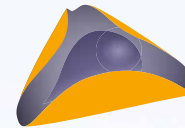


# Take the Lead!

Swiss Joint Master in Computer Science of the universities of **Bern, Neuchâtel and Fribourg**



**MASTER IN  
COMPUTER  
SCIENCE**  
[mcs.unibnf.ch](http://mcs.unibnf.ch)

 [swissuniversity.ch](http://swissuniversity.ch)

*u<sup>b</sup>*

UNIVERSITÄT  
BERN

*unine*

UNIVERSITÉ DE  
NEUCHÂTEL



UNIVERSITÉ DE FRIBOURG SUISSE  
UNIVERSITÄT FREIBURG SCHWEIZ

## 1 The MSc program in computer science

Worldwide, computer scientists are in high demand. To cater for this demand, the computer science institutes of the three universities of Bern, Neuchâtel and Fribourg offer a **Master of Science in Computer Science**. With this program, it is possible to benefit from a large, well-structured offering that combines the strengths of the involved universities. Graduates from this program have excellent career opportunities, after an exciting time at the three universities forming one of the biggest Swiss university campuses offering just about everything that is typical for Switzerland.

The Swiss Joint Master program offers candidates with a Bachelor in Computer Science (or related domains) the opportunity to advance their knowledge of computer science. Students cooperate closely with one or more of the research groups of the three institutes to obtain a solid knowledge in computer science. This degree enables them to fill advanced positions in various economic sectors, or continue their studies towards a PhD degree, offering further interesting employment opportunities in industry and academia.





## 2 | Structure of the masters program

The masters program consists of lectures with assignments, seminars, internships or other forms of teaching, and a masters thesis. The program comprises 90 ECTS credits (ECTS stands for “European Credit Transfer and Accumulation System”). These 90 ECTS credits consist of 60 ECTS credits of teaching units and 30 ECTS credits of an individual masters thesis.

### Teaching units 60 ECTS credits

Students can choose 12 teaching units (worth 5 ECTS credits each) out of more than 60 units offered. Teaching units are grouped into 6 tracks

reflecting different profiles in computer science. In order to ensure sufficient diversification, students choose teaching units from at least 3 different tracks. Students who want to specialize in a particular track complete at least 5 teaching units from that track and write their masters thesis on a topic related to the chosen track.

### Masters thesis 30 ECTS credits

Students submit a masters thesis related to one of the topics they have studied. The thesis is supervised by a professor.



The Swiss Joint Master in Computer Science offers an extensive choice of over 60 teaching units (courses, seminars, internships or other forms of teaching), which are grouped into 6 tracks reflecting different profiles in computer science.

### T0 General

A collection of teaching units from a variety of subject areas which supplement the teaching units offered in the other 5 tracks.

### T1 Distributed Systems

Distributed systems, peer-to-peer networks, grid and cloud computing, mobile communications, concurrency, foundations and algorithms, verification and model checking, bio-inspired and parallel architectures, network security, pervasive and context-aware computing.

### T2 Advanced Software Engineering

Advanced methods for the analysis, development and testing of modern and reliable software systems in heterogeneous, service-oriented and closely connected system topologies.

### T3 Advanced Information Processing

Signal processing for pattern recognition, document analysis, computational linguistics, multi-modal interfaces, (re)acquisition of information and computer graphics, as well as exposure to artificial intelligence.

### T4 Logic

Computability and complexity, proof theory, lambda calculus, logic programming and proof search, classical and non-classical logics, universal algebra, automata, verification, knowledge representation, data privacy, data mining, ontologies, formal methods.

### T5 Information Systems and Decision Support

eBusiness, eGovernment, information management, database management systems and data warehousing, fuzzy classification, decision support, quantitative models and methods of Operations Research, applied to logistics, supply chain management, and decision support for difficult managerial decisions.



## Specialization

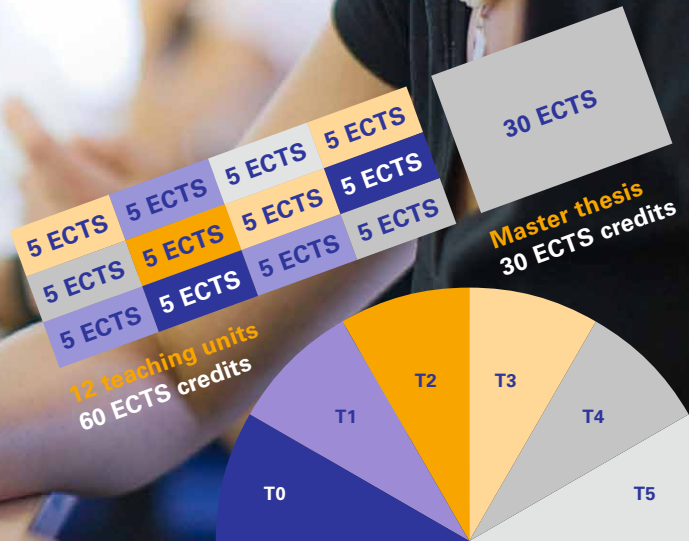
If students wish to focus their studies on a particular area of computer science, they can choose to specialize in one of these five tracks:

- T1** Distributed Systems
- T2** Advanced Software Engineering
- T3** Advanced Information Processing
- T4** Logic
- T5** Information Systems and Decision Support

**The requirements for a specialization are:**

- ▶ at least 25 out of the 60 ECTS credits for teaching units must come from teaching units in the specialization track
- ▶ the masters thesis must be on a topic within the specialization track.

If all requirements are met, the specialization is mentioned in the diploma supplement that the students receive together with their diploma.





5

## Duration of the Swiss Joint Master program

The regular duration of the Swiss Joint Master program is three semesters, i.e. one and a half years of full-time study. Students are expected to follow a program of 30 ECTS credits in each semester: in the first two semesters, students attend teaching units of 60 ECTS credits, and in the third semester, they work on their masters thesis of 30 ECTS credits. Students earning their living by working in parallel have the opportunity to extend their masters study.

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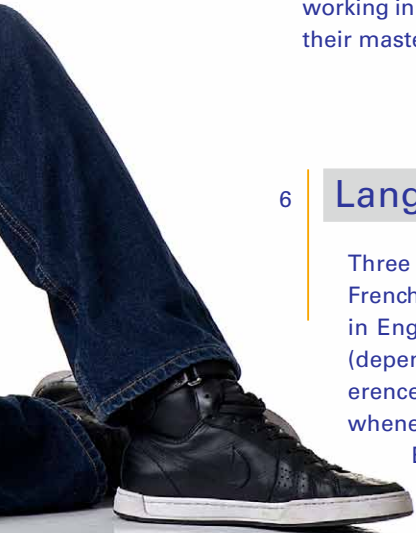
## Language of study

Three different languages are used: English, French, and German. Usually, courses are taught in English and sometimes in French or German (depending on the professor), but linguistic preferences of the students are taken into account whenever possible. Students who only know English can follow the program without problems.

7

## Career prospects

Currently many more computer scientists are leaving the Swiss job market (e.g. due to retirement) than all Swiss institutions of higher education are releasing. This leads to a tremendous demand for computer scientists with a university degree in Switzerland. The same is occurring in the entire western world. Therefore, job prospects for computer scientists are absolutely excellent. Since IT plays an important role in most economic sectors, computer scientists with a university degree will have the choice in which sector they want to work, ranging from financial industries to high-tech companies, from journalism and entertainment to public administration, from teaching and continuing education to research, from automation to gaming and sports, from communication technology to engineering and knowledge management.



## Admission and Registration

### Admission conditions

The Swiss Joint Master program is open to students holding a Bachelor in Computer Science from a Swiss university or from any one of a large number of foreign universities. Degree holders with similar qualifications are welcome to apply and can be accepted under tailored conditions. In such cases, the applications are considered on a case by case basis and the branch committee may require the applicant to earn additional ECTS credits (a maximum of 60) from courses at the bachelor's level.

### Admission procedure

- ▶ Choose your *home university*, i.e. Bern, Neuchâtel, or Fribourg.
- ▶ Submit your application material to the *admission service* of your home university.

### Application Deadline

Students can start the Joint Master program in the autumn or spring semester. Submit your application to the admission service of your home university. Related instructions can be found at [mcs.unibnf.ch](http://mcs.unibnf.ch) under "Admission". The deadlines for application are:

Autumn semester: April 30th

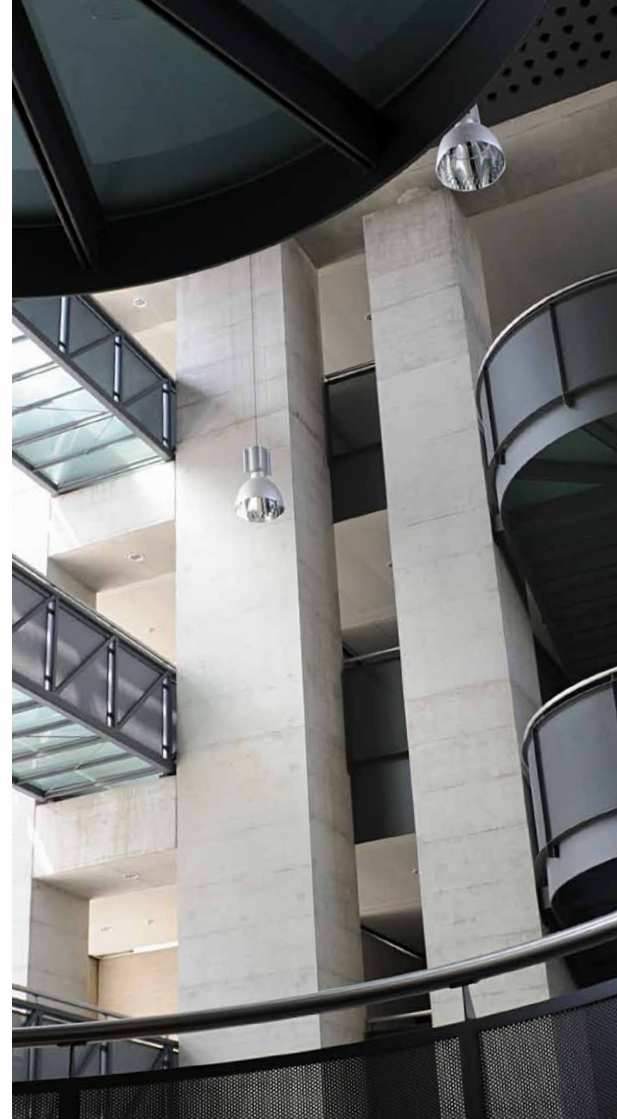
Spring semester: November 30th

### Registration

Once admitted, you will receive instructions how to register at your home university.









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## Student life

The Swiss Joint Master in Computer Science is offered collectively by three universities: Bern, Neuchâtel, and Fribourg. This collaboration gives students not only a high-quality and diversified academic program, but also the opportunity to study in a large, dynamic, multicultural and multilingual environment with many advantages such as:

- ▶ **Attractive accommodation:** Bern, Neuchâtel and Fribourg offer a larger number and variety of affordable accommodation than other major cities in Switzerland.
- ▶ **Linguistic and cultural diversity:** Since the three universities are located in an area of Switzerland that is at the meeting point of German and French cultures, students in the

program have the opportunity to experience both cultures, and to acquire or improve their language skills either through immersion or by taking the many language courses provided for students by the universities.

- ▶ **A wide variety of cultural attractions:** The universities of Bern, Neuchâtel, and Fribourg are located in the heart of Switzerland, only a stone's throw away from the three lakes of the region, a number of UNESCO world heritage sites, and the magnificent Swiss Alps. Students can participate in a wide range of summer and winter activities, either through organized excursions offered by various sports and cultural clubs at the universities, or by exploring the area on their own.



## Contacts



### Admission and Registration Services

**University of Bern**  
Admissions Office  
Hochschulstrasse 4  
CH-3012 Bern  
[www.imd.unibe.ch/index\\_e.html](http://www.imd.unibe.ch/index_e.html)

**University of Neuchâtel**  
Registration and Mobility Services  
Avenue du 1<sup>er</sup> Mars 26  
CH-2000 Neuchâtel  
[www.unine.ch/prospectivestudent](http://www.unine.ch/prospectivestudent)

**University of Fribourg**  
Office for Admissions and Registration  
Avenue de l'Europe 20  
CH-1700 Fribourg  
[www.unifr.ch/admission/en](http://www.unifr.ch/admission/en)

### Student advisors

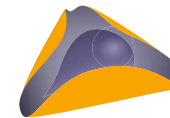
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