SF2719 The History of Mathematics 6.0 credits

Matematikens historia

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

The course syllabus is valid from Spring 2022 according to the school principal's decision: S-2022-0529 Decision date: 2022-02-24

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mathematics

Specific prerequisites

English B / English 6
Completed basic courses in SF1624 Linear Algebra, SF1625 Analysis in one variable and SF16256 Multivariable Calculus.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After completion of the course, a student will be able to:

- express analyses and arguments around original mathematical texts orally and in written form in a structured and scientific way
- ask relevant and creative historical questions
- express own thoughts about societal aspects of mathematics such as the structure of society, politics, and gender, both in the past and the present
- sketch the development through history of several mathematical ideas, mathematical subjects, and frameworks in which mathematics was done
- sketch important contributions, biographies and the social context of several prominent historical mathematicians,

in order to give knowledge and skills to analyze and contextualize historical mathematical texts with respect to the development of mathematics through history, the mutual influences between mathematics and society, and to draw conclusions about the role and relevance of mathematics today.

Course contents

- Historical periods: Mathematics in Babylon and Egypt, classical Greek mathematics, Arabian mathematics, European mathematics during the middle ages and the early modern period, European mathematics in the 19th century, Aspects of 20th-century mathematics up to the present.
- Mathematics developments: The notion and notation of numbers, geometry, solving equations, functions, calculus and analysis, probability theory, abstract algebra, foundations (logic, set theory, philosophy of mathematics).
- Historical methods: Different ways to read a historical (mathematical) text, questions informing the reading of a text (mathematical content, author, reader, style, tone, type of text — e.g. letter, textbook, article, commentary — language, typesetting/script), finding relevant and interesting topics of discussion based on one or more texts, finding relevant and high-quality sources supporting a discussion, structuring and formulating convincing arguments, both orally and in written form.
- Analyses: Motivations to do mathematics, the mathematical profession through history, mathematicians' social context, transmission of mathematical ideas, notation and its relevance, m,athematical disputes and their consequences, rigor, women in mathematics, the role of a mathematician as teacher and researcher, the institutions of mathematics (monasteries, schools, universities, research institutes, conferences; prizes and distinctions, competitions, grants), the reception of mathematics in popular culture.

Examination

- TEN2 - Examination, 6.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

The examiner decides, in consultation with KTHs Coordinator of students with disabilities (Funka), about any customized examination for students with documented, lasting disability. The examiner may allow another form of examination for re-examination of individual students.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.