



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Algebra Superiore

2223-1-F4001Q112

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#### Aims

The course is aimed to present the contents and the fundamental concepts, of a 'classical' course in group theory.

The expected learning outcomes includes:

- the knowledge of the main results in group theory,
- the ability to apply them on concrete examples.

#### Contents

The course will proceed by discussing several important classes of groups, which play an important role also in other mathematical disciplines. The theory of finite groups will be a guideline at the beginning, later many examples will be infinite and will show up in a geometric context.

#### Detailed program

The course will proceed by discussing the following classes of groups:

1. Abelian groups,
2. Nilpotent groups,
3. Solvable groups,
4. Free groups,
5. Free products, free products with amalgamation, HNN extensions,
6. Groups given by generators and relations, e.g., gruppi di Artin rettangolari, gruppi di nodi, gruppi di tipo

Baumslag-Solitar.  
7. Gruppi fondamentali di superfici compatti.

## **Prerequisites**

It is recommended an a priori knowledge of the standard contents of a first and second year Algebra course.

## **Teaching form**

Lessons 8 CFU (ECTS) (in English)

## **Textbook and teaching resource**

Derek J.S. Robinson, A course in the theory of groups, Springer, Graduate texts in Mathematics, No 80.

## **Semester**

1st term

## **Assessment method**

The exam is only oral. It consists of a number of questions and an evaluation (marks: 18/30 to 30/30). The questions are aimed to verify that the student has understood the theoretical development of the course and has a good knowledge of the theorems (and their proofs), as given in the lectures.

## **Office hours**

On appointment

## **Sustainable Development Goals**

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