Math/Comp 163  Computational Geometry  Spring 2009

Course Information

Block: E+MW, 10:30 - 11:45 AM
Instructor: Diane Souvaine
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Office: Halligan 102A
Office hours: (Fall 2008) M 2:30 - 3:30 pm
Phone: 7-2225

Prerequisites: Comp 160 or consent.

Text:

Recommended Text:

Course description:
Computational geometry is concerned with the design and analysis of algorithms for solving geometric problems and the analysis of the underlying complexity of the problems themselves. Applications can be found in such fields as VLSI design, computer graphics, robotics, computer-aided design, pattern recognition, and statistics. This course will study key problems in computational geometry and the design and analysis of algorithms for their solution. Topics include proof of lower bounds, convex hulls, range searching and point location, plane sweep and arrangements of lines, Voronoi diagrams, intersection problems, decomposition and partitioning, farthest-pairs and closest-pairs, rectilinear computational geometry. The ultimate aim will be to identify general paradigms and data structures of particular importance to solving computational geometry problems, and thereby provide the participants with a solid foundation in the field.

Course work includes written homework assignments, a midterm exam, a project, and a final exam.