



LTH

FACULTY OF
ENGINEERING

Course syllabus

Matematisk kommunikation Mathematical Communication

FMAB55, 5 credits, G1 (First Cycle)

Valid for: 2020/21

Decided by: PLED F/Pi

Date of Decision: 2020-04-01

General Information

Main field: Technology.

Compulsory for: Pi1

Language of instruction: The course will be given in Swedish

Aim

The aim of the course is to increase the student's awareness of, and understanding of, mathematical reasoning. The course gives an introduction to the construction of mathematical theory, demonstrating the need for rigour through simple examples. Furthermore, the student should practise his or her ability to seek information, and to put forward and present mathematical reasoning, also in popular form. The student should also get some notions of current and modern mathematical research.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to use fundamental concepts used in mathematical theory construction, and to understand their meaning.
- be able to informally describe the mathematical sciences (geometry, algebra, analysis and probability theory) and to give examples of research in classical as well as modern mathematics.
- know the procedure for getting a mathematical work published, and be familiar with some important mathematical journals.

Competences and skills

For a passing grade the student must

- be able to use logical reasoning to analyse and solve mathematical problems which require a division into several subproblems.
- be able to explain in a well-structured manner, with clear logic and proper terminology, orally as well as in writing, solutions (produced by the student or by others) to a mathematical problem, and be able to present, orally as well as in writing, a given mathematical problem in a manner accessible to laypersons.
- be able to comment on and review, both in writing and orally, a mathematical text or a mathematical reasoning with respect to both content and form.
- be able to search for articles and journals in data bases and libraries containing mathematical literature, and be able to provide references according to the accepted standards.

Judgement and approach

For a passing grade the student must

- develop an attitude to the world around him or her, according to which mathematics is a natural and precise instrument for communication and reasoning.

Contents

The construction of mathematical theories. A presentation of the mathematical sciences. A glimpse into modern mathematics.

Examination details

Grading scale: UG - (U,G) - (Fail, Pass)

Assessment: Assignments. Written and oral reports of project work, individually and in groups. Compulsory attendance at the presentation of the assignments and the project report.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

Assumed prior knowledge: Knowledge from courses in calculus and linear algebra which are taught in parallel.

The number of participants is limited to: No

The course overlaps following course/s: FMA085, FMAA30

Reading list

- Kevin Houston: How to Think Like a Mathematician, A Companion to Undergraduate Mathematics. Cambridge University Press, 2009, ISBN: 978-0-521-89546-0. A book about reading, understanding and writing mathematics. The ISBN number refers to the paperback edition.
- Stenciler med populärvetenskaplig presentation av modern matematik. Handed out.

Contact and other information

Course coordinator: Studierektor Anders Holst,
Studierektor@math.lth.se

Teacher: Niels Christian Overgaard, nco@maths.lth.se

Course homepage:
<http://www.maths.lth.se/course/FMAB55matkom/>