

CARLETON UNIVERSITY  
SCHOOL OF MATHEMATICS AND STATISTICS

**MATH 4106/5106 Topics in Group Theory Winter 2020**

***Preliminary COURSE OUTLINE***

This course is an introduction to geometric group theory. We shall study infinite groups by looking at their 'nice' actions on 'nice' spaces.

**TOPICS include** Free groups, Group presentations, Cayley graphs of groups, Quasi-isometries, Hyperbolic groups, CAT(0) groups,...

**Recommended Reading:**

- *A course on Geometric Group Theory*, by B. Bowditch,
- *Metric Spaces of Non-positive Curvature*, by M. Bridson and A. Haefliger,
- *Office Hours with a Geometric Group Theorist*, edited by M. Clay and D. Margalit,
- *Géométrie et théorie des groupes: Les groupes hyperboliques de Gromov (French)*, by M. Coornaert, T. Delzant and A. Papadopoulos.

**Lectures:** Tuesday and Thursday 4 - 5:30 pm, room DT 1006. Lectures begin on January 7 (Tuesday) and end on April 7 (Tuesday).

**Evaluation.** Your final grade for the course will consist of

- (1) **Assignments 20%**
- (2) **Presentations 50%**
- (3) **Final Examination 30%**

**Prerequisites:** MATH 2100 or MATH 2108 should suffice in terms of the required background knowledge. However, the more you know about groups and about proofs the better.

**Course Instructor:** Dr. Inna Bumagin

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