A. Course Description

Credits: 3

Prerequisites: MATH 310 Calculus III: Multivariable Calculus

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week :

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning, Goal LS - Upper Division Liberal Studies

This course goes beyond the Euclidean Geometry typically taught in high schools. This is a modern approach to geometry based on the systematic use of transformations. It includes a study of some advanced concepts from Euclidean Geometry and then proceeds to examine a wide variety of other geometries, including Non-Euclidean and Projective Geometry. A working knowledge of vectors, matrices, and multivariable calculus is assumed.

B. Course Effective Dates: 05/08/2019 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Compare/contrast the development, axioms and/or postulates and theorems of Euclidean and Non-Euclidean geometries.
2. Define and understand mathematical axiomatic systems and their properties.
3. Present concepts of Euclidean geometry from a transformational viewpoint.
4. Use hypotheses to draw valid conclusions and to avoid making invalid arguments.

E. Learning Outcomes (MN Transfer Curriculum)

Goal 04 - Mathematical/Logical Reasoning
1. Apply higher-order problem-solving and/or modeling strategies.
2. Clearly express mathematical/logical ideas in writing.
3. Illustrate historical and contemporary applications of mathematical/logical systems.
4. Explain what constitutes a valid mathematical/logical argument(proof).

Goal LS - Upper Division Liberal Studies
None

G. Special Information

Note: Students whose prerequisites are not identified by the system would contact the Math and Statistics Department for an override at MATH@metrostate.edu. First day attendance required except by instructor permission.