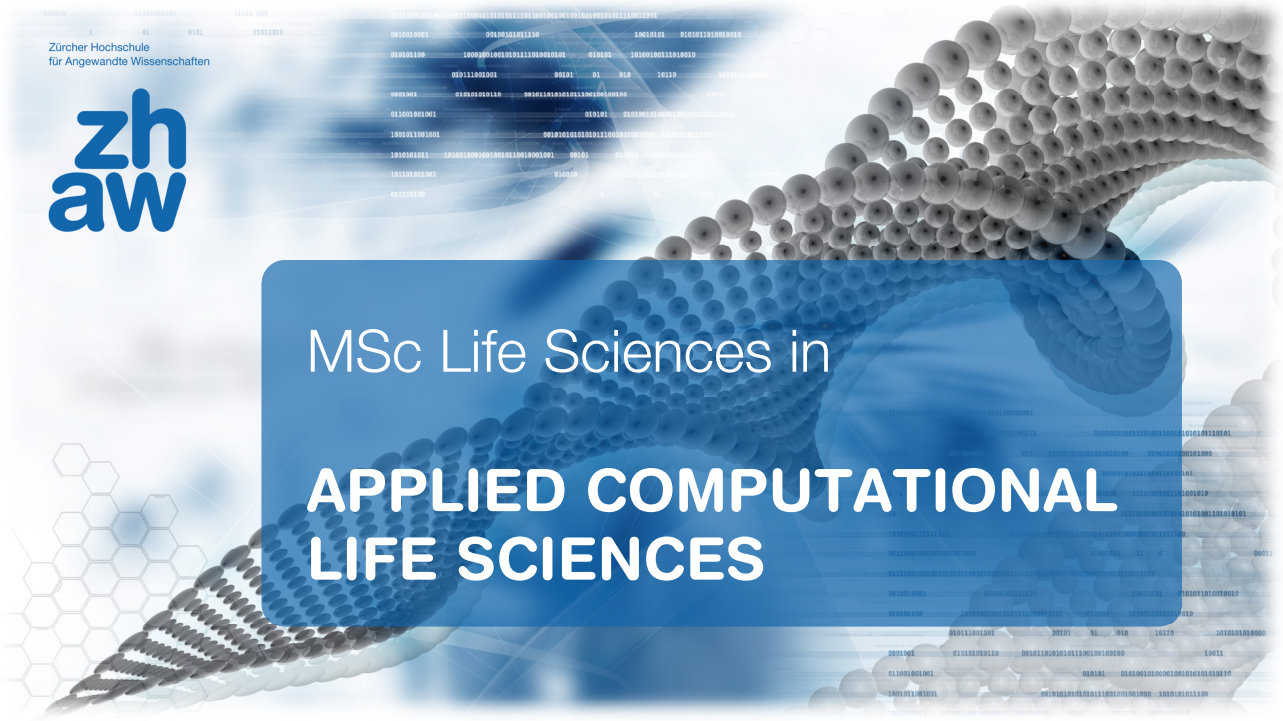


BRING LIFE TO COMPUTATION

With the advent of new technologies, the life sciences are developing rapidly and producing vast amounts of data. Computational methods are assuming a fundamental role in addressing the challenges of analysing data, extracting useful information, making it available in databases, and modelling and understanding underlying complex systems.

New data and knowledge have the potential to transform industry. Indeed today, a variety of fields, such as pharmaceuticals, biotechnology, ecology and agriculture, are already taking advantage of the era of big data. The **Applied Computational Life Sciences (ACLS)** specialisation provides you with the opportunity to enter this research oriented, and industrially and socially relevant domain.

COMPETENCES

This specialisation is designed for Bachelor's graduates in a life sciences or related discipline. It allows you to combine such expertise with the potential of computational methods. Specifically, you acquire skills in the following domains:

- **Processing and analysing data**
- **Algorithms and datastructures**
- **Software and computer architectures**
- **Programming using modern scripting languages**
- **Simulations of processes related to the life sciences**
- **Application of appropriate software solutions**

