**CCBC Essex School of Mathematics and Science**

# MATH 132 Concepts of Mathematics II SEMESTER: Spring 2014 Section: E71

**Course Pre-requisites:**

MATH 083 or MATH 101 or LVM 3 or sufficient math placement score; and ENGL 052 or LVE 2; and RDNG 052 or ESOL 054 or LVR 2.

**COURSE DESCRIPTION:**

Students will learn the concepts and principles of geometry taught in elementary education. Topics include

geometric vocabulary, concepts and skills in two and three dimensions, coordinate geometry, metric and nonmetric geometry, and measurement.

**Instructor:** Anthony Calise **CLASS MEETING LOCATION:** Essex J208

**EMAIL:** acalise2@bcps.org  **CLASS MEETING DAYS:** Saturday

**OFFICE LOCATION:** MASH 310 **CLASS MEETING TIMES:** 8:00-11:55

**Office hours:** M/W (6:15 – 7:15) (Office) **&** Saturday (7:15-8:00am) (Classroom)

**WEBPAGE:** [www.mrcalise.weebly.com](http://www.mrcalise.weebly.com) (Math 132)

**OUT OF CLASS WORK EXPECTATIONS**

This is a 4 credit/billable hour course offered over 14 weeks. The student is expected to complete **at least** **8 hours** of work **per week** **outside** of the class, including reading, class preparation, homework, studying, etc.

**MATERIALS**

**TEXT:** ***A Problem Solving Approach to Mathematics,*** 11th Edition, Billstein Libeskind and Lott, Addison Wesley, publisher

**Compass and Protractors are required.**

**A calculator is also recommended for this course.**

**COURSE OBJECTIVES**

Upon successfully completing the course students will be able to:

1. apply appropriate problem solving strategies, including the use of computers and calculators, to solve a variety of geometric problems (both standard and non-standard) (I, III, IV, VI, 1, 4, 6, 7);

2. distinguish between two-dimensional geometric figures through notation, classifications, properties,

and relationships with other figures (I, II, III, 1, 2);

3. distinguish between three-dimensional geometric figures through notation, classifications,

properties, and relationships with other figures (I, II, III, 1, 2);

4. perform constructions and analyze both the constructions and the resulting figures, both manually

and using computer technology (II, III, 1, 2, 4);

5. analyze the various properties of shapes within a plane using transformations (translations, rotations,

reflections) and symmetries (I, II, III, IV, 1, 2, 4, 7);

6. use the concepts of magnification, similarity, and congruence to classify geometric figures (I, 1, 2,

4);

7. create tessellations using both regular polygons and non-regular figures (I, V, 2, 6, 7);

8. use both the customary (English) and metric systems in an appropriate manner to perform

measurements (i.e. length, mass, capacity, temperature, time) (I, VI, 4, 7);

9. apply appropriate measurement formulas (i.e. perimeter, area, volume, etc.) and properly interpret

the results (I, II, III, 1, 2, 3, 7);

10. use appropriate instruments to perform measurements (i.e. geoboards, rulers, etc.) (III, V, 1, 6, 7);

11. illustrate geometric concepts and interpret information from coordinate graphs (I, II, III, 1, 2, 3)

12. relate the concepts discussed throughout the course to the students’ physical surroundings (III, V,

VI, 7);

13. utilize the Internet and other resources to research course-related topics (I, III, VI, 1, 3, 5, 6, 7).

14. discuss the origin and development of fundamental geometric concepts and their implications for the

present and the future (worldwide) (II, IV, V, 2, 5)

**Major Topics:**

1. Introductory Geometry

a. Definition of geometry

b. Basic notions (point, line, plane, etc.)

2. Two-Dimensional Geometry

a. Angles, lines and planes

b. Polygons and circles

3. Three-Dimensional Geometry

a. Lines and planes in space

b. Polyhedra and spheres

4. Coordinate Geometry

a. Cartesian (rectangular) coordinate system

b. Linear equations and related concepts

5. Transformational Geometry and Tessellations

a. Translations, rotations, reflections, magnification

b. Symmetries

c. Tessellations

6. Constructions and Similarity

a. Congruence of figures

b. Constructions involving two-dimensional figures

c. Analysis of similar figures

7. Measurement

a. Customary and metric units

b. Perimeter, area, and volume

c. Pythagorean Theorem

**Rationale:**

This is the second in a series of three courses for Elementary Education majors which provides students with the geometry topics that comply with the National Council of Teachers of Mathematics (NCTM) standards for mathematics education. Geometry concepts provides students with deductive reasoning skills, an understanding of symmetry in the world, a fundamental approach to perimeter, area, volume, similarity and congruency. Computer applications stress drawing techniques and logical thinking. Straight edge and compass constructions develop a deeper understanding of basic geometric relationships.

**EVALUATION**

## REQUIREMENTS:

Grading procedures will be determined by the individual faculty member but will include the following:

* Two (2) written examinations (40%) (*20% each*)
* Cumulative final examination (30%)
* Two (2) projects (20%)
* Quizzes & Oral presentation of problem solutions (10%)

**GRADING POLICY:**

90% - 100% A

80% - 89% B

70% - 79% C

60% - 69% D

Below 60% F

**MATH DEPARTMENT ATTENDANCE POLICY**:

* + - You are expected to attend ALL scheduled classes.
    - Attendance is critical to student success in college.
    - Satisfactory attendance is defined to be at most 6 hours of unexcused absences.
    - Documentation of the reason for your absence(s) may be required.
    - The instructor may count each unexcused tardy arrival as an absence and each unexcused early departure as an absence.

**MATH DEPARTMENT AUDIT POLICY:**

Students may change from credit to audit only during the published 50% refund period, as indicated in the CCBC academic calendar. Students who audit are required to attend class, participate in course activities, and complete assignments (except for tests and the final exam) in accordance with instructor guidelines and due dates. For students who do not meet these requirements, the instructor may change their grade from AU to W.

**COURSE PROCEDURES:**

**COURSE RELATED POLICIES AND PROCEDURES**

**COLLEGE WIDE SYLLABUS POLICIES**:

[For college wide syllabus policies such as the Code of Conduct related to Academic Integrity and Classroom Behavior or the Audit/Withdrawal policy, please go to the Syllabus Tab on the MyCCBC page.](https://myccbc.ccbcmd.edu/Pages/Default.aspx)

**CONTACT INFORMATION FOR COURSE-RELATED CONCERNS:**

Students should first attempt to take concerns to the faculty member. If students are unable to resolve course-related concerns with the instructor they should contact the Math Department Chair (Sylvia Sorkin)

**COURSE CALENDAR/SCHEDULE:**

<http://www.ccbcmd.edu/registration/academic_calendars.html> (Includes Semester Calendar with important dates, as well as Final Exam Calendar)

**THIS SYLLABUS MAY BE CHANGED WITH NOTIFICATION TO THE CLASS**