

Northwest Arkansas Community College
Science and Mathematics Division

Discipline Code

MATH

Course Number

1213

Course Title

Plane Trigonometry

Catalog Description

A survey of basic trigonometric concepts. Topics include the definitions of trigonometric functions, graphs of trigonometric functions, inverse trigonometric functions, trigonometric identities and equations, applications of trigonometry, complex numbers, and polar coordinates and equations.

Prerequisites

MATH 1203 or MATH1203R with a grade of C or better, or appropriate placement score.

Credit Hours

3 credit hours

Contact hours

45 contact hours

Load hours

3 load hours

Semesters Offered

Fall, Spring & Summer

ACTS Equivalent

MATH 1203, Plane Trigonometry

Grade Mode

A-F

Learning Outcomes

Upon successful completion of MATH 1213 students should exhibit mastery of certain knowledge and basic skills using technology as appropriate. These skills include, but are not limited to:

- Recognize and use the vocabulary of angles, analyze and classify angles, and convert between units
- Apply concepts of linear and angular velocity, arc length, and area of circular sectors
- Define, apply, and find the exact values of the six trigonometric functions using right triangles and the unit circle
- Graph the six trigonometric functions by hand
- Analyze and write equations of simple harmonic motion
- Verify and apply trigonometric identities
- Solve trigonometric equations
- Define, use, and apply inverse trigonometric functions
- Define, use, and apply the Law of Sines and Law of Cosines
- Recognize and use the vocabulary of vectors (vector, scalar, magnitude, direction) to perform arithmetic on vectors and to solve application problems
- Convert complex numbers between standard and trigonometric form
- Convert between parametric and rectangular equations of curves and graph parametric curves
- Convert between rectangular & polar coordinates and graph polar coordinates and equations

General Education Outcomes Supported

- Students develop higher order thinking skills.
- Students achieve mathematical literacy

Standard Practices

Topics list

- Angles
- Trigonometric Functions
- Graphs of Trigonometric Functions
- Trigonometric Identities
- Inverse Trigonometric Functions
- Vectors
- Laws of Sines and Cosines
- Analyzing & Classifying Angles
- Parametric Equations
- Polar coordinates and graphing.
- Complex numbers

Learning activities

- Courses must, at a minimum, cover the core learning outcomes for each topic. Faculty may add to these outcomes, but may not omit any of them.
- The content of the course may be taught with or without the use of a graphing calculator as deemed appropriate by the instructor.

Assessments

- There will be a common departmental portion on the required comprehensive final exam.
- These questions will be in direct support of the Learning Outcomes.
- Instructors will report the results of the individual departmental questions when grades are submitted.

Grading Guidelines

- At least 70% of the student's final grade should come from proctored work.