

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

5 credits


30.0 h + 15.0 h

Q1

This biannual learning is being organized in 2019-2020

Teacher(s)	Caprace Pierre-Emmanuel ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	
Aims	1 ---- <i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i>
Evaluation methods	Due to the COVID-19 crisis, the information in this section is particularly likely to change. Assessment is by an examination during the exam session on one hand, and by projects during the semester on the other hand. The examination tests knowledge and understanding of fundamental concepts, examples and results, ability to construct a coherent argument, and mastery of the techniques of proof introduced during the course.
Teaching methods	Due to the COVID-19 crisis, the information in this section is particularly likely to change. The course is taught through lectures and practical exercises. In the practical exercise sessions, students will be asked to make suggestions and formulate ideas in order to further the course on the basis of their prior knowledge.
Content	This course aims at introducing some of the fundamental concepts from the theory of groups. A special emphasis is put on finitely generated infinite groups, and their study by geometric methods. The following themes will be discussed, starting from concrete examples. <ul style="list-style-type: none"> • Abelian, nilpotent and soluble groups. • Simple groups. • Free groups and groups acting on trees. • Gromov hyperbolic groups. • Linear groups and residual finiteness. • The Burnside Problem.
Inline resources	Moodle: https://moodleucl.uclouvain.be/
Bibliography	C. Drutu and M. Kapovich, Geometric Group Theory. American Mathematical Society Colloquium Publications 63, 2018. P. de la Harpe, Topics in Geometric Group Theory. Chicago Lectures in Mathematics, 2000. J. Meier, Groups, graphs and trees. An introduction to the geometry of infinite groups. London Mathematical Society Student Texts 73, Cambridge UP, 2008. D. Robinson, A course in the theory of groups. (Second edition). Graduate Texts in Mathematics, Springer, 1996. J.-P. Serre, Arbres, amalgames, SL ₂ . Astérisque, No. 46. <i>Société Mathématique de France, Paris</i> , 1977.
Faculty or entity in charge	MATH

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Master [60] in Mathematics	MATH2M1	5		
Master [120] in Mathematics	MATH2M	5		