

# UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

### **COURSE SYLLABUS**

## **Higher Algebra**

2223-1-F4001Q112

#### **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 rectangolari, gruppi di nodi, gruppi di tipo

