

Course Outline

COURSE: MATH 208 **DIVISION:** 10 **ALSO LISTED AS:**

TERM EFFECTIVE: Fall 2015 **CURRICULUM APPROVAL DATE:** 03/09/2015

SHORT TITLE: PLANE GEOMETRY

LONG TITLE: Plane Geometry

| <u>Units</u> | <u>Number of Weeks</u> | <u>Type</u> | <u>Contact Hours/Week</u> | <u>Total Contact Hours</u> |
|--------------|------------------------|-------------|---------------------------|----------------------------|
| 3 | 18 | Lecture: | 3 | 54 |
| | | Lab: | 0 | 0 |
| | | Other: | 0 | 0 |
| | | Total: | 3 | 54 |

COURSE DESCRIPTION:

This course introduces the vocabulary and principles of Euclidean Geometry. Methods of proof including inductive and deductive reasoning will be developed. Concepts of congruence and similarity, angles, lines, polygons, and circles will be covered. Additional topics such as solid geometry, analytical geometry, transformations, and basic trigonometry may be included as time allows. **PREREQUISITE:** Math 430 or equivalent with a grade of "C" or better.

PREREQUISITES:

- Completion of MATH 205, as UG, with a grade of C or better.
- OR
- (Completion of MATH 205A, as UG, with a grade of C or better.
- AND Completion of MATH 205B, as UG, with a grade of C or better.)
- OR
- Completion of MATH 430, as UG, with a grade of C or better.
- OR
- Completion of MATH 233, as UG, with a grade of C or better.
- OR
- Completion of MATH 235, as UG, with a grade of C or better.
- OR
- Completion of MATH 240, as UG, with a grade of C or better.
- OR
- Completion of MATH 242, as UG, with a grade of C or better.
- OR
- Completion of MATH 5, as UG, with a grade of C or better.
- OR
- Completion of MATH 6, as UG, with a grade of C or better.

OR
Completion of MATH 7, as UG, with a grade of C or better.
OR
Completion of MATH 8, as UG, with a grade of C or better.
OR
Completion of MATH 8A, as UG, with a grade of C or better.
OR
Completion of MATH 8B, as UG, with a grade of C or better.
OR
Completion of MATH 12, as UG, with a grade of C or better.
OR
Completion of MATH 14, as UG, with a grade of C or better.
OR
Completion of MATH 1A, as UG, with a grade of C or better.
OR
Completion of MATH 1B, as UG, with a grade of C or better.
OR
Completion of MATH 1C, as UG, with a grade of C or better.
OR
Score of 2500 on Accuplacer Math

COREQUISITES:

CREDIT STATUS: C - Credit - Degree Non Applicable

GRADING MODES

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion

STUDENT LEARNING OUTCOMES:

1. Students will write geometric proofs, including inductive and deductive proofs, and proof by contradiction.

Measure: Homework, quizzes, exams

PLO:

ILO: 2,1

GE-LO:

Year assessed or anticipated year of assessment: 2014

2. Students will prove basic theorems involving congruence and similarity for triangles.

Measure: Homework, quizzes, exams

PLO:

ILO: 2,1

GE-LO:

Year assessed or anticipated year of assessment: 2014

3. Students will prove and use theorems involving the properties of parallel lines, quadrilaterals, and circles.

Measure: Homework, quizzes, exams

PLO:

ILO: 2,1

GE-LO:

Year assessed or anticipated year of assessment: 2014

4. Students will derive and solve problems involving perimeters, circumferences, areas, surface areas, and volumes of common geometric figures.

Measure: Homework, quizzes, exams

PLO:

ILO: 2,1

GE-LO:

Year assessed or anticipated year of assessment: 2014

5. Students will prove the Pythagorean Theorem and apply it to right triangle problems.

Measure: Homework, quizzes, exams

PLO:

ILO: 2,1

GE-LO:

Year assessed or anticipated year of assessment: 2014

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 03/09/2015

WEEK 1

3 HOURS

Review algebra, inductive and deductive reasoning - Students will do problems and demonstrate the difference between the two.

