

## MERRITT COLLEGE COURSE OUTLINE

<b>COLLEGE:</b>		<b>STATE APPROVAL DATE:</b>	02/03/2019
<b>ORIGINATOR:</b>	Daniel Lawson	<b>STATE CONTROL NUMBER:</b>	CCC00060 1772
		<b>BOARD OF TRUSTEES APPROVAL DATE:</b>	01/08/2019
		<b>CURRICULUM COMMITTEE APPROVAL DATE:</b>	09/13/2018
		<b>CURRENT EFFECTIVE DATE:</b>	08/01/2019

### DIVISION/DEPARTMENT:

#### 1. REQUESTED CREDIT CLASSIFICATION:

Credit - Degree Applicable  
Course is not a basic skills course.  
Stand-alone

#### 2. DEPT/COURSE NO:

MATH 216

#### 3. COURSE TITLE:

Support for Trigonometry

#### 4. COURSE: MC New Course

**TOP NO.** 1701.00

#### 5. UNITS: 1.000

**HRS/WK LEC: 1.00 Total: 17.50**

**HRS/WK LAB:**

#### 6. NO. OF TIMES OFFERED AS SELETED TOPIC:      AVERAGE ENROLLMENT:

#### 7. JUSTIFICATION FOR COURSE:

As the number of levels of pre-transfer-level mathematics an entering community college student must complete increases, the likelihood that the student will ever successfully complete a transfer-level mathematics course decreases according to large research studies conducted both inside and outside of California. By offering Support for Trigonometry the mathematics department aims to provide students with co-requisite course with transfer-level Math 50, Trigonometry. Contextualizing the curriculum and focusing instruction on the skills, methods and ways of thinking needed for understanding trigonometric applications is expected to ignite student interest, increase retention and success, and prepare students to succeed in their concurrently enrolled Math 50. For science, technology, engineering, mathematics, or business majors.

#### 8. COURSE/CATALOG DESCRIPTION

Review of the core prerequisite skills, competencies, and concepts needed in trigonometry: Geometry, transformations of graphs, trigonometric functions and applications, conic sections, polar coordinates including the complex plane and analytic geometry. Intended for students majoring in science, technology, engineering, and mathematics and who are concurrently enrolled in MATH 50, Trigonometry. This course is appropriate for students who are confident in their graphing and beginning algebra skills.

#### 9. OTHER CATALOG INFORMATION

- a. Modular: No    If yes, how many modules:
- b. Open entry/open exit: No
- c. Grading Policy: Pass/No Pass
- d. Eligible for credit by Exam: No
- e. Repeatable according to state guidelines: No
- f. Required for degree/certificate (specify):
- g. Meets GE/Transfer requirements (specify):
- h. C-ID Number: Expiration Date:

- i. Are there prerequisites/corequisites/recommended preparation for this course? Yes

- 10. LIST STUDENT PERFORMANCE OBJECTIVES (EXIT SKILLS):** (Objectives must define the exit skills required of students and include criteria identified in Items 12, 14, and 15 - critical thinking, essay writing, problem solving, written/verbal communications, computational skills, working with others, workplace needs, SCANS competencies, all aspects of the industry, etc.)(See SCANS/All Aspects of Industry Worksheet.)

Students will be able to:

1. Convert angles in degree measure to radian measure, and vice versa
2. Solve application problems involving right triangles.
3. Find all six trigonometric ratios of any angle measure
4. Use fundamental trigonometric identities to verify other trigonometric identities
5. Graph trigonometric functions o Find the amplitude, period, and phase shift of a function o Plot points of special angles to graph a function o Graph inverse trigonometric functions
6. Solve trigonometric equations using algebraic methods and trigonometric identities.
7. Determine values of inverse trigonometric functions
8. Convert polar coordinates to rectangular coordinates and vice versa.

- 11A. COURSE CONTENT:** List major topics to be covered. This section must be more than listing chapter headings from a textbook. Outline the course content, including essential topics, major subdivisions, and supporting details. It should include enough information so that a faculty member from any institution will have a clear understanding of the material taught in the course and the approximate length of time devoted to each. There should be congruence among the catalog description, lecture and/or lab content, student performance objectives, and the student learning outcomes. List percent of time spent on each topic; ensure percentages total 100%.

**LECTURE CONTENT:**

Just-in-time and as needed approach to: 100%

1. Review of Algebra:
  - a. Function properties
  - b. Graphing algebraic functions
  - c. Transformations
  - d. One-to-one functions; inverse functions
2. Review of Geometry
  - a. Angles
  - b. Triangles
  - c. Circles
3. Trigonometry
  - a. Basic trigonometric functions
  - b. Right triangles/unit circle
  - c. Graphs and transformations of trigonometric functions
  - d. Applications
4. Polar coordinates
  - a. Polar coordinates
  - b. Polar equations
  - c. Complex plane
5. Analytic Geometry
  - a. Conics
  - b. Ellipses
  - c. Hyperbolas
6. Topics related to developing effective learning skills
  - a. Study skills: organization and time management, test preparation and test taking skills
  - b. Self-assessment: using performance criteria to judge and improve one's own work, analyzing and correcting one's errors on one's test
  - c. Use of resources: strategies identifying, utilizing and evaluating the effectiveness of resources in improving one's learning, e.g. peer study groups, computer resources, lab resources and tutoring resources

**11B. LAB CONTENT:**

N/A

- 12. METHODS OF INSTRUCTION** (List methods used to present course content.)

1. Activity
2. Lecture
3. Lab
4. Observation and Demonstration
5. Projects

Other Methods:

Instructor led lecture and student discovery introducing the major concepts, theory, and applications in the language of statistics and analysis. Interactive class discussions on worksheets, including question and answer sections reviewing case studies as presented in text books and lecture. Projects to apply content to real world contexts, solidifying knowledge.

- 13. ASSIGNMENTS:** 0.00 hours/week (List all assignments, including library assignments. Requires two (2) hours of independent work outside of class for each unit/weekly lecture hour. Outside assignments are not required for lab-only courses, although they can be given.)

Out-of-class Assignments:

Problem sets including problems equivalent to those covered in lectures and original problems which require the synthesizing of various concepts. Written homework to distinguish between specifics in questions, and application of multiple tables and formulas to ensure individual understanding.

ASSIGNMENTS ARE: (See definition of college level):  
NOT primarily college level

- 14. STUDENT ASSESSMENT:** (Grades are based on):  
COMPUTATION SKILLS  
SKILL DEMONSTRATION  
MULTIPLE CHOICE

Why "ESSAY" is not checked:

Mathematics support course; not writing-applicable.

**15. TEXTS, READINGS, AND MATERIALS**

A. Textbooks:

Lial, Hornsby and Schneider. *Trigonometry*. 11th Pearson, 2016.

\*Date is required: Transfer institutions require current publication date(s) within 5 years of outline addition/update.

B. Additional Resources:

Library/LRC Materials and Services:

The instructor, in consultation with a librarian, has reviewed the materials and services of the College Library/LRC in the subject areas related to the proposed new course

Are print materials adequate? Yes

Are nonprint materials adequate? Yes

Are electronic/online resources available? Yes

Are services adequate? Yes

Specific materials and/or services needed have been identified and discussed. Librarian comments:

C. Readings listed in A and B above are: (See definition of college level):

NOT primarily college level

- 16. DESIGNATE OCCUPATIONAL CODE:**  
E - Non-Occupational

- 17. LEVEL BELOW TRANSFER:**

A - 1 Level Below Transfer

**18. CALIFORNIA CLASSIFICATION**

**CODE:**

Y - Credit Course

**19. NON CREDIT COURSE**

**CATEGORY:**

Y - Not Applicable

**20. FUNDING AGENCY**

**CATEGORY:**

Not Applicable - Not Applicable

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**SUPPLEMENTAL PAGE**

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Use only if additional space is needed. (Type the item number which is to be continued, followed by "continued."

Show the page number in the blank at the bottom of the page. If the item being continued is on page 2 of the outline, the first supplemental page will be "2a." If additional supplemental pages are required for page 2, they are to be numbered as 2b, 2c, etc.)

1a. Prerequisites/Corequisites/Recommended Preparation:

**COREQUISITE:**

- MATH 050: Trigonometry

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**STUDENT LEARNING OUTCOMES**

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1. **Outcome:** Using reference triangles in the plane, students will be able to find exact values of all six trigonometric ratios (of any angle measure).

*This outcome maps to the following Institution Outcomes:*

- Quantitative Reasoning - Apply college-level mathematical reasoning to analyze and explain real world issues and to interpret and construct graphs, charts, and tables.

**Assessment:** exam, written exercises

2. **Outcome:** Given data, students will analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing skills)

*This outcome maps to the following Institution Outcomes:*

- Quantitative Reasoning - Apply college-level mathematical reasoning to analyze and explain real world issues and to interpret and construct graphs, charts, and tables.

**Assessment:** exams, written exercises

3. **Outcome:** Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem. (Proof and Deductive Reasoning skills)

*This outcome maps to the following Institution Outcomes:*

- Quantitative Reasoning - Apply college-level mathematical reasoning to analyze and explain real world issues and to interpret and construct graphs, charts, and tables.

**Assessment:** exams, written exercise

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