TOPICS IN GEOMETRY AND TOPOLOGY

MTCH 8020

Course Description:

Symmetry, Platonic solids, Symmetry groups including finite Dihedral groups, the Euclidean group and lattice point groups, graph theory, topology of the plane, Euler Characteristic and classification of closed surfaces. Connections to the high school classroom will be explored. **3 credits**

Prerequisites:

Secondary teacher certification or working toward it, or permission of instructor.

Overview of Content and Purpose of the Course:

The purpose of this course is to provide students with a mathematical understanding of geometry and topology.

Anticipated Audience/Demand:

This course is offered to certified secondary education teachers.

Major Topics:

1. Connection between Geometry and Algebra
2. Euclidean Geometry
3. Topology of Surfaces

Methods:

This course will be presented by lectures, exams, and homework assignments, and class discussions.

Student Role:

Students should be active readers, attend and participate in class discussions, and be fully engaged with their homework problems.

Textbook:

Armstrong, Mark A. *Groups and Symmetry*. New York: Springer, 1988.

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