

PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

PRECALCULUS TRIGONOMETRY
MATH 1720

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 0.0

Date Revised: Fall 2017

Catalog Course Description

Precalculus trigonometry for students in the University Parallel/College transfer Programs of science, mathematics, engineering or computer science. This is the second of two courses in a sequence that prepares students for Calculus I. Topics include the unit circle, right triangle trigonometry, graphs of trigonometric functions, inverse trigonometric functions, verifying trigonometric identities, solving trigonometric equations, law of sines, law of cosines and vesctors.

Textbook(s) and Other Reference Materials Basic to the Course

Textbook:

Blitzer, Robert F. Precalculus Essentials w/MML for Pellissippi State CC, 4th custom edition. Pearson Learning Solutions, 2013.

References:

Algebra and Trigonometry with Analytic Geometry, 12th edition, Swokowski/Cole, Cengage;
Algebra and Trigonometry, 2nd Edition, Stewart/Redlin/Watson, Cengage.

Personal Equipment:

A graphics calculator is required; the TI-83, Ti-83 Plus, or Ti-84 Plus is recommended. A symbolic manipulator such as the TI-89 or TI-92 is not permitted.

Weekly Topics

Week	Topics
1	Introduction, Review of functions, Angles and radian measure. 4.1
2	Trigonometric functions, The Unit Circle. 4.2
3	Right triangle trigonometry, Trigonometric functions of any angle. 4.3 – 4.4
4	Review, Test 1, Graphs of sine and cosine functions. 4.5
5	Graphs of other trigonometric functions, inverse trigonometric functions. 4.6 – 4.7
6	Applications of trigonometric functions. 4.8
7	Review, Test 2, Verifying trigonometric identities. 5.1
8	Sum and difference formulas, Double angle, Power reducing, Half angle formulas. 5.2 – 5.3
9	Trigonometric equations. 5.5
10	Review, Test 3, Law of sines. 6.1
11	Law of cosines, Polar coordinates. 6.2 – 6.3
12	Graphs of polar equations, Complex numbers in polar form, DeMoivre's Theorem. 6.4 – 6.5
13	Vectors, Dot product. 6.6 – 6.7
14	Review, Test 4, Review for Final Exam
15	Final Exam

Course Goals

NOTE: Roman numerals after course goals reference the General Education Goals of the Mathematics program.

The course will

- A. Build the geometric and trigonometric manipulation skills necessary for success in the engineering technologies and transfer programs. VI.1,2,3
- B. Use function notation and concepts for evaluating trigonometric functions and interpreting the results. VI.1,2,3
- C. Illustrate techniques for interpreting trigonometric graphs and demonstrate how they relate to other disciplines. VI.1,2,3,4

- D. Look at technology as a tool for analyzing data, graphs, and solutions to enhance understanding of trigonometric concepts and determining if solutions are reasonable. VI.2,3,4,5,6
- E. Develop the problem solving skills for solving real world applications that require the use of trigonometric equations for a wide-range of disciplines with emphasis on the sciences and engineering. VI.3,4,5,6

Expected Learning Outcomes

NOTE: Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

Students will be able to:

1. Define and use the six trigonometric ratios. A
2. Apply the trigonometric ratios to right triangle problems from geometry and technology. A, D, E
3. Determine the trigonometric and inverse trigonometric functional values for any angle measured in degrees and radians. A, B, C, D
4. Apply radian measure to geometry and technology. A, C, D
5. Add vectors geometrically and algebraically. A, D, E
6. Use the law of sines to solve oblique triangles. A, D, E
7. Sketch sine and cosine graphs, noting amplitude, period and horizontal displacement. A, C
8. Convert between polar and rectangular forms of complex numbers. A
9. Prove trigonometric identities by using the fundamental, double, angle, sum, and difference identities. A
10. Solve conditional trigonometric equations by using identities. A
11. Graph polar equations using symmetry and point plotting in the polar coordinate system. C

Evaluation

Testing Procedures:

Students are evaluated primarily on the basis of tests, quizzes homework, and/or a comprehensive final exam. A minimum of four major tests, in addition to the final exam, is recommended.

Laboratory Expectations:

As assigned by instructor

Field Work:

As assigned by instructor

Other Evaluation Methods:

As assigned by instructor

Grading Scale:

93-100	A
88-92	B+
83-87	B
78-82	C+
70-77	C
60-69	D
Below 60	F

Policies**Attendance Policy**

The Pellissippi State Mathematics Department faculty expect registered students to attend all scheduled instructional activities. As a minimum, students must be present for at least 75 percent of their scheduled classes in order to receive credit for the course. Individual instructors' policies may be more specific and posted in the class syllabus.

Academic Dishonesty

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices: Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments. In addition to other possible disciplinary sanctions that may be imposed as a result of academic misconduct, the instructor has the authority to assign either (1) an F or zero for the assignment or (2) an F for the course.

Accommodations for Disabilities

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disabilities Services (DS) in order to receive accommodations in this course. Disabilities Services may be contacted by sending email to disabilityservices@pstcc.edu, or visiting Alexander 130. More information is available at <http://www.pstcc.edu/sswd>.

Other Policies

Make Up Work: Instructor discretion about make-up tests and/or assignments.

Cell Phones: Cell phones are to be either turned off or put on vibration mode while in class. Instructor discretion as to penalty.