MATH 610 -- Topics in Pure Mathematics

Title: Geometric topology and group theory

The focus of this course will be orderable groups, a classical subject, and the recent remarkable interactions of this subject with topology. Topics will include aspects of geometric group theory, ordered groups and dynamics, spaces of orderings, braid groups, knot theory, 3-dimensional manifolds, fibrations, foliations, groups of homeomorphisms, and Heegaard-Floer homology if time permits.

The text, which will be provided to students, is the forthcoming book "Orderable groups and topology" by Adam Clay and Dale Rolfsen (to be published by the AMS). The course will be run seminar-style with students expected to give some lectures and work on problems. A number of open problems and research topics will be discussed.

Prerequisites for the course: A basic course in topology including fundamental groups and covering space theory. Some familiarity with homology would be advantageous, but not absolutely necessary. Also familiarity with basic notions of group theory will be assumed.

Instructor: Dale Rolfsen (rolfsen@math.ubc.ca) -- also some guest lecturers.