



SC

MATH2111 Analyse fonctionnelle

[30h+15h exercices] 5 credits

This course is taught in the 1st semester

Teacher(s): Michel Willem
Language: french
Level: 2nd cycle course

Aims

Aims to provide with the bases of functional analysis necessary to a modern study of partial differential equations, optimisation problems, numerical analysis, etc.

Main themes

- Hahn-Banach, Banach- Steinhaus, closed graph theorems.
- Lebesgue L_p spaces : completeness, density, regularization, compactness.
- Duality and weak convergence : duality of spaces L_p , weak sequential compactness, etc.
- Weak derivatives and Sobolev spaces
- Spectral theory: compact operators, etc.

Other credits in programs

MAP23	Troisième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(5 credits)	
MATH21/E	Première licence en sciences mathématiques (Economie mathématique)	(5 credits)	Mandatory
MATH21/G	Première licence en sciences mathématiques (Général)	(5 credits)	Mandatory
MATH21/S	Première licence en sciences mathématiques (Statistique)	(5 credits)	Mandatory