

MATH-303

Measure and integration

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Cursus	Sem.	Type
Mathematics	BA5	Opt.

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

Summary

We introduce the abstract measure spaces and we process a rigorous treatment of Lebesgue measure and the Lebesgue integral.

Content

- Measures and measurable functions
- Integral, integrable functions
- Convergence theorems
- Measure product, Fubini's theorem
- L_p spaces
- Convergence concepts in L_p
- Convolutions
- Derivation of functions

Learning Prerequisites**Recommended courses**

Analyse III-IV

Obligatoire pour IN/SC : Analyse III, Physique générale I et II et Probabilités et statistique

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Learning Outcomes

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

- Elaborate how to demonstrate a property for measurables
- Work out / Determine conditions for the convergence of integrals
- Quote theorems for abstract spaces
- Establish basic properties for functions

Teaching methods

The course is given during the first 7 weeks with 5 hours ex-cathedra and 3 hours of exercises.

Assessment methods

Written exam

Dans le cas de l'art. 3 al. 5 du Règlement de section, l'enseignant décide de la forme de l'examen qu'il communique aux

étudiants concernés.