourth day of the module week, in order to give enough time for you to reply to

your classmate's initial post. Modules 5 and 9 are virtual study halls to help prepare you for the Skills Check. It is suggested to start those on the first day of the module week. Participation is a crucial part of online learning. You are not restricted on the amount of interaction in this course; it is highly encouraged. All students must post a solution attempt for each discussion in their own words; cutting/pasting from someone else's work is detectable and will not be tolerated.

Class Activities
Designated by each instructor for the work accomplished during class.

Disability and Special Needs

Disability Services Support

ERAU-WW is committed to the success of all students. It is a University policy to provide reasonable accommodations to students with disabilities, who qualify for services. If you would like to request accommodations due to a physical, mental or learning disability, please visit the [Worldwide Student Accessibility Services page](#) or contact our office at 386-226-7334 or via email at wwsas@erau.edu. ALL DISCUSSIONS ARE CONFIDENTIAL.

Mental Well-Being Statement

ERAU recognizes that life stressors, such as depression, anxiety, alcohol/drug problems, relationship problems and various other experiences can hinder the learning process. All ERAU students have access to free, confidential counseling through TELUS Health. You can access a counselor 24/7 via phone, computer or chat in the Student Support app. Please download the app or add the link to your computer and consider using this valuable resource during your educational journey at ERAU. More information on TELUS can be found on the [WW Dean of Students ERNIE page.](#)

Additional Information

APA Format
Go to the **[APA website](#)** for additional information about the *American Psychological Association Publication Manual*.

Library
Embry-Riddle Aeronautical University has one of the most complete library collections of aviation-related resources in the world. The Hunt Library is the library for all Worldwide students regardless of location. For help finding resources for your assignment, project, or topic, or to learn more about the library services available to you, please contact our librarians using the following information:

- **[Hunt Library Worldwide: Information, Services, Help](#)**
  - **[Library Basic Training](#)**
  - **[Ask-a-Librarian](#)**
  - **[Library Hours](#)**

- Contact Information
  - Email: **library@erau.edu**

Title IX
 Title IX of the Education Amendments of 1972 ("Title IX") is a Federal civil rights law that prohibits discrimination on the basis of sex in education programs and activities. All public and private elementary and secondary schools, school districts, colleges, and universities receiving any Federal funds must comply with Title IX.

The Title IX Office oversees compliance of Title IX Sexual Harassment in accordance with Federal Regulations as well as incidents falling under the University Sexual Misconduct policy. Policy violations can include sexual harassment or sexual violence, such as rape, sexual assault, sexual misconduct, sexual battery, sexual coercion, and stalking.

Anyone **may** report suspected or known violations directly to the Title IX Office. However, there are certain persons / offices who **must** report incidents to the Title IX Office (mandatory). Those are Campus Safety & Security, Dean of Students (or designee), Vice President of Human Resources (or designee). Please refer to the policy and/or contact the Title IX Office for more specifics related to filing a report.

Title IX Office
Phone: 386/226-6677; 386/481-9131; 386/241-1881
Email: **wwtitle9@erau.edu** or meyerspa@erau.edu
Website: https://worldwide.erau.edu/administration/diversity
Form: **Online Complaint Form**

Course Policies

1. **Plagiarism**: Presenting as one's own the ideas, words, or products of another. Plagiarism includes use of any source to complete academic assignments without proper acknowledgment of the source. All papers submitted for grading in this course will be submitted to Turnitin where the text of the paper is compared against information contained in the Turnitin database. Papers submitted will be included in the Turnitin database and become the source documents for the purpose of detecting plagiarism.

2. **Cheating**: A broad term that includes the following:

- Giving or receiving help from unauthorized persons or materials during examinations.
- The unauthorized communication of examination questions prior to, during, or following administration of the examination.
- Collaboration on examinations or assignments expected to be individual work.
- Fraud and deceit, that include knowingly furnishing false or misleading information or failing to furnish appropriate information when requested, such as when applying for admission to the Univerity.

3. The most current **APA Edition** format is the ERAU Worldwide standard for all research projects

4. Course-Specific Policies:

- **Blended Learning Policy:** This course is offered in blended format; 70% of the required course will be conducted in-class and 30% will take place online in Canvas. Class meetings will be composed of lectures, audio-visual presentations, discussions, exercises (also in small groups), student presentations and other course activities. Online activities will include discussion with classmates, posting of your work, reviewing classmates' work, and feedback from the instructor on your work. During the first face-to-face session, we will thoroughly review the online Blended Course Activities.

- **Missed Class Policy:** You are required to attend each live class in its entirety. Grade penalties of 10% of the final grade will be incurred for each unexcused absence, and for each excused absence for which you do not complete the missed class make-up assignment. Notify the instructor as soon as possible if you will not be present or if you will miss part of class. Excused absences may require third party documentation. If you miss any part of class, you must review the EagleVision recording and complete the make-up work assigned to you by the instructor.

- **Late Work Policy:** All course work is expected to be completed on time and should be submitted before 11:59 PM ET on the date indicated in the Course Schedule below. Unless otherwise specified in this document, late work will be downgraded 10% for each day it is past due, up to 5 days beyond the deadline. After that, a permanent score of zero (0) will be entered in the Canvas Grades area. Please coordinate with the instructor as soon as possible if you know your assignment will be late. In some special cases, a penalty-free extension might be granted if you provide your expected date of submission in addition to the reason you cannot make the deadline (expect to provide supporting documentation). Keep in mind that you are always allocated a sufficient time to complete your assignments, so difficulties encountered less than 24 hours prior to the deadline will not be viewed in a favorable light.

