UCLouvain	lmat2160 2023	Training seminar for mathematical researchers

5.00 credits	15.0 h	Q1

Teacher(s)	Caprace Pierre-Emmanuel ;Van Schaftingen Jean ;
Language :	French > English-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	Mathematical skills at the end of bachelor's degree in mathematical sciences.
Main themes	The themes change every year.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 **Contribution of the course to the learning outcomes of the master's program in mathematics.** **At the end of this activity, the student will have progressed in his/her ability to :** - Know and understand a fundamental foundation of mathematics. In particular, he/she will have developed the ability to: -- Recognize the fundamental concepts of important current mathematical theories. -- Establish the main links between these theories. - Demonstrate abstraction, reasoning and critical thinking skills. In particular, the student will have developed the ability to: -- Identify unifying aspects of different situations and experiences. -- Reason within the framework of the axiomatic method. -- Construct and write a demonstration in an autonomous, clear and rigorous way. - Structure an oral presentation. - Analyze a research problem and propose adequate tools to study it in a thorough and original way. - Start a research project thanks to a deeper knowledge of a field of current mathematics. In particular, he will have developed his ability to: -- Independently develop their mathematical intuition by anticipating expected results (formulate conjectures) and by checking consistency with already existing results. -- Independently ask relevant and lucid questions on an advanced mathematical topic. -- To document and summarize the state of knowledge.
Evaluation methods	The assessment is based on : • the active participation to the course sessions; • the quality of the content of the final output, on the basis of the pre-defined objectives and of the intermediate evaluations performed during the elaboration phase. Attending the course sessions is mandatory. The attendance in class is required. The teachers can, by virtue of the article 72 of the General Regulations of studies and exams, propose to the board of examiners to reject the registration of a student to an exam session if they have not attended 80% of the classes. The grade obtained during the semester is final, and fixed for all subsequent exam sessions of the academic year.
Teaching methods	The students determine the mathematical problems, perform documental research and develop strategies to solve them. Their work is presented in written, oral and/or audio-visual form, under the guidance of the professors and the feedback from their peers.
Content	Depending on the mutual interests of the professors and the students, determination and resolution of mathematical problems arising in various contexts, typically from non-mathematical origin (e.g. games, science and technology, economics, society, medias, arts).
Inline resources	Detailed instructions are posted on Moodle.

Faculty or entity in charge	MATH

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [60] in Physics	PHYS2M1	5		🔍
Master [120] in Mathematics	MATH2M	5		🔍
Master [120] in Physics	PHYS2M	5		🔍