Miami-Dade Community College

Common Course Number: MAE 3331

Course Title: Teaching Secondary School Geometry

Catalog Course Description:

This course involves an analysis of the content of secondary school geometry courses. Activities related to the effective teaching of these courses include designing lesson plans, evaluating learning materials and resources, and exploring a variety of teaching strategies to accommodate the diverse needs of a multicultural student population. Field experience, which includes classroom observations and involvement with the teaching-learning process, is required. The course addresses specific Sunshine State Standards, subject matter competencies, and pedagogy pertinent to the discipline and required for certification.

Credit Hours Breakdown: *3 lecture hours*

Prerequisite: MAC 2312 or departmental approval.

Course Competencies:

Competency 1: The student will demonstrate knowledge of teaching secondary school geometry courses.

Upon successful completion of this course, the student will demonstrate knowledge of teaching secondary school geometry courses by:

A. Exploring the use of various teaching tools such as geometric manipulatives, computer software, graphing calculators, multimedia and the Internet.

B. Exploring the use of various teaching strategies such as lecture, collaborative learning and project based discovery learning.

C. Preparing and evaluating lesson plans on topics in secondary school geometry.

D. Presenting lessons using various teaching strategies.

Competency 2: The student will demonstrate knowledge of the content of secondary school geometry courses.

Upon successful completion of this course, the student will demonstrate knowledge of the content of secondary school geometry courses by:

A. Analyzing the National Council of Teachers of Mathematics principles and standards that apply to secondary school geometry.

B. Presenting and/or observing presentations on properties of parallelism and perpendicularity.

C. Presenting and/or observing presentations on properties of congruent triangles.

D. Presenting and/or observing presentations on properties of similar triangles.

E. Presenting and/or observing presentations on properties of polygons.

F. Presenting and/or observing presentations on properties of circles.

G. Presenting and/or observing presentations on properties of three-dimensional geometric objects.

H. Presenting and/or observing presentations on properties of geometric objects in the coordinate plane.

I. Presenting and/or observing presentations on various forms of geometric proofs.

J. Presenting and/or observing presentations applying problem-solving skills to real-world applications of geometry.

Competency 3: The student will demonstrate knowledge of geometric constructions.

Upon successful completion of this course, the student will demonstrate knowledge of geometric constructions by:

A. Constructing various types of plane geometric figures using straight edge and compass.

B. Constructing various geometric figures using technology such as Geometer's Sketchpad.

C. Sketching three-dimensional geometric objects manually.

Competency 4: The student will demonstrate knowledge of evaluation and assessment techniques.

Upon successful completion of this course, the student will demonstrate knowledge of evaluation and assessment techniques by:

A. Exploring validity and reliability issues related to different types of evaluation and assessment instruments.

B. Preparing an examination on a geometry unit.

C. Grading a sample examination.

D. Exploring various techniques for collecting information for making assessments.

E. Preparing and evaluating an assessment instrument other than an examination.

Competency 5: The student will complete field experience for this course.

Upon successful completion of this course, the student will complete field experience for this course by:

A. Performing a required number of hours observing a secondary school geometry classroom.

B. Performing a required number of hours interacting with students as a resource to the secondary school geometry classroom teacher.