  Exceptions: Instructors may choose to develop and implement their own policies regarding the following:
  1. Discussion boards (initial posts and replies to classmates)
  2. Assignments submitted after the last class day
  3. Assignments submitted using third-party integrations

  Any such deviations must be clearly posted in the Instructor Bio & Policies page.

EagleVision Web-Conferencing and Technology

EagleVision courses utilize Zoom, web conferencing software that enables students and instructors to connect in real-time through the use of web cameras, microphones, file sharing, chat and more. Students are expected to participate using audio and/or video when requested by the instructor. Review the **Computer Requirements for Worldwide Courses** and run the **ERAU Computer Check** to verify your computer meets the technical specifications and system requirements prior to your first class.

Visit the **EagleVision** ERNIE page for details on using the application, to join a test meeting, and to confirm that your equipment meets the requirements.

Students not in compliance with equipment requirements can be withdrawn at the second class meeting.

It is in your best interest to become familiar with the application ahead of the first class, so you know how to interact with your instructor and classmates. Attend class in an area where there are no distractions (TV, kids, phones, etc.) to impede your learning, the instructor's teaching, or your classmates' attention.

Course Schedule

Module 1 Trigonometric Functions

    Readings and Resources
    Reading Quiz
    Discussion: Introduction and Real World Connections
    Skills Practice

Module 2 Graphs of Trigonometric Functions

    Readings and Resources
    Reading Quiz
    Discussion: I Graph, You Graph, We All Graph!
    Skills Practice
    Assignment: Show Work Practice Area (Optional)

Module 3 Inverse and Applications of Trigonometric Functions

    Readings and Resources
    Reading Quiz
    Group Discussion: Lesson Video Development
    Skills Practice

Module 4 Analytical Trigonometry

    Readings and Resources
    Reading Quiz
    Group Discussion: Analyzing Faulty Work
    Skills Practice

Module 5 Law of Sines

    Readings and Resources
    Skills Practice
    Discussion: Midterm Skills Check Study Hall
    Midterm Skills Check
    Assignment: Show Work - Midterm Skills Check

Module 6 Laws of Sines and Polar Forms

Readings and Resources
Reading Quiz
Group Discussion: How-to-Guide
Skills Practice

Module 7 Vectors and Ellipses

Readings and Resources
Reading Quiz
Group Discussion: Analyzing Faulty Work
Skills Practice

Module 8 Conic Sections

Readings and Resources
Reading Quiz
Group Discussion: Lesson Video Development
Skills Practice

Module 9 Parametric Functions

Readings and Resources
Skills Practice
Discussion: Midterm Skills Check Study Hall
Midterm Skills Check
Assignment: Show Work - Midterm Skills Check

Summary

Due Date	Name (link)	Event type	Points
	[Module 1 Class Activity](#)	Assignment	100
	[Module 1 Skills Practice](#)	Assignment	100
	[Module 2 Class Activity](#)	Assignment	100
	[Module 2 Skills Practice](#)	Assignment	100
	[Module 3 Class Activity](#)	Assignment	100
	[Module 3 Skills Practice](#)	Assignment	100
	[Module 4 Class Activity](#)	Assignment	100
	[Module 4 Skills Practice](#)	Assignment	100
	[Module 5 Class Activity](#)	Assignment	100

Due Date	Name (link)	Event type	Points
	Module 5 Midterm Skills Check	Assignment	100
	Module 5 Skills Practice	Assignment	100
	Module 6 Class Activity	Assignment	100
	Module 6 Skills Practice	Assignment	100
	Module 7 Class Activity	Assignment	100
	Module 7 Skills Practice	Assignment	100
	Module 8 Class Activity	Assignment	100
	Module 8 Skills Practice	Assignment	100
	Module 9 Class Activity	Assignment	100
	Module 9 Final Skills Check	Assignment	100
	Module 9 Skills Practice	Assignment	100
	Online Office	Discussion	0
	Student Lounge	Discussion	0
8/11	Are You Ready to Learn Math?	Quiz	100
8/11	Module 1 Discussion: Introduction and Real World Connections	Discussion	100
8/11	Module 1 Reading Quiz	Quiz	100
8/18	Module 2 Assignment: Show Work Practice Area (Optional)	Assignment	0
8/18	Module 2 Discussion: I Graph, You Graph, We All Graph!	Discussion	100
8/18	Module 2 Reading Quiz	Quiz	100
8/25	Module 3 Group Discussion: Lesson Video Development (GRP)	Discussion	100
8/25	Module 3 Reading Quiz	Quiz	100
9/1	Module 4 Group Discussion: Analyzing Faulty Work (GRP)	Discussion	100
9/1	Module 4 Reading Quiz	Quiz	100
9/8	Module 5 Assignment: Show Work - Midterm Skills Check	Assignment	100
9/8	Module 5 Discussion: Midterm Skills Check Study Hall	Discussion	100

Due Date	Name (link)	Event type	Points
9/8	Module 5 Midterm Skills Check Integrity Declaration	Quiz	1
9/15	Module 6 Group Discussion: How-To Guide (GRP)	Discussion	100
9/15	Module 6 Reading Quiz	Quiz	100
9/22	Module 7 Group Discussion: Analyzing Faulty Work (GRP)	Discussion	100
9/22	Module 7 Reading Quiz	Quiz	100
9/29	Module 8 Group Discussion: Lesson Video Development (GRP)	Discussion	100
9/29	Module 8 Reading Quiz	Quiz	100
10/6	Module 9 Assignment: Show Work - Final Skills Check	Assignment	100
10/6	Module 9 Discussion: Final Skills Check Study Hall	Discussion	100
10/6	Module 9 Final Skills Check Integrity Declaration	Quiz	1