MAST90055 Geometric Group Theory

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 36 hours: 1 x two-hour lecture per week and 1 x one-hour practical class per week. Total Time Commitment: 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	It is recommended that students have completed third year subjects in algebra and topology (equivalent to 620-321 [2008] Algebra and 620-322 [2008] Topology).
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements for this entry.The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
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Subject Overview:	In Geometric Group Theory geometrical ideas are used to give new insights into group theory. Although its roots can be traced back to the work of Dehn at the beginning of the twentieth century, the subject has mostly been developed in the last twenty years. The subject draws on ideas from low dimensional topology and from hyperbolic geometry. In particular, coarse curvature conditions on groups, and their consequences, will be a core topic of the subject.
Objectives:	After completing this subject, students will have an understanding of: • finitely generated groups as geometric objects. • coarse geometry on metric spaces, including the notion of quasi-isometry; • decision problems for finitely presented groups; • negative and non-positive curvature conditions and their consequences; • asymptotic properties of groups. • and have the ability to pursue further studies in this and related areas
Assessment:	Up to 50 pages of written assignments (50%: two assignments worth 25% each, due mid and late in semester), a 3 hour written examination (50%, in the examination period).
Prescribed Texts:	TBA
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	At completion of this subject, students should gain • Problem-solving skills (especially through exercises and assignments) including engaging with unfamiliar problems and identifying relevant strategies; • Analytical skills including the ability to construct and express logical arguments and to work in abstract or general terms to increase the clarity and efficiency of the analysis.
Related Course(s):	Master of Science (Mathematics and Statistics)