NOTE: FOR EVERY WEEK, STUDENTS WILL COMPLETE ASSIGNED HOMEWORK PROBLEMS.

WEEK 2

3 HOURS

Basic geometric parts, intro to formal proofs - Students will identify the various parts. They will be able to formally prove simple theorems.

WEEK 3

3 HOURS

Geometric constructions, congruent triangles - Students will use compass and straightedge to do basic constructions. They will be able to determine whether 2 triangles are congruent.

WEEK 4

3 HOURS

Proofs involving right triangles - Students will be discover the joy of the basic 2-column proof.

WEEK 5

3 HOURS

Constructions with triangles, parallel lines, and polygons - Students will again use their tools for constructions. They will be able to prove when lines are parallel.

WEEK 6

3 HOURS

More parallel lines and polygons - Students will delve deeper into the joys of parallel lines and be able to work with convex polygons.

WEEK 7

3 HOURS

4-sided figures - Students will identify and prove that figures are or are not parallelograms, rectangles, or rhombii.

WEEK 8

3 HOURS

More 4-sided figures - Students will develop theorems regarding trapezoids and all other 4-sided polygons.

WEEK 9

3 HOURS

Ratios and proportions and similarity - Students will be able to determine the difference between congruent and similar polygons. They will do problems to demonstrate this difference with triangles and other polygons.

WEEK 10

3 HOURS

Right triangles and the Pythagorean Theorem - Students will prove theorems about right triangles. They will work a myriad of problems with the Pythagorean Theorem.

WEEK 11

3 HOURS

More about right triangles and triangle inequalities - Students will demonstrate the Triangle Inequality Theorem.

WEEK 12

3 HOURS

Circles - Students will prove theorems about circles, arcs, tangents, secants, and chords.

WEEK 13

3 HOURS

Circles and regular polygons, inequalities involving circles - Students will see the relations and similarities between circles and regular polygons. They will prove theorems involving them.

WEEK 14

3 HOURS

More work with circles and polygons. If time permits, an introduction to trigonometry where students will work problems involving SOHCAHTOA.

WEEK 15

3 HOURS

Solving right triangles - Students will solve for the missing sides of triangles and use these rules in real-world applications.

WEEK 16

3 HOURS

Areas of polygons and circles - Students will be able to find the areas of convex polygons and circles. They will also find the areas of sectors of a circles.

WEEK 17

3 HOURS

Volumes - Students will find the volumes of regular polyhedrons including prisms, pyramids, cones, and cylinders.

WEEK 18

2 HOURS

Final Exam

For every week, students will complete assigned homework problems.

METHODS OF INSTRUCTION:

Lecture, demonstration, cooperative group learning, discussion, and other methods as necessary.

METHODS OF EVALUATION:

This is a degree-applicable course, but substantial writing assignments are NOT appropriate, because the course primarily:

Involves skill demonstrations or problem solving

The problem-solving assignments required:

Homework problems

Quizzes

Exams

The types of skill demonstrations required:

Other: Geometric constructions

The types of objective examinations used in the course:

Multiple choice

True/false

Matching items

Completion

Other category:

None

The basis for assigning students grades in the course:

Writing assignments: 0% - 0%

Problem-solving demonstrations: 85% - 90%

Skill demonstrations: 3% - 7%

Objective examinations: 5% - 10%

Other methods of evaluation: 0% - 0%

REPRESENTATIVE TEXTBOOKS:

Required:

Lial. Essential Geometry for College Students, 2nd edition or other appropriate college level text. Pearson, Year of Publication: 2004.

Reading level of text, Grade: 10th Verified by: Marlene Dwyer

Other textbooks or materials to be purchased by the student: Compass, straightedge, and protractor

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Not Transferable

UC TRANSFER:

Not Transferable

SUPPLEMENTAL DATA:

Basic Skills: B

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 2 Stand-alone

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department:

CSU Crosswalk Course Number:

Prior to College Level: B

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: E

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000119253

Sports/Physical Education Course: N

Taxonomy of Program: 170100