MATH-310 **Algebra**

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Cursus	Sem.	Type
Chemistry	BA5	Opt.
Communication systems	BA5	Obl.
Computer science	BA3	Opt.
Cyber security minor	H	Opt.
HES - IC	H	Opt.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	Written
Workload	120h
Weeks	14
Hours	**4 weekly**
Lecture	2 weekly
Exercises	2 weekly
Number of positions	

Summary

This is an introduction to modern algebra: groups, rings and fields.

Content

Integer numbers, Bezout's theorem. Groups, dihedral and symmetric groups. General structure results. Classification of finite abelian groups. Rings, ideals. Polynomial rings. Integral domains and Euclidean domains. Finite fields.

Learning Prerequisites

Required courses

Linear algebra

Learning Outcomes

By the end of the course, the student must be able to:

- Detect properties of algebraic objects
- Analyze finite groups
- Formulate structure of a finite abelian group in terms of cyclic groups
- Analyze structure of a ring, in particular polynomial rings

Assessment methods

Written homework assignment (15% of the grade)
Written exam (85 % of the grade)

Supervision

Forum Yes

Resources

Moodle Link

- https://go.epfl.ch/MATH-310