

# Coxeter groups and Kazhdan-Lusztig polynomials. An introduction.

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**Timetable:** 20 hours. Class meets on Tuesday and Thursday from 15:00 to 17:00 and on Friday from 10:30 to 12:30. The first lecture will be on Tuesday, January 25, 2011, Torre Archimede:

25/01/2011	15:00 – 17:00	1C150
27/01/2011	15:00 – 17:00	2BC30
28/01/2011	10:30 – 12:30	2BC30
01/02/2011	15:00 – 17:00	2BC30
03/02/2011	15:00 – 17:00	2BC30
04/02/2011	10:30 – 12:30	2BC30
08/02/2011	15:00 – 17:00	Meeting room VII floor
10/02/2011	15:00 – 17:00	2BC30
11/02/2011	10:30 – 12:30	2BC30
15/02/2011	15:00 – 17:00	Meeting room VII floor

**Course requirements:** Basics in Algebra and Geometry

**Examination and grading:** Possible written homework and/or oral exposition

**SSD:** MAT/02 Algebra, MAT/03 Geometry

**Aim:** Introduction to Coxeter groups theory and Kazhdan-Lusztig polynomials, exploring possible research topics

**Course contents:**

This course will provide an introduction to the algebraic, geometrical and (especially) combinatorial aspects of Coxeter groups and Kazhdan-Lusztig polynomials. We will discuss open problems and conjectures. Topics include:

1. Coxeter systems
2. Bruhat order
3. Special matchings
4. Kazhdan-Lusztig polynomials and their applications
5. Dyer-Lusztig conjecture