what is
the real value
of risk?

master of science (msc)
in actuarial science

GENERAL OUTLINE

Objectives
This Master's degree offers a complete basic education for future actuaries and risk managers. An actuary is a business professional who deals with the financial impact of risk and uncertainty, typically in insurance firms and pension funds.

Most of the subjects taught involve applied mathematics, the actuary's most important working tool. Good knowledge of management, finance, economics, data analytics 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 (SAA) and prepares students to some exams of the Institute and Faculty of Actuaries (UK) and of the Society of Actuaries (US).

Career prospects
University studies develop many transversal skills: oral and written communication, critical, analytical and summarising faculties, abilities in research, etc.

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:

- Insurance companies
- Banks
- Consulting firms
- Pension funds
- Regulatory authorities
- Social security institutions

GENERAL INFORMATION

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

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

ECTS credits
120

Duration
4 semesters

Teaching language
English. Recommended level: C1.

Academic advisor
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Additional information
www.unil.ch/hec/masters

EFMD EQUIS ACCREDITED

Version: February 2019
Subject to changes.
Only the official texts should be considered binding.

EDUCATIONAL CONTENT

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

In the first semester, all students must attend a set of five compulsory courses.

In the second semester, students gain knowledge of actuarial mathematics for life assurance, risk theory, modeling distributions of claims/losses, social security, simulation and advanced probability theory.

In the third semester, students gain knowledge of actuarial mathematics for life assurance, advanced actuarial modeling, credibility theory, insurance accounting, asset management and risk management, analysis of results and international social protection.

The fourth semester is dedicated to the Master's thesis. The student may opt for a research thesis or an internship thesis.

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.

SYLLABUS*

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

24 ECTS credits

Options program
- Computational Tools for Actuaries
- Financial Accounting

6 ECTS credits

2nd semester
Compulsory courses
- Risk Theory
- Loss Models
- Life Contingencies I
- Ratemaking & Claims Reserving
- Social Insurance

24 ECTS credits

Options program
- Simulation Methods in Finance and Insurance
- Advanced Probability Theory
- 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
- Investments
- Topics in Finance
- Enterprise Systems Integration

15 ECTS credits

4th semester
Academic or internship Master thesis
30 ECTS credits

* the official study plan prevails.

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.

Enrolment and final dates
The candidate's application must be submitted to the UNIL Admissions Department before 30th April:
www.unil.ch/immat

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 program can be followed part-time:
www.unil.ch/formations/tempspartiel

General information on studies
www.unil.ch/soc

Career prospects
www.unil.ch/perspectives
www.heccareercenter.ch

Accommodation and financial assistance
www.unil.ch/sasme

International
www.unil.ch/international

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