COLLEGEWIDE COURSE OUTLINE OF RECORD

MATH 117, THE ART OF GEOMETRY

COURSE TITLE: The Art of Geometry
COURSE NUMBER: MATH 117
PREREQUISITES: Demonstrated competency through appropriate assessment or a grade of "C" or better in MATH 050 Basic Algebra or MATH 070 Elements of Algebra and Geometry.
SCHOOL: Liberal Arts and Sciences
PROGRAM: Liberal Arts
CREDIT HOURS: 3
CONTACT HOURS: Lecture: 3
DATE OF LAST REVISION: Spring, 2007
EFFECTIVE DATE OF THIS REVISION: Fall, 2008

CATALOG DESCRIPTION: This course emphasizes visualization and appreciation of the beauty of mathematics through geometry; translates between visual and symbolic representations of objects used in art and design; applies mappings, symmetry, similarity, vectors, and geometric constructions of shapes to working with 2D and 3D figures; uses geometry software, hands-on techniques and models.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be expected to:

1. Use mathematical principles, concepts, processes, and rules to investigate, formulate, and solve visual problems.
2. Use visualization, spatial reasoning, and geometric modeling to connect mathematics with art and design.
3. Work collaboratively to solve mathematical problems.
4. Connect mathematics with visual aesthetics and design principles and goals.
5. Apply kinematics and geometry of objects to animation in two and three dimensions.
6. Understand what a vector is and how to use vectors in describing geometric objects and transformations.
7. Locate points and describe shapes using rectangular, polar, cylindrical, and spherical coordinate systems, as appropriate.
8. Use and develop formulas for applied situations.
9. Construct geometric figures using a variety of techniques and equipment including hands-on models.
10. Use manipulative materials to demonstrate an understanding of topics in this course.
11. Use geometry software to study mathematical relationships and the mathematical nature of objects in art and design.
12. Analyze characteristics and properties of two-and three-dimensional geometric objects.
13. Choose and apply transformations and use symmetry to analyze geometric objects.
14. Demonstrate ways in which nature, art and architecture can be used to explore geometry.

COURSE CONTENT: Topical areas of study include –

Spatial reasoning
Geometric modeling
Design principles
Animation
Vectors
Coordinate systems
Two-and three-dimensional geometric objects
Transformations

ACADEMIC HONESTY STATEMENT:

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

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