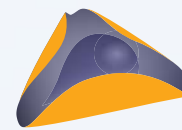


Take the Lead!

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



MASTER IN
COMPUTER
SCIENCE
mcs.unibnf.ch

swissuniversities



1 Your Computer Science Master's Program in Switzerland

Graduates of the Swiss Joint Master in Computer Science (SJ MCS) program receive a degree that is recognised around the world. Thrilling career opportunities with top IT employers await after this 18 month program.

The SJ MCS program is conducted in English, which makes it a great option for studying abroad. In Switzerland you will enjoy new experiences, interesting encounters, and exciting opportunities, without the stress of complete foreign language immersion. Language centres offer the chance to develop your foreign language skills, which lead to more academic and professional opportunities.

Student life in Switzerland is much more affordable than you might expect. Tuition fees are low and student accommodation is reasonably priced. As a foreign

student, your monthly budget, including housing, food, insurance and tuition, will be around 1,600 CHF (roughly 1,400 EUR; 1,250 GBP; 1,650 USD in November 2017).

The three cities where you will study—Bern, Neuchâtel, and Fribourg—offer entertainment for every taste. Whether you love museums, theatre, and concerts, or hiking, mountain climbing, and skiing, you will find lots to do.

Switzerland's French and German-speaking regions meet in Bern, Neuchâtel, and Fribourg, which lie near the heart of Switzerland. This linguistic and cultural diversity gives foreign students the chance to experience an international atmosphere and gain intercultural competence.





2 Structure of the Master's Program

The master's program consists of lectures, assignments, seminars, internships, and other learning opportunities, culminating in a master's thesis. The program comprises 90 ECTS (European Credit Transfer and Accumulation System) credits. These credits consist of 60 credits for teaching units and 30 for an individual master's thesis.

Teaching units: 60 ECTS credits

Students can choose 12 teaching units, worth 5 credits each, from more than 60 units offered in 7 different tracks. The tracks reflect different areas of computer

science: distributed systems, advanced software engineering, advanced information processing, logic, information systems and decision support, and data science. Students must choose teaching units from at least three different tracks to ensure sufficient diversification. Students who choose to specialise in a particular track must complete at least 5 teaching units in this track and write a thesis on a related topic.

Master's thesis: 30 ECTS credits

Students submit a master's thesis related to a topic they have studied, supervised by a professor.

3 Tracks

The Swiss Joint Master in Computer Science offers a choice of over 60 teaching units in 7 different tracks.

T0 General

A variety of subject areas which supplement the other 6 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, multimodal 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.

T6 Data Science

Big data, data analysis, cloud computing, large-scale distributed systems, machine learning, pattern recognition, social media analytics

Students can choose to specialise in one of these tracks:

- T1** Distributed Systems
- T2** Advanced Software Engineering
- T3** Advanced Information Processing
- T4** Logic
- T5** Information Systems and Decision Support
- T6** Data Science

Requirements:

- ▶ at least 25 ECTS credits for teaching in the specialisation track
- ▶ a master's thesis on a subject within the specialisation track

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



5 Duration of the Swiss Joint Master Program

The SJMCS program requires three semesters of full-time study, usually completed in 18 months. Part-time students who also work can take more time to complete the program.

Full-time students are expected to take 30 credits each semester. In the first two semesters, all 60 credits are teaching units. In the last semester, the 30 credits are for work on the master's thesis.

6 Language of Study

SJMCS courses are taught in English—understanding French and German is not necessary. Most socialising also takes place in English, since many of your fellow students will not speak French or German.

If you want to improve your linguistic skills, you can immerse yourself in the French and German-speaking communities and study both languages at Fribourg University (Bern is German speaking, Neuchâtel is French speaking and Fribourg is French and German speaking).

7 Career Prospects

There are now many more positions for computer scientists in Europe, including Switzerland, than there are computer science graduates, and the demand is growing every day. Across the western world, the story is the same: graduates with a master's degree in computer science enter a job market desperate for their skills and expertise. Since IT plays an important role in most economic sectors, computer scientists with a master's degree can choose to work in a wide variety of fields:

- ▶ communication technology
- ▶ engineering
- ▶ knowledge management
- ▶ finance
- ▶ journalism
- ▶ entertainment
- ▶ public administration
- ▶ automation
- ▶ gaming
- ▶ sports.

8 Admission and Registration

Admission Requirements

The Swiss Joint Master's program is open to students who have earned a Bachelor in Computer Science from a Swiss university or many foreign universities. Graduates with similar degrees (e.g. a Bachelor in Mathematics) are welcome to apply as well. These applications are considered on a case-by-case basis, and the branch committee may require additional credits from courses at the Bachelor level, with a maximum of 60 credits.

How to Apply

- ▶ Choose a home university: Bern, Neuchâtel, or Fribourg.
- ▶ Submit your application material to the admission office of your home university.

Application Deadlines

Students can start the SJMCS program in the autumn or spring semester. The deadlines for application are:

Autumn semester: April 30

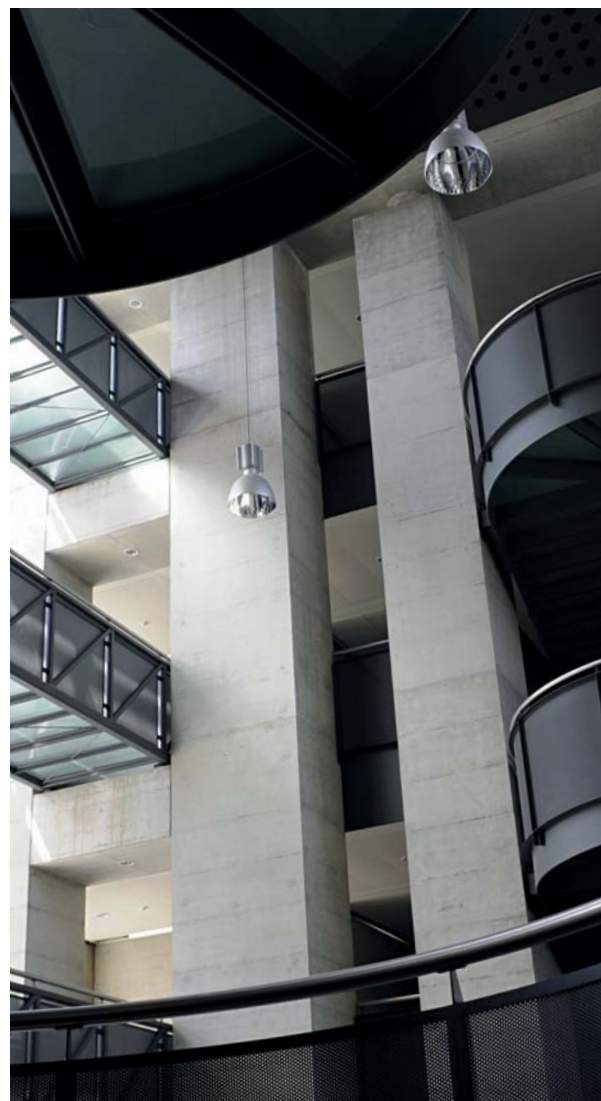
Spring semester: November 30

For more information about applying to the program, visit mcs.unibnf.ch.

Registration

Once admitted, you will receive more information about registering at your home university.





- ▶ **Affordability:** Student life in Switzerland is much more affordable than you might expect. Tuition fees are low and student accommodation is reasonably priced. As a foreign student, your monthly budget, including housing, food, insurance and tuition, will be around 1,600 CHF (roughly 1,400 EUR; 1,250 GBP; 1,650 USD in November 2017).
- ▶ **Linguistic and cultural diversity:** All three universities have language centres that offer students the chance to improve their language skills, increasing academic and career opportunities. Language courses and seminars in English, French and German are available during the semester, and intensive courses are offered during the semester break.
- ▶ **Stunning Scenery:** Bern, Neuchâtel, and Fribourg are home to a number of UNESCO world heritage sites. They are near the magnificent Swiss Alps and three large, crystalline lakes. Within the cities are music festivals, dance performances, English-language theatre, and other exciting cultural events. Outside, Switzerland offers breathtaking experiences for mountain bikers, hikers, skiers, and snowboarders.
- ▶ **Mentoring and social life:** New students of the SJMCS soon feel at home. They receive personal support, work in small study groups, and have student advisors as well. This support system ensures that they get the academic help they need. Students can participate in a wide range of activities year-round, either through organised excursions offered by various sports and cultural clubs at the universities, or by exploring the area on their own.
- ▶ **Accessible Accommodation:** Finding somewhere to live in Bern, Neuchâtel, or Fribourg is easier than in Switzerland's other large cities, with more options and lower prices.



Contacts

Admission and Registration Services

University of Bern
Admissions Office
Hochschulstrasse 4
CH-3012 Bern
zib.unibe.ch

University of Neuchâtel
Registration and Mobility Services
Avenue du 1^{er} Mars 26
CH-2000 Neuchâtel
www.unine.ch/admission

University of Fribourg
Office for Admissions and Registration
Rue de Rome 1
CH-1700 Fribourg
www.unifr.ch/admission/en

Student Advisors

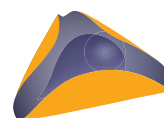
University of Bern
Bettina Choffat
Institute of Computer Science
Neubrückestrasse 10
CH-3012 Bern
choffat@inf.unibe.ch

University of Neuchâtel
Emilie Auclair
Computer Science Department
Rue Emile-Argand 11
CH-2000 Neuchâtel
secretariat.iun@unine.ch

University of Fribourg
Prof. Ulrich Ultes-Nitsche
Department of Informatics
Boulevard de Pérolles 90
CH-1700 Fribourg
ulrich.ultes-nitsche@unifr.ch

Program Coordinator

University of Fribourg
Dr Andreas Humm
Department of Informatics
Boulevard de Pérolles 90
CH-1700 Fribourg
andreas.humm@unifr.ch
mcs.unibnf.ch



**MASTER IN
COMPUTER
SCIENCE**
mcs.unibnf.ch