

MATH-220

Metric and topological spaces

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Cursus	Sem.	Type
Mathematics	BA3	Obl.

Language of teaching	English
Credits	5
Session	Winter
Semester	Fall
Exam	Written
Workload	150h
Weeks	14
Hours	4 weekly
Lecture	2 weekly
Exercises	2 weekly
Number of positions	

Summary

A topological space is a space endowed with a notion of nearness. A metric space is an example of a topological space, where the concept of nearness is measured by a distance function. Within this abstract setting we can ask: What is continuity? When are two topological/metric spaces equal?

Learning Prerequisites**Required courses**

First year courses in the Bloc "Sciences de base" in EPFL Mathematics Bachelor's program;

Learning Outcomes

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

- Define what is a topological/metric space as well as their properties
- Describe a range of important examples of topological and metric spaces
- Analyze topological/metric structures
- Prove basic results about topological/metric structures

Teaching methods

Lectures and exercise classes.

Assessment methods

written exam

Supervision

Office hours	No
Assistants	Yes
Forum	No

Resources**Bibliography**

There are many good books on general topology. For example, here are a few that are available also at the EPFL library:

Introduction to topology, by T. Gamelin et R. Greene;
Topology, Second Edition, by J. Munkres;
Introduction to metric and topological spaces, by W. A. Sutherland

Ressources en bibliothèque

- [Topology /Munkres](#)
- [Introduction to topology /Gamelin & Greene](#)
- [Introduction to metric and topological spaces / Sutherland](#)

Notes/Handbook

There are written notes for the course.

Moodle Link

- <https://go.epfl.ch/MATH-220>

Prerequisite for

Topology; advanced courses in analysis and geometry.