MTHT 510 Introduction to Higher Geometry — Thursday 5:00 - 8:00
Fall 2014 — 636 SEO

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office hours Wednesday & Thursday 4 - 5 SEO 622 312 413-1417

Course Description

In this course we will cover higher order approaches to understanding geometry. We will stick to the structure of the book, *Four Pillars of Geometry* by John Stillwell. Roughly speaking the four pillars are axioms, algebra, transformations and projective geometry. Emphasis, where possible, will be given to applications to high school teaching with many hands-on activities.

Requirements

Prerequisite Confidence in Euclidean Geometry through some angles in circles theorems.

Required Text Four Pillars of Geometry by John Stillwell, Springer, 2005. The book is available in ebook formats through the UIC library.

Recommend Text We will mentioning *Euclidean and Transformational Geometry* by Shlomo Libeskind, but if you did not take MTHT 411 last Spring you do not need to purchase this book. Copies will be available as needed.

Technology Students are welcome to use a laptop during class. We will be using Geogebra in class. Geometer's Sketchpad is a good substitute for most, but not all of our applications. Geogebra is free, downloadable software and a combination of a graphing calculator, a spreadsheet and something similar to geometer's sketchpad. We will be sharing work on Googledocs and/or writeLatex. Google accounts are free and easy to get at `http://accc.uic.edu/service/googleapps`. Students may go to `www.writelatex.com` to learn about writeLatex, but this will be demonstrated in class. No knowledge of LaTex is required for the class.

Grading

Portfolio Students will maintain a portfolio of geometric projects. Four of these will be completed in detail, and the rest outlined. All portfolio materials will be available for others to read.

Class attendance is mandatory. If for any reason a class is missed, contact the instructor by phone or e-mail in advance. The student is responsible for finding out what was covered and completing all work on schedule. In addition, students complete an additional project for each missed class.

Homework There will be homework assignments weekly. The assignments are designed as additions to the portfolio.

For more information go to `www.math.uic.edu/~saunders/MTHT510_Geometry`