SPARTANBURG
COMMUNITY
COLLEGE

Geometry

Revised 08/011/2010

$$\underline{C - L - CR}$$
$$3 - 0 - 3$$

COURSE NUMBER: MAT 215

PREREQUISITE(S):   MAT 102 with grade of C or better.

CO-REQUISITE(S):   None

COURSE DESCRIPTIONS

This course includes the following topics: Euclidean geometry of points, lines, triangles, circles, and polygons; right triangle trigonometry; analytical geometry of the straight line.

TEXTBOOK(S):

Billstein, Libeskind, and Lott. *A Problem Solving Approach to Mathematics for Elementary School Teachers*, 10th Edition Pearson Education, 2010.

Dolan, Williamson, and Muri. *Mathematics Activities for Elementary School Teachers, A Problem solving Approach*, 10th edition., Pearson Education, 2010

Textbooks bundled with MML: ISBN: 0321761359
MyMathLab stand alone: ISBN: 0-32119991X

REFERENCE(S):

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT:

For most recent requirements go to :
http://info.coursecompass.com/website/support.html

Scientific Calculator. Calculators with algebraic symbolic operations are not allowed without instructor's approval.

Computer with Internet access, Internet Explorer 5.0 or higher or other current browser, Java, word processing software (must be able to save Word format), and anti-virus software.

METHOD OF INSTRUCTION: This course will be taught via the internet. The concepts will be instructor-led by reading, watching, and/or exploring using an internet-based math tutorial and a textbook.

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

GRADE CALCULATION METHOD: See instructor's handout.

CONFIDENTIALITY: All students' e-mail addresses may be available to other students in the class. Although some assignments in an online course may encourage or require peer communication, the instructor will make every effort to protect the confidentiality of any personal communication (for example, grades). However, you should recognize that e-mail and other electronic media are not secure; there is no guarantee of the privacy of your e-mail or other personal information.

APPROPRIATE ONLINE BEHAVIOR: The use of Spartanburg Community College's website, e-mail service or course management software for creation and/or distribution of material not pertaining to course participation is prohibited and is grounds for dismissal according to College policy under "disruptive behavior." Such actions, include, but are not limited to:

- Inappropriate use of email and discussion boards for:
  - ✓ Harassment
  - ✓ Unlawful solicitation
  - ✓ "Spamming"
  - ✓ "Flaming"
- Use of online editing tools within the course

management software to:
- ✓ Create offensive material
- ✓ Link to inappropriate materials

ATTENDANCE POLICY:

Requirement: All students must register in MyMathLab during the first week of scheduled classes.   At the end of the first week, the instructor will drop any student from the course who has not registered in MyMathLab.

Instructors maintain attendance records. However, it is the student's responsibility to withdraw from a course. A student who stops attending the online class and fails to initiate a withdrawal will remain on the class roster. *With this in mind, for every assignment, test or exam not completed while still enrolled in the course the student will receive a grade of zero and the final course grade will be calculated accordingly.*

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of W. A student cannot initiate a withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

ACADEMIC CONDUCT:

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

TESTING:

Tests will be taken online in approved Testing Centers with proctors. The instructor may allow, at most, one test to be taken online unproctored. For SCC students, tests will be taken online and will be administered in the **Testing Center located in E-3 of the East Building on the SCC campus**. If the SCC campus is not convenient, the student may contact the instructor for an alternate testing site. For Tech Online students, the test will be administered

in the testing center at your host college. Refer to the class outline for test availability. If any test is not taken during the specified time frame, a zero will be awarded for the test grade. Everyone must take a comprehensive final exam.

East Building Room 3 Testing Center: PHOTO ID REQUIRED!

Go to   http://www.sccsc.edu/resources/testing for hours of operation.

ACCOMMODATIONS: Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 592-4811, toll-free 1-800-922-3679; via email through the Spartanburg Community College web site at http://www.sccsc.edu/resources/disabilities ; or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Community College campus. By contacting Student Disability Services early in the semester, students with disabilities give the College an opportunity to provide necessary support services and appropriate accommodations.

COURSE OUTCOMES & OBJECTIVES: **Upon satisfactory completion of this course, the students should be able to demonstrate competency in the General Education Outcome listed as "their ability to express themselves effectively in quantitative and qualitative terms" in the following competencies and objectives:**

I. Define basic terms in plane and solid geometry. (5hrs.)
1. Define, classify, and measure angles.
2. Define the circle and its parts.
3. Name polygons with twelve or fewer sides.
4. Recognize common three-dimensional figures

II. Employ properties of geometric figures to determine measures of their sides and angles. (6 hrs.)

1. Classify polygons.
2. Classify triangles according to angle measures and lengths of sides.
3. State the properties of common three-dimensional geometric figures
4. Use the Pythagorean Theorem to determine the relationships among the sides of a 30°-60°-90° triangle and a 45°- 45°- 90° triangle.

III. Determine congruency and similarity of triangles and other polygons. (5 hrs.)
1. Show whether two triangles are congruent.
2. Use the properties of polygons to determine congruency.
3. Define similar polygons.
4. Use similar triangles to make indirect measurements.

IV. Perform geometric constructions using a compass and straightedge. (8 hrs.)
1. Construct a circle given its radius.
2. Construct line segments of given lengths.
3. Construct triangles with given properties.
4. Construct angles and their bisectors.
5. Construct parallel and perpendicular lines.

V. Calculate perimeter, area, and volume of geometric figures. (9 hrs.)
1. Calculate circumference, arc length, area of a sector, and an area of a circle.
2. Find the perimeter and area of polygons.
3. State the formulas for areas of a circle, triangle, rectangle, parallelogram, and trapezoid.
4. Find the lateral and total surface area and volume of right prisms, pyramids, cylinders, and cones.
5. Find the surface area and volume of a sphere.

VI. Make conversions in the metric and English systems of

measurement. (4 hrs.)
  1. Perform calculations involving length, area, volume and mass in the English system of measurement.
  2. Perform calculations involving length, area, volume and mass in the metric system of measurement.

VIII.   Find images in a plane under translations, rotations, and reflections. (8 hrs.)
  1. Construct translations and rotations.
  2. Construct reflections using tracing paper, a Mira, or a compass and a straightedge.
  3. Find the image of a polygon under a size transformation.
  4. Identify line, rotational and plane symmetries.

SYLLABUS
ADDENDUM

Addendum for Mat 215, Billstein, Tenth Edition
Revised 08/2009

Chapter 11 Introductory Geometry   **12 hours**

  11.1 Basic Notations
  11.2 Polygons
  11.3 More about Angles
  11.4 Geometry in Three Dimensions

Chapter 12 Construction, Congruence, and Similarity   **14 hours**

  12.1 Congruence Through Constructions
  12.2 Other Congruence Properties
  12.3 Other Constructions
  12.4 Similar Triangles and Similar Figures
  12.5 Lines in a Cartesian Coordinate System
  12.6 Trigonometry Ratios via Similarity

Chapter 13 Concepts of Measurement   **13 hours**

  13.1 Linear Measure
  13.2 Areas of Polygons and Circles
  13.3 The Pythagorean Theorem and the Distance Formula
  13.4 Surface Areas
  13.5 Volume, Mass, and Temperature

Chapter 14   Motion Geometry and Tessellations 6 hours (if time permits)

  14.1 Translation and Rotations
  14.2 Reflections and Glide Reflections
  14.3 Size Transformations
  14.4 Symmetries
  14.5 Tessellations of the Plane