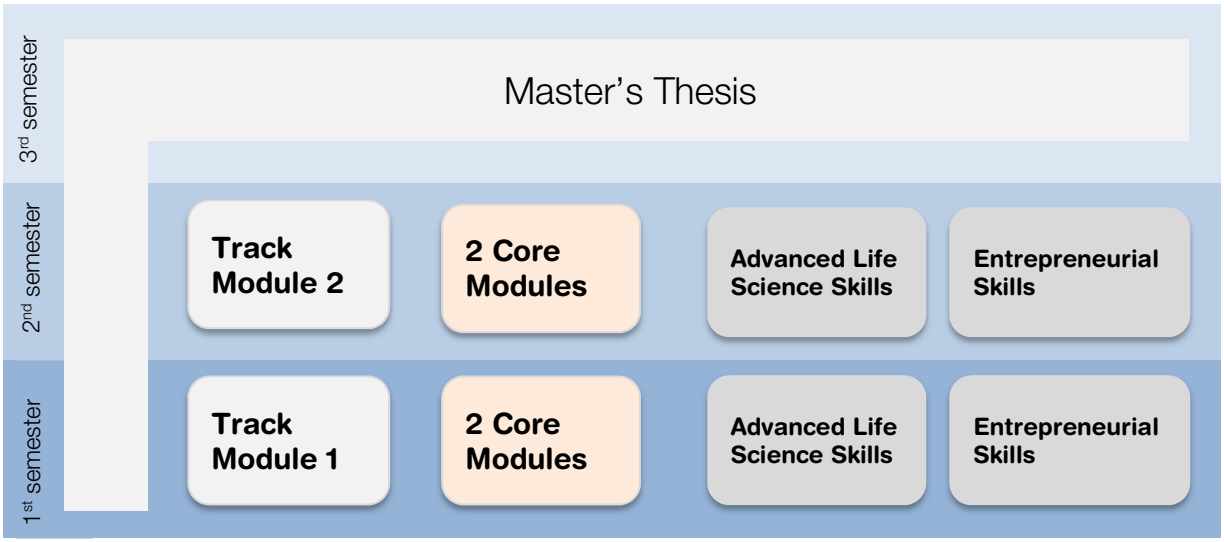
In addition you develop analytical skills that enable you to analyse and solve complex problems. Furthermore, you learn to critically evaluate technical, economic and social issues, and to develop solutions using an interdisciplinary approach.

STRUCTURE OF THE PROGRAMME

The three semesters of full-time study which lead to your Master of Science in Life Sciences comprise the following module blocks, giving a total of 90 credits.

- **Master's Thesis** (30 credits) – the thesis is the scientific core of your studies
- **Core Modules** (20 credits) equip you with skills in modelling and computation
- **Track Modules** (10 credits) prepare you for your Master's thesis
- **Advanced Life Science Skills** (18 credits) – these modules are a cooperative venture which you attend together with Master's students from other specialisations
- **Entrepreneurial Skills** (12 credits) – you learn how to understand and use the interfaces between your technical or scientific core area and the economic and social environment

All modules of the specialisation take place in English.



TRACKS AND THESIS

The programme offers the following three major tracks to accommodate students with a different background or focus:

- **Genome-oriented ACLS**
- **Active molecule-oriented ACLS**
- **Process-oriented ACLS**

Additionally, the programme offers the possibility of **special tracks** to meet specific individual interests of students. The list of special track topics comprises (but is not limited to): data analysis for clinical applications, biometrics, applications in geoinformatics, process control in food industry.

At the beginning of your Master's studies you choose a mentor in one of the application track domains and a Master's thesis. You then become a member of a research group, where you are embedded in an exciting environment, working with other scientists, and cooperating on research and development projects. During your thesis you can work at an external company, organisation, or research institute in close collaboration with your supervisor at the ZHAW.

PROSPECTS

The programme lays the foundation for a career in a fast developing and prospering field. Indeed, Switzerland forms part of the **Bio Valley**, the leading life science cluster in Europe, which connects academia and companies in Germany, France and Switzerland. In the biomedical, pharmaceutical and other life sciences industries, there is a growing need for experts who understand the specifics of data management, modelling and computation in the context of a life sciences discipline and the corresponding business environment. The programme equips you with essential expertise in a field where science meets business and opens up career paths in **international companies, agile start-ups as well as research institutions**.

ACCOMMODATION

In Winterthur, Zurich and Wädenswil, various organisations offer reasonably priced accommodation for students. For instance, ZHAW students are entitled to rent accommodation through WOKO, the Student Housing Cooperative, Zurich. WOKO offers you the chance of sharing an apartment or a house with other students. Further organisations are listed at

http://www.zhaw.ch/en/lsfm/study/studiweb/marketplace/

TUITION

A one-time fee of CHF 100 is charged for enrolment. Tuition for the programme is CHF 720 per semester for Swiss residents and additional CHF 500 for students who have not yet obtained a Swiss resident permit.

ADMISSION AND APPLICATION

Prerequisite for admission to the programme is a Bachelor's degree or an equivalent university qualification in a life sciences or related discipline, completed with an ECTS grade A or B, or a grade average of at least 5.0 (Swiss grade system).

Swiss residents can register on the programme's website (see *Contact* below). International candidates are requested to contact the heads of the programme (see *Contact*) with a single PDF file merged from their CV and an academic transcript (list of grades) of their Bachelor's degree, and will be invited for an interview, which can be conducted by a video call.

Admission *sur dossier* is possible with an appropriate prior education. Admission with a lower mark or grade can also be considered on an individual basis.

COTACT

Heads of the programme:

Prof. Dr. Thomas Ott
thomas.ott@zhaw.ch

Dr. Manuel Gil
manuel.gil@zhaw.ch

For more information, please visit **www.zhaw.ch/ias/master**