



Catalog Description:

Topics in geometry for architecture majors.

Prerequisite:

Enrollment in the School of Architecture and: Math Placement Level L or M; C- or better in 1148 or 1150; or credit for 148 or 150.

Purpose of Course:

The majority of the audience is made up of Architecture majors for whom the course is a requirement. The intent of the course is to introduce these students to the mathematics inherent in 2D and 3D design. Moreover, there is an emphasis on similar figures and the issues that arise when scaling lengths, areas, and volumes.

Follow-up Courses:

There are really no follow-up courses. To start any other mathematics sequence will probably involve beginning at an appropriate entry level course. Students interested in further course work in mathematics should consult the Mathematics Advisors in 250 Mathematics Bldg.

Text:

Course Notes, by Snapp

Topics List:

1. Geometric models, transformations, matrices.
2. Plane tessellations, concepts of symmetry.
3. Polyhedra: Platonic and Archimedean.
4. Invariants: area, volume, Euler characteristic.
5. Mathematics of perspective drawing.
6. String art: curves defined as envelopes of tangent lines, ruled surfaces.
7. Discrete curvature: Descartes theorem and beyond.
8. Higher dimensions: tesseract and other 4-D polyhedra.