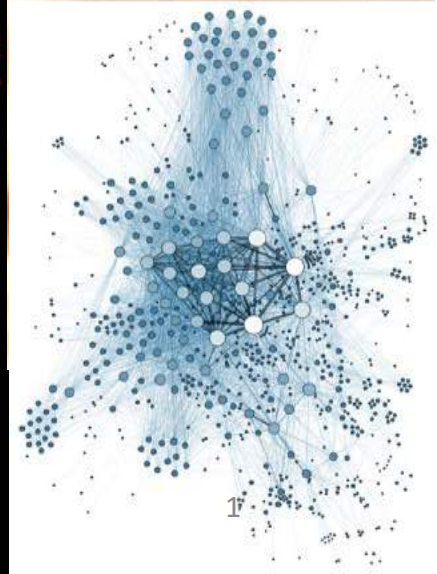
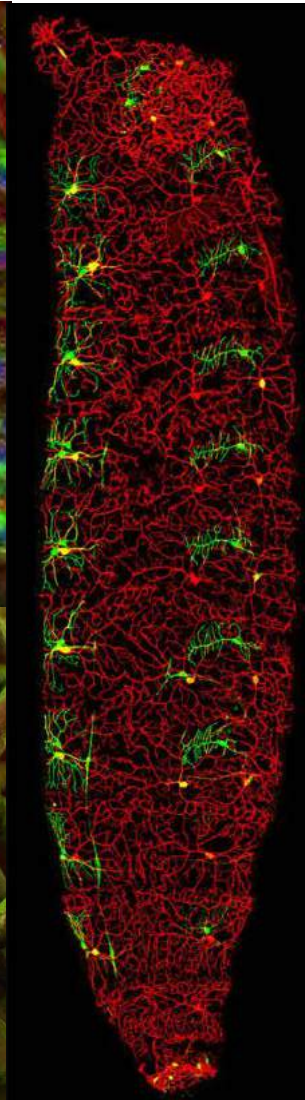
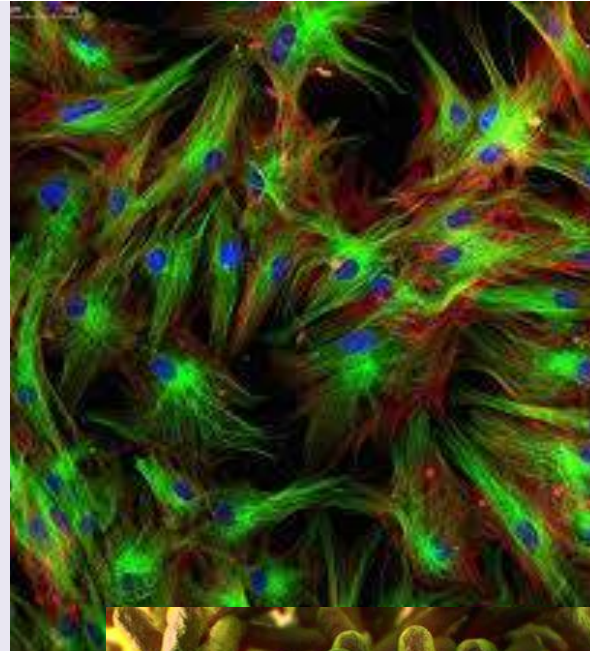
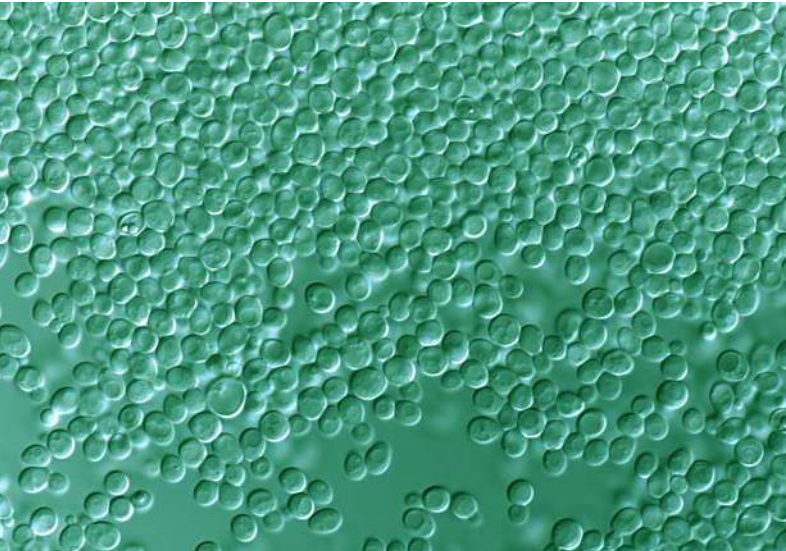


Master studies in Biology



Master Week 2021, BIOLOGY

Program:

14.00 - 14.15	General introduction to Biology Master programs*
14.15 - 14.30	MSc in Molecular Life and Health Sciences*
14.30 - 14.45	MSc in Environmental Biology
14.45 - 15.00	Time for questions

* Dr Alessandro Puoti (Study advisor Biology and Biochemistry, BSc, MSc, and minors)

Department of Biology
Chemin du Musée 10
Laboratoire 0.325 (PER 05)
1700 Fribourg

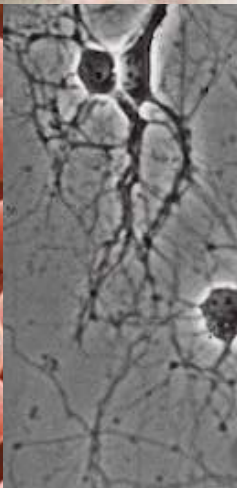
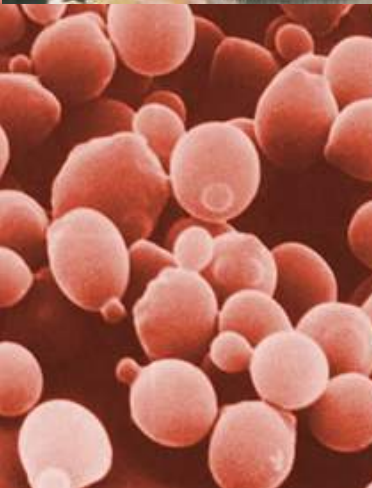
email: alessandro.puoti@unifr.ch

Tel: 026 300 8878

The Department of Biology

Biochemistry

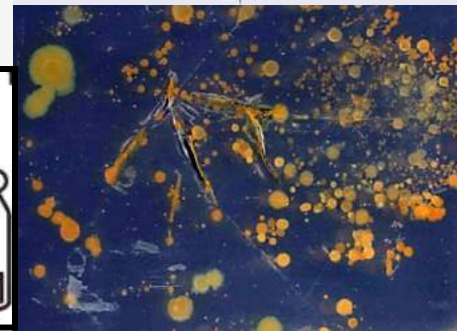
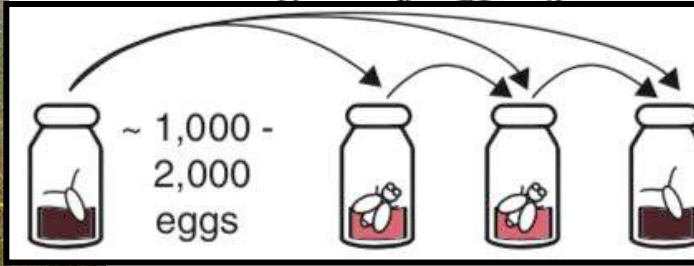
“Zoology”



The Department of Biology

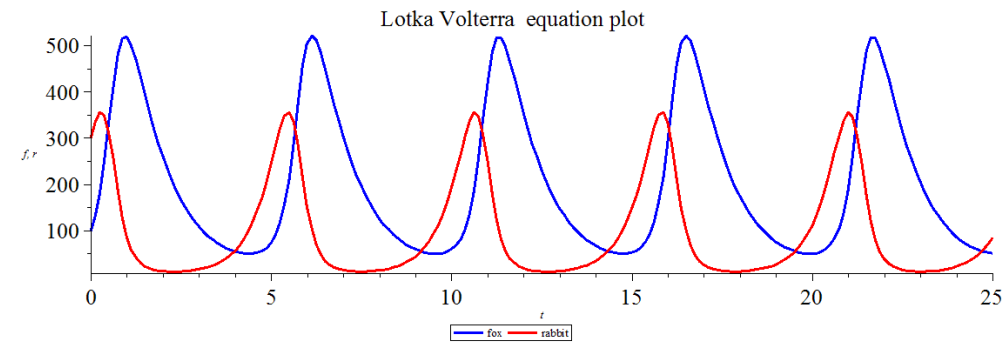
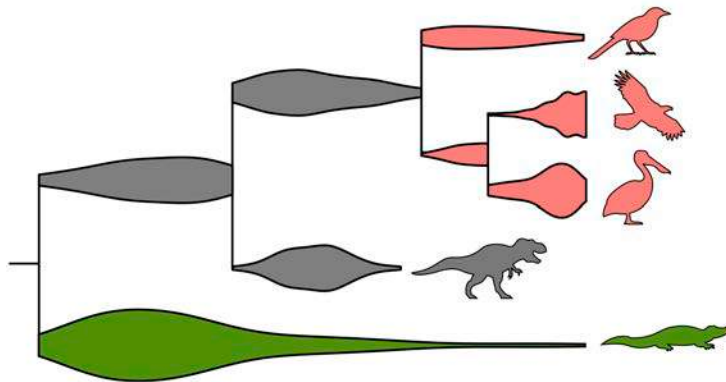
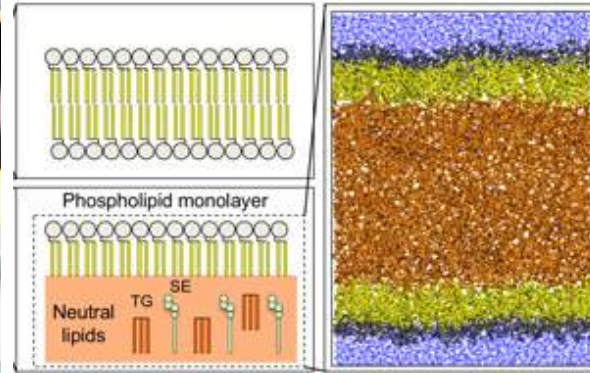
Ecology and Evolution

Plant and Microbial Sciences

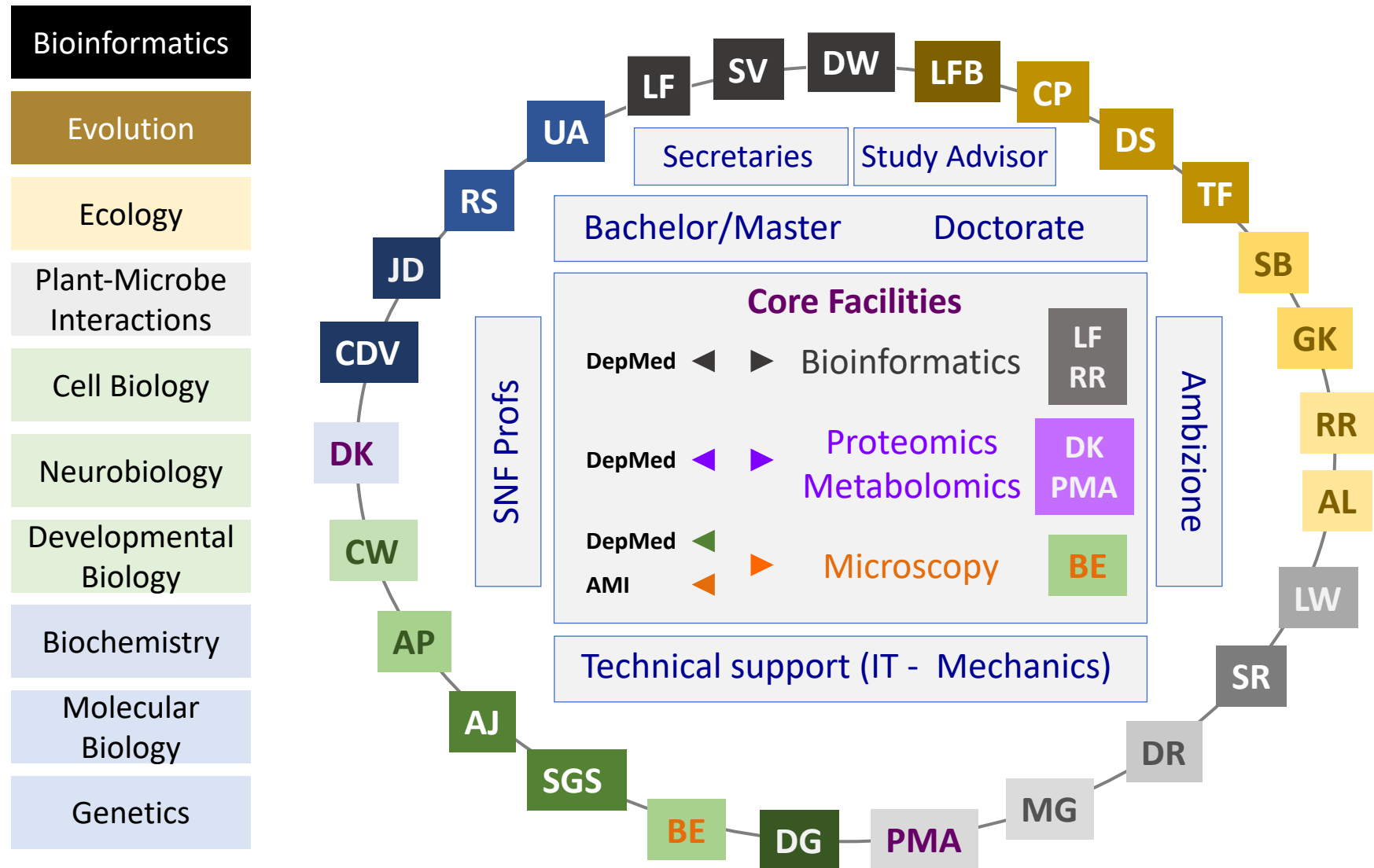


The Department of Biology

Bioinformatics and Computational Biology



Structure of the Department of Biology



Research activities of the Department of Biology

Research domains

Autophagy
Cell differentiation
Growth control
Biochemistry
Biosynthesis
Molecular interactions
Regulatory pathways
Community ecology
Conservation biology
Evolution
Interactions between organisms
Environment
Control of gene expression
Neurobiology
Regeneration
Biological clocks
Behaviour
Marine Biology

Methodologies/Tools

Molecular Biology
Histology
Microscopy
Proteomics
Metabolomics
Cell Biology
Bioinformatics
Field work
Statistics
Modelling
Forward and reverse genetics
Classical model organisms
New model organisms

Applications

Basic knowledge of Life
Molecular medicine
Industrial biotechnology
Transmission of knowledge
Applied research
Gov. / non-gov. offices

New Master programs

Current

MSc in Biology, 90 ECTS

Master thesis 45 ECTS

Options:

- Biochemistry
- Animal molecular life sciences
- Ecology and evolution
- Plant and microbial sciences

**MSc in Bioinformatics and
computational Biology, 90 ECTS**

Master thesis 30 ECTS

From Fall 2021

Research MSc in Molecular Life and Health Sciences, 120 ECTS
Master thesis 60 ECTS

Teaching MSc in Molecular Life and Health Sciences, 90 ECTS
Master thesis 45 ECTS

Research MSc in Environmental Biology, 120 ECTS
Master thesis 60 ECTS

Teaching MSc in Environmental Biology, 90 ECTS
Master thesis 45 ECTS

MSc in Bioinformatics and Computational Biology, 120 ECTS
Master thesis 45 ECTS

Structure of Biology MSc Programs from September 2021

MSc in Molecular Life and Health Sciences

4 options
120 ECTS

MSc in Molecular Life and Health Sciences

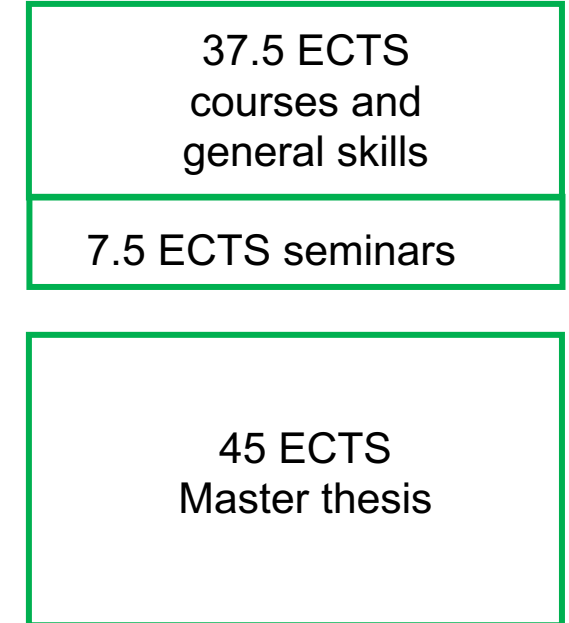
