Physics

Degree conferred
Bachelor of Science in Physics

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 teaches general physics and physics' methodology and provides a broad vision of the discipline. By studying complex natural phenomena, their interactions and the laws which govern them, students of this subject are able to develop critical discernment, creativity and sound reasoning.
The study plan encompasses basic subject knowledge and more advanced learning in several fields, such as mathematical methods, quantum mechanics, electrodynamics, modern optics and thermodynamics. Students also have the possibility of joining top-level research groups from their third year onward.
The physics course at the University of Fribourg offers great freedom in the choice of foundation courses and minor study programmes.

Profile of the study programme

Physics: study, understand, apply
Physics deals with the macroscopic and microscopic constituents of the world around us, as well as their interactions, in order to reduce complex natural phenomena to simple laws which can be expressed quantitatively. The principal objective of physics is basic research and many of its discoveries have resulted in technological applications, such as television, computers, telecommunications and new materials, to cite just a few examples, not forgetting the high-tech apparatus used in modern medicine, the Web, GPS and lasers.

The course offers an excellent grounding in physics (general physics and methodology) and helps students develop critical discernment, new ways of thinking, objectivity, creativity and sound reasoning:

- *Basic subject knowledge*: physics, mathematics and practical work, with a choice of supporting programmes;
- *Advanced learning*: quantum mechanics, mechanics and electrodynamics, atomic physics, thermodynamics, condensed matter, relativity and cosmology, laboratories and placements, mathematical methods, numerical methods.

6 good reasons to study at the University of Fribourg
The University of Fribourg's Department of Physics offers students an excellent environment in which to study physics at the bachelor's level, notably thanks to:

- Its international environment;
- It human dimensions;
- Its excellent student mentoring;
- Its bilingualism; teaching is in French and German. Students may always express themselves in their own language;
- Freedom in the choice of minor study programmes (mathematics, informatics, chemistry, biology, etc.) to complement the major study programme;
- Active participation of third year students and higher in top-level research groups: atomic physics, electrons in solids, soft matter and photonics, interdisciplinary theoretical physics, collective quantum phenomena or nanosciences.

Learning outcomes and career openings

- *Acquired skills*: by the time you obtain your bachelor's degree, you will have consolidated your basic scientific know-how and acquired general subject knowledge and a broader vision of physics. You will have developed your ability to synthesise information and a critical way of thinking, which will enable you to proceed to more advanced studies or to specialise in your chosen field;
- *Bilingualism*: thanks to the bilingualism which is part and parcel of the course, you will enrich your specialist vocabulary in both languages and learn to dialogue in an academic context with specialists both in French and German.

Physicists' skills are highly sought-after in the field of high-tech.
A bachelor's degree in Physics constitutes a sound basic qualification and opens the way to a variety of career orientations. For example, you can put your knowledge to good use in the field of patents or consulting, or undertake further studies leading to a master's degree. With a master in Physics, you will have access to various professional activities in research, teaching, industry, economics or administration.

Studies organisation

Structure of studies

150 ECTS credits + 30 ECTS credits in a minor study programme 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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