

MERRITT COLLEGE COURSE OUTLINE

COLLEGE:		STATE APPROVAL DATE:	12/05/2018
ORIGINATOR:	Daniel Lawson	STATE CONTROL NUMBER:	CCC00037 6069
		BOARD OF TRUSTEES APPROVAL DATE:	11/13/2018
		CURRICULUM COMMITTEE APPROVAL DATE:	03/28/2018
		CURRENT EFFECTIVE DATE:	08/01/2019

DIVISION/DEPARTMENT:

1. REQUESTED CREDIT CLASSIFICATION:

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

2. DEPT/COURSE NO:

MATH 202

3. COURSE TITLE:

Geometry

4. COURSE: MC Course Changes in Catalog Info

TOP NO. 1701.00

5. UNITS: 3.000

HRS/WK LEC: 3.00 **Total:** 52.50

HRS/WK LAB:

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

7. JUSTIFICATION FOR COURSE:

Course satisfies the General Education analytical thinking requirement for the associate degree and prepares students for subsequent courses in Mathematics (Intermediate Algebra, Trigonometry); also satisfies requirements for certain vocational majors (Architectural Technology, Carpentry, Photography).

8. COURSE/CATALOG DESCRIPTION

Introduction to plane geometry emphasizing mathematical logic and proofs: Geometric constructions, congruent triangles, parallel lines and parallelograms, proportions, similar triangles, circles, polygons, and area.

9. OTHER CATALOG INFORMATION

- a. Modular: No If yes, how many modules:
- b. Open entry/open exit: No
- c. Grading Policy: Both Letter Grade or Pass/No Pass
- d. Eligible for credit by Exam: No
- e. Repeatable according to state guidelines: No
- f. Required for degree/certificate (specify):
 Mathematics
- g. Meets GE/Transfer requirements (specify):
 AA/AS GE area 4b
- h. C-ID Number: Expiration Date:

- i. Are there prerequisites/corequisites/recommended preparation for this course? Yes
 Date of last prereq/coreq validation: 08/23/2018

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:

Demonstrate satisfactory competency in the following areas:

1. Demonstrate satisfactory competency in the following areas:
2. Proving triangles are congruent
3. Proving parts of triangles are equal
4. Proving lines are parallel
5. Proving polygons are parallelograms
6. Proving triangles are similar
7. Computing areas of polygons.

Understand mathematical concepts and the foundation skills listed above in order to continue work in mathematics and apply these principles to related fields.

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Think logically: Assess given information, apply applicable concepts, explore alternative approaches, and arrive at conclusions based on evidence

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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:

- | | |
|---|-----|
| 1. Fundamental Concepts | 10% |
| a. Points, lines, planes | |
| b. Distance, betweenness, angles | |
| 2. Congruent Triangles and Related Theorems | 10% |
| a. Proving triangles are congruent | |
| b. Providing corresponding parts of congruent triangles are equal | |
| c. Theorems involving isosceles triangles | |
| 3. Parallel Lines and Parallelograms | 10% |
| a. Parallel lines | |
| b. Sum of the angles in a triangle | |
| c. Sum of the angles in polygons | |
| d. Parallelogram | |
| e. Rectangles, rhombuses | |
| f. Trapezoids | |
| 4. Areas and Related Topics | 10% |
| a. Areas of polygons | |
| b. Areas of circles | |
| 5. Ratio, Proportion, and Similarities | 10% |
| a. Theorems involving ratio and proportions | |
| b. Similar triangles | |
| 6. Circles | 10% |
| a. Theorems involving chords, tangents, and secants of circles | |
| 7. Inequalities | 5% |
| a. Properties of inequalities | |
| b. Inequalities involving triangles and circles | |
| c. Inequalities involving chords of circles | |

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|-----|---|-----|
| 8. | Geometric Theorems | 5% |
| | a. Basic locus theorems | |
| | b. Concurrency theorems | |
| 9. | Regular Polygons and Circles | 10% |
| | a. Circles circumscribed about regular polygons | |
| | b. Circles inscribed within regular polygons | |
| | c. Areas of regular polygons | |
| 10. | Mathematical Logic | 10% |
| | a. Valid reasoning | |
| | b. The inverse, converse, and contrapositive | |
| 11. | Introduction to Analytic Geometry | 10% |
| | a. The Cartesian coordinate system | |
| | b. The straight line \ | |
| | c. Proving geometric theorems with analytic methods | |

11B. LAB CONTENT:

n/a

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

1. Discussion
2. Lecture
3. Other (Specify)

Other Methods:

Lecture introducing the major concepts, theory and applications Class discussion to include question and answer session and skill demonstrations which emphasize alternative approaches and their underlying rationale

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:

1. Assigned textbook readings.
2. Problem sets including problems equivalent in content and level of difficulty to those covered in the lectures.
3. Additional problems that introduce supplemental concepts and formulas and require the synthesizing of various concepts.

ASSIGNMENTS ARE: (See definition of college level):
Primarily College Level

14. STUDENT ASSESSMENT: (Grades are based on):

ESSAY (Includes "blue book" exams and any written assignment of sufficient length and complexity to require students to select and organize ideas, to explain and support the ideas, and to demonstrate critical thinking skills.)

COMPUTATION SKILLS

NON-COMPUTATIONAL PROBLEM SOLVING (Critical thinking should be demonstrated by solving unfamiliar problems via various strategies.)

SKILL DEMONSTRATION

ESSAY (Includes "blue book" exams and any written assignment of sufficient length and complexity to require students to select and organize ideas, to explain and support the ideas, and to demonstrate critical thinking skills.)

OTHER (Describe):

Problem sets/exercises.

15. TEXTS, READINGS, AND MATERIALS

A. Textbooks:

Rich, Barnett,. 2009. *Geometry: includes plane, analytic, and transformational geometries* McGraw Hill

*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? No

Are nonprint materials adequate? No

Are electronic/online resources available? No

Are services adequate? No

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):

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

SUPPLEMENTAL PAGE

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:

PREREQUISITE:

- MATH 201: Elementary Algebra
or

PREREQUISITE:

- MATH 210D - Elementary Algebra (Lab)
or

PREREQUISITE:

- Appropriate placement through multiple-measures assessment process.

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STUDENT LEARNING OUTCOMES

1. **Outcome:** Prove mathematical statements inductively (congruent, parallel, similar)
Assessment: other (describe below): Quizzes and/or tests Final comprehensive examination

2. **Outcome:** Calculate areas and perimeters of various polygons and associated applications.
Assessment: other (describe below): Quizzes and/or tests Final comprehensive examination
3. **Outcome:** Calculate surface areas and volumes of solid figures including prisms, pyramids, cylinders, spheres, and cones.
Assessment: other (describe below): Quizzes and/or tests Final comprehensive examination
4. **Outcome:** Analyze a mathematical situation of any type listed above, organize a method of solution, and perform the solution in a clear written or oral dissertation
Assessment: other (describe below): Quizzes and/or tests Final comprehensive examination
5. **Outcome:** Think logically: Assess given information, apply applicable concepts, explore alternative approaches, and arrive at conclusions based on evidence.
Assessment: other (describe below): Quizzes and/or tests Final comprehensive examination

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