UCLouvain

lmat2410

2022

Partial differential equation : heat equation, brownian moves and numerical aspects

5.00 credits	30.0 h + 15.0 h	Q2

This learning unit is not being organized during this academic year.

Language :	French > English-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	Students are expected to have followed an introduction to functional analysis or partial differential equations such as LMAT1321 - Analyse fonctionnelle et équations aux dérivées partielles, ou LINMA1315 - Compléments d'analyse, ou LMAT2130 - Equations aux dérivées partielles 1 : équations de Poisson et de Laplace
Main themes	Study of partial differential equation based on methods from real analysis, harmonic analysis, functional analysis and measure theory. The goal is to establish the existence, uniqueness and qualitative properties of solutions.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 Contribution of the course to learning outcomes in the Master in Mathematics programme. By the end of this activity, students will have made progress in: - Independently acquire and use new knowledge and skills throughout his professional life. - Show evidence of abstract thinking and of a critical spirit. - Argue within the context of the axiomatic method. - Construct and draw up a proof independently, clearly and rigorously. - Write a mathematical text according to the conventions of the discipline. - Structure an oral presentation and adapt it to the listeners' level of understanding. - Find sources in the mathematical literature and assess their relevance. - Correctly locate an advanced mathematical text in relation to knowledge acquired. - Ask relevant and lucid questions on an advanced mathematical topic in an independent manner. Learning outcomes specific to the course. By the end of this activity, students will be able to: - Illustrate the problems studied in the course through applications. - Provide some mathematical information on solutions of partial differential equations, including existence, uniqueness and qualitative properties. - Apply techniques of real analysis, harmonic analysis, functional analysis and measure theory to study partial differential equations. - Interpret mathematical theorems in the setting of modeling problems
Faculty or entity in charge	MATH

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Mathematical Engineering	MAP2M	5		🔍