HIGHLAND
COMMUNITY COLLEGE
WWW.HIGHLANDCC.EDU
606 W. MAIN, HIGHLAND, KS 66035

MAT 105 Trigonometry
Prerequisite: MAT 104 or Equivalent
3 Credit Hours (Lecture)

Department:

Mathematics

Course Description:

This course includes the study of circular functions and their graphs, working with the right triangle, unit circle, inverse circular functions, identities, conditional equations, the Law of Sines, the Law of Cosines, and other topics as time permits.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Define and interpret radian measurement.
2. Recognize and apply circular functions as real-valued functions.
3. Solve for unknown sides/angles within right triangles and know trigonometric function values for special angles (multiples of $\frac{\pi}{6}$ and $\frac{\pi}{4}$).
4. Define the trigonometric functions using both the right triangle and the unit circle.
5. Analyze the graphs of the six basic trigonometric functions and their arithmetic combinations using the concepts of period, phase shift, amplitude, and displacement.
6. Derive and verify the trigonometric identities, including but not limited to double angle, half angle, angle sum, and angle difference.
7. Define, graph, and apply inverse trigonometric functions.
8. Find solutions of oblique triangles using the Law of Sines or Law of Cosines.
9. Solve equations involving trigonometric functions.
10. Solve applied problems, including but not limited to vectors.
11. Derive the trigonometric form of complex numbers and perform calculations with them, including products and quotients.
12. Translate between rectangular and polar coordinates and graph within the polar coordinate system.

Course Content:

A. Circular Functions
B. Graphs and Inverse Circular Functions
C. Trigonometric Functions and Solutions of Triangles
D. Identities
E. Conditional Equations
F. Polar Coordinates and Complex Numbers
G. Additional Topics

Syllabus

Learning Assessments:

Course competencies will be assessed by written examinations covering all course materials, including quizzes and regular hour-long exams and a comprehensive final exam. Some assessment may also occur through a written report on the results of the Internet project chosen by the instructor, as well as through regular collection of homework and in-class work.

Instructional Materials:

Analytic Trigonometry with Applications, 10th Edition, Barnett, Ziegler, Byleen, Wiley, 2009.
ISBN: 978-0470-28076-8
A graphing calculator is also required. The TI-83 plus model is recommended. Students should use the instructional book that accompanies the graphing calculator of their choice, as the instructor will not have time to teach students how to use the various graphing calculators.

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the "Disabilities Self-Identification Form" at this link: https://highlandcc.edu/pages/disability-services.

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.