Mathematics

Degree conferred
Bachelor of Science in Mathematics

Languages of study
Study in French and German

Commencement of studies
Commencement of studies only in the Autumn Semester (September)

Access to further studies
Master

This study programme is the first step in the training of professional mathematicians. The methods, ways of thinking and content that, according to international standards, all mathematicians should be proficient in are imparted in an intense and demanding programme. During the third academic year, students can attend advanced lectures that correspond to their interests and preferences. Thanks to close cooperation with the Universities of Bern and Neuchâtel, these courses are also open to students in Fribourg.
The major study programme in Mathematics is supplemented by minors that students can choose freely from other university fields of study.

Profile of the study programme

The origins of mathematics go back to prehistoric times. The science developed from the practical requirements of measuring and counting in trade and industry, from the pursuit of astronomy and geodesy and from the appeal of the principles and laws that were thereby discovered.
The scientific and technical revolutions that have occurred since the beginning of modern times are characterised by the discovery and development of increasing numbers of new mathematical concepts, models and methods. Currently, mathematics has approximately 100 different areas of research, which are interrelated in multifaceted ways with other sciences. Every year more than 100,000 new contributions to research are published in the numerous professional mathematical magazines.

This study programme is the first step in the training of professional mathematicians. The training is usually continued and completed with a subsequent Master of Science in mathematics. The methods, ways of thinking and content that all mathematicians should be proficient in, in accordance with international standards and independent of subsequent specialisation, are imparted in an intense and demanding programme.
The major study programme in Mathematics is supplemented by one or two minors that students can choose freely. In addition to physics, computer science and economics, which are traditionally closely linked to mathematics, other fields of study in Science or the Humanities can also be chosen.

Fribourg profile
The programme of the first two academic years is largely determined by mandatory courses. The main focus consists of a multi-semester lecture series on analysis, algebra and geometry. During the second academic year, introductory courses on applied mathematics, especially numerical mathematics and probability theory, and statistics are added. The courses consist of lectures that serve to quickly and efficiently impart knowledge in a concentrated form and corresponding exercises in which what has been learned is applied independently deepening the knowledge through practical use.
The content of the programme during the third academic year is not so defined, although there are rules that ensure that the training is not too one-sided. The courses require thorough command of the methods and content learned during the first two years of study. Among a wide range of courses, students choose further lectures that correspond to their interests and inclinations. In this way they prepare themselves for a further specialisation within the master programme. During seminars they learn to deal with more complex mathematical problems and to present their results in lectures and written work. There is close cooperation with the neighbouring universities in Berne and Neuchâtel, whose course programmes are also open to the students from Fribourg.
The study of mathematics in Fribourg is bilingual. Approximately half of the courses are held in French and the other half in German. During exams students are free to choose their language. Beginning in the third year, and during the master programme, English is added as a further language of study.

Learning outcomes and career openings
Due to the wide use of mathematical methods and ways of thinking in very different areas of business, science and administration, there is no fixed professional profile for mathematicians. There are typical fields of work at banks, insurance companies, management consultancies, in schools and universities, authorities and statistical offices, in industrial research and development, in information technology, logistics, meteorology, image processing and security technology.
In addition to in-depth mathematical knowledge, the main focus often lies on the skills that are promoted during the studies: clear, structured and substance-oriented thinking, a systematic, targeted approach to tasks, analytical creativity, capacity for abstraction and the ability to see relationships and to quickly find one's way with new types of problems and unfamiliar tasks.

Studies organisation

Structure of studies

120 ECTS credits + 60 ECTS credits in one or two minor study programmes freely chosen, 6 semesters

Curriculum

http://studies.unifr.ch/go/mjkY5 *(French)*

http://studies.unifr.ch/go/0fTFn *(German)*

Admission

The following **Swiss school-leaving certificates** grant **admission to bachelor programmes** at the University of Fribourg:

- Swiss academic Maturity Certificate
- Federal vocational or specialised Baccalaureate + supplementary examination of the Swiss Maturity Commission (passerelle)
- Bachelor Degree from a Swiss university, from an accredited Swiss university of applied sciences (HES/FH) or from a Swiss university of teacher education (HEP/PH)

A **complete list of all further recognised Swiss school-leaving certificates** is to be found on the webpages of swissuniversities (*in French and German only*): https://studies.unifr.ch/go/fr-admission-swisscertificates; https://studies.unifr.ch/go/de-admission-swisscertificates
Foreign upper secondary school-leaving certificates are recognised only if they correspond substantially to the Swiss Maturity Certificate. They must qualify as general education. Foreign school-leaving certificates are considered to be general education if, among other things, the last three years of schooling include at least six general education subjects, independent from each other, in accordance with the following list:

1. Language of instruction (at the school)
2. Second language (a foreign language)
3. Mathematics
4. Natural sciences (biology or chemistry or physics)
5. Humanities and social sciences (geography or history or economics/law)
6. Elective (computer sciences or philosophy or an additional language or an additional subject from category 4 or 5)

The general **admission** requirements to the **bachelor programmes** at the University of Fribourg for holders of foreign school-leaving certificates as well as the **admission requirements for individual countries** are to be found on the webpages of swissuniversities: https://studies.unifr.ch/go/en-admission-countries
In addition, applicants with foreign school-leaving certificates must present **proof of sufficient language skills in French or German**. All guidelines are available at *(only in French and German)*: https://studies.unifr.ch/go/adm-guidelines

The assessment of foreign school-leaving certificates is based on the «Recommendations for the Assessment of Foreign Upper Secondary School-Leaving Certificates» adopted by the Chamber of universities of swissuniversities on 21.11.2024 (https://studies.unifr.ch/go/swissuniversities24fr; https://studies.unifr.ch/go/swissuniversities24de). The admission requirements are valid for the respective academic year. The Rectorat of the University of Fribourg reserves the right to change these requirements at any time.

Alternatives

Also offered as a minor study programme (60/30 ECTS credits).

Contact

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