UCLouvain

lmat1191

2022

Introduction to the mathematical approach

5.00 credits	30.0 h + 30.0 h	Q1 and Q2

Teacher(s)	Caprace Pierre-Emmanuel ;Van Schaftingen Jean ;
Language :	French
Place of the course	Louvain-la-Neuve
Learning outcomes	
Evaluation methods	In this course, students are evaluated in a continuous manner : 1. attendance and participation to the course sessions (group work, homeworks following the instructions received, and witnessing substantial work), for one fourth of the final grade, 2. homeworks: evaluation by the teachers of the quality of writing and reasoning, for one half of the final grade, 3. individual oral presentation of a portfolio based on the work during the quadrimester, for one fourth of the final grade. The grade of the first exam session (in January) relies only on the parts 1. and 2. and will be taken into account for 50% of those parts in the final grade of the course, provided this is beneficial to the student. The grade of the second exam session (in June) relies on the parts 1. 2. and 3. according to the ratios described above. That grade is final, and fixed for all subsequent exam sessions of the academic year. 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 he/she has not attended 80% of the course sessions.
Teaching methods	• Individual and group work under the teachers' guidance, presentations by the teachers and discussions of the problems and questions. • Individual homeworks with individual and collective feedback from the teachers. • Formative evaluation by the peers
Content	• Elementary notions from number theory • Numbers and inequalities • Deductive reasoning, logical connectives and quantifiers • Sets, relations and functions • Proof techniques, including proofs by contradiction and by induction • Writing and analysis of mathematical texts
Inline resources	Course material and exercise sheets available on Moodle.
Bibliography	Daniel J. Velleman, How to Prove It: A Structured Approach, Cambridge University Press, 2019. Kevin Houston, How to Think Like a Mathematician: A Companion to Undergraduate Mathematics, Cambridge University Press, 2009.
Faculty or entity in charge	MATH

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Mathematics	MATH1BA	5		🔍