master of science (MSc) in actuarial science

GENERAL OUTLINE

Objectives
This Master’s degree offers a complete basic education for future actuaries. An actuary is a business professional who deals with the financial impact of risk and uncertainty.

Most of the subjects taught involve applied mathematics, the actuary’s most important working tool. Good knowledge of management, finance, economics and information technology is also necessary to ensure an adequate level of professional expertise.

This program fulfills the requirements of the syllabus of the Swiss Association of Actuaries and prepares students to some exams of the Society of Actuaries.

Skills development and career prospects
University studies develop, in addition to specific academic skills, many transversal skills such as: oral and written communication, critical, analytical and summarising faculties, abilities in research, the learning and transmission of knowledge, independence and the ability to take decisions.

This panoply of skills, combined with specialist knowledge acquired in the course of studies, is an excellent preparation for a wide range of employment opportunities in financial sectors. The following career prospects may be cited as examples:

- Insurance companies
- Banks
- Consultants
- Pension funds
- Control authorities
- Social security systems

what is the real value of risk?

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Organiser
HEC Lausanne: www.hec.unil.ch
Department of Actuarial Science (DSA): www.hec.unil.ch/dsa

Degree awarded
Maîtrise universitaire ès Sciences en sciences actuarielles
Master of Science (MSc) in Actuarial Science

ECTS credits
120

Duration
4 semesters

Teaching language
English. Recommended level: C1.

Enrolment
The candidate’s application must be submitted to the UNIL Admissions Department before the final date: www.unil.ch/immat

Contact
Graduate School
HEC Lausanne
Quartier UNIL-Dorigny, Internef
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www.unil.ch/masters

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Subject to changes.
Only the official texts are authentic.
EDUCATIONAL CONTENT

Description
From the first to the third semester, students follow compulsory and optional courses in the main areas of actuarial science.

The fourth semester is dedicated to writing a Master thesis or an internship dissertation.

Examinations
Examinations on all taught subjects are held at the end of each semester.

Mobility
During their third semester, students may study in a university recognised by UNIL, under a mobility exchange programme. They may get a maximum of 30 credits in another institution.

The prior authorisation of the Master’s Committee is required for the recognition of credits earned abroad.

SYLLABUS

1st semester
Compulsory courses
- Probability and Stochastic Processes
- Quantitative Methods for Actuaries
- Insurance Economics
- Mathematics of Compound Interest
- Principles of Finance
24 ECTS credits

Options program
- Computational Tools for Actuaries
- Financial Accounting
6 ECTS credits

2nd semester
Compulsory courses
- Life Contingencies I
- Risk Theory
- Loss Models
- Health and Life Insurance
- Social Insurance
24 ECTS credits

Options program
- Advanced Probability Theory
- Simulation Methods in Finance and Insurance
- Time Series
9 ECTS credits

3rd semester
Compulsory courses
- Asset and Liability Management for Actuaries
- Life Contingencies II
- Credibility Theory
- Life Insurance Actuarial Controlling
- Actuarial Modelling
15 ECTS credits

Options program
- Insurance Accounting
- Mathématiques des caisses de pension
- Prévoyance professionnelle suisse
- Asset Pricing
- Derivatives
15 ECTS credits

4th semester
Master thesis or internship
30 ECTS credits

GENERAL INFORMATION

Admission requirements
A Bachelor’s degree from a Swiss university in Economics, Management, Finance, Information Systems or Mathematics.

Another degree or university qualification may be judged equivalent and give access to the Master’s program, with or without conditions.

Regulations and additional information
www.hec.unil.ch/masters

Final enrolment date
30th April
Candidates needing a study visa: 28th February

Start of courses
Mid-September. Academic calendar: www.unil.ch/central/calendar

Part-time Master’s degree
Under certain conditions, this Master programme can be followed part-time: www.unil.ch/enseignement/tempspartiel

General information on studies
www.unil.ch/soc

Career prospects
www.unil.ch/perspectives

Accommodation and financial assistance
www.unil.ch/sasme

International students
www.unil.ch/international

Study abroad opportunities
www.unil.ch/echanges