

**SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES**

Mathematics

Revision Date: 2014-01-08

Term: 2014 Winter
Course: MATH-1200-ES31 (Trigonometry)
Class Time: MWF 14:00–15:20 CT
Class Room: ESQ 100D

Instructor: Toby Bartels, PhD
Email: TBartels@Southeast.edu
Voice mail: 402-323-3452
Text: 402-805-3021
Office Hours: MTWTF 11:00–12:00 CT, MW 16:00–17:00 CT
Office: ESQ 112

Course policies are available at <http://TobyBartels.name/MATH-1200/2014w/>.

I. CATALOG DESCRIPTION

Course Number: MATH-1200
Course Title: Trigonometry
Prerequisite(s): A grade of C or higher in MATH-1150 or appropriate score on the math placement test.
Catalog Description: A study of trigonometry in preparation for advanced math and science coursework. Use definitions of trigonometric functions to establish properties, create graphs, establish identities and formulae, and define inverse trigonometric functions. Use trigonometric functions and their inverses to solve trigonometric equations, and applications. Graphing in polar coordinates, and vector arithmetic.
Credit Hours: 4.5
Class Hours: 40
Lab Hours: 0
Total Contact Hours: 40

II. COURSE OBJECTIVES: *Course will:*

- A. Review plane geometry with emphasis on circles and their equations.
- B. Review graphing techniques for functions (transformations).
- C. Develop the definitions of the trigonometric functions using right triangles, general angles in the plane, and the unit circle.
- D. Develop the properties and graphs for each trigonometric function along with techniques for graphing the trigonometric functions.
- E. Use trigonometric functions to model and interpret applications which are cyclic in nature.
- F. Develop and apply trigonometric identities.
- G. Develop and apply definitions of inverse trigonometric functions.
- H. Develop techniques for simplifying trigonometric expressions, and solving trigonometric equations.
- I. Use trigonometric functions to solve applications involving triangles.
- J. Present the polar coordinate system, and techniques for graphing polar equations.
- K. Introduce vectors, and vector operations.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Write and graph equations of circles in the plane.
 - 2. Use definitions and properties of trigonometric functions to graph and create model equations.
 - 3. Use definitions and properties of trigonometric functions to establish identities, and solve equations.
 - 4. Use trigonometric functions to solve applications involving triangles.
 - 5. Convert between polar and rectangular forms of points and equations.
 - 6. Identify and graph classical polar curves.
 - 7. Perform arithmetic operations between vectors.
- B. General Education Learning Outcomes
 - 1. Problem Solving: The ability to define a problem, propose hypotheses and strategies for testing solutions, implement outcomes that address all factors of the problem, evaluate results, and define any need for further work. **(GELO 3)**
 - 2. Quantitative Reasoning: The ability to reason and solve quantitative problems in a variety of contexts utilizing mathematical manipulations such as words, data sets, graphs, tables, etc. **(GELO 6)**
 - 3. Thinking Critically: The ability to examine data, ideas, issues and arguments; understand and evaluate assumptions and evidence; and reach logically valid conclusions. **(GELO 2)**

IV. COURSE CONTENT/UNITS OF INSTRUCTION

- A. Review basic geometry concepts (distance, midpoint, equations of circles).
- B. Review basic techniques for graphing functions.
- C. Trigonometric functions (definitions, properties, and graphing trigonometric functions).
- D. Analytic trigonometry: Inverse trigonometric functions, trigonometric identities, angle sum & difference and double angle formulae, and solving trigonometric equations.
- E. Applications of trigonometric functions: Solving applications involving triangles, and modeling simple harmonic motion.
- F. Polar coordinates and vectors: Graphing polar equations and performing basic vector arithmetic.

V. INSTRUCTIONAL MATERIALS

- A. Required Text: Sullivan, *Algebra & Trigonometry*, 9th edition, Pearson: Prentice Hall, 2011, ISBN-13 978-1-269-61698-0, or loose leaf with MML Plus access code.
- B. Other resources:
 - 1. A scientific calculator is strongly suggested.
 - 2. A MyMathLab access code is required.

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Lecture
- B. Small group activities
- C. MyMathLab resources

VII. METHODS OF EVALUATION

- A. Homework
- B. MyMathLab Exercises
- C. Comprehensive Final Exam
- D. SCC GRADING SCALE

A+	95%+	C+	75%+	F	60%-
A	90%+	C	70%+		
B+	85%+	D+	65%+		
B	80%+	D	60%+		

VIII. SPECIFIC COURSE REQUIREMENTS

A. None

SYLLABUS STATEMENTS

Statement of Equal Opportunity and Nondiscrimination

It is the policy of Southeast Community College to provide equal opportunity and non-discrimination in admission, attendance and employment matters for all qualified persons, attending or seeking admission to the College, without regard to race, color, ethnicity, religion, sex, age, marital status, national origin, veteran status, sexual orientation, disability, or other factors prohibited by law. Inquiries concerning the application of Southeast Community College's policies on equal opportunity and nondiscrimination should be directed to the Vice President for Access, Equity and Diversity, SCC Area Office, 301 S 68th Street Pl, Lincoln NE 68510-2449; Phone 402-323-3412; Fax 402-323-3420; Internet e-mail jsoto@southeast.edu.

Americans with Disabilities Act – Reasonable Accommodations

If you have a disabling condition that may substantially limit your ability to participate in this class, it is your responsibility to contact the Disability Services provider on campus. For additional information and assistance contact:

Lincoln	Room J2	402-437-2620
Milford	Assessment Office	402-761-8202
Beatrice	Jackson Hall – Room J406	402-228-8242

Academic Integrity

Academic Integrity is one of the basic principles of a college community. SCC encourages and expects the highest standards of academic honesty from all students. Please note that cheating, plagiarism, or other forms of academic dishonesty are monitored and subject to disciplinary action.

Electronic Devices

Personal use of any electronic device not authorized by the instructor is prohibited. **Violations may lead to formal disciplinary action.** Instructors, for instructional purposes, may allow in the classroom the use of cell phones and personal electronic devices.

Firearms/Weapons Strictly Prohibited

SCC policy prohibits the possession of firearms, weapons, or fireworks on College property or at any College-sponsored event. Effective January 1, 2007, Nebraska State Statute 69-2441 makes it unlawful to carry a concealed handgun into a meeting of the governing body of a political subdivision, collegiate athletic event, school, school grounds, school-owned vehicle, or school-sponsored activity or athletic event. These prohibitions apply to EVERYONE (employees, students, invitees, and visitors) and are enforceable EVERYWHERE (all college property and all college-related events.) Violations of these prohibitions will result in disciplinary and/or law enforcement action.