

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
<b>Hours</b>	<b>4 weekly</b>
Courses	2 weekly
Exercises	2 weekly
<b>Number of positions</b>	

**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  $L_p$

**Learning Prerequisites****Recommended courses**

1. 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
- Establish basic properties for functions

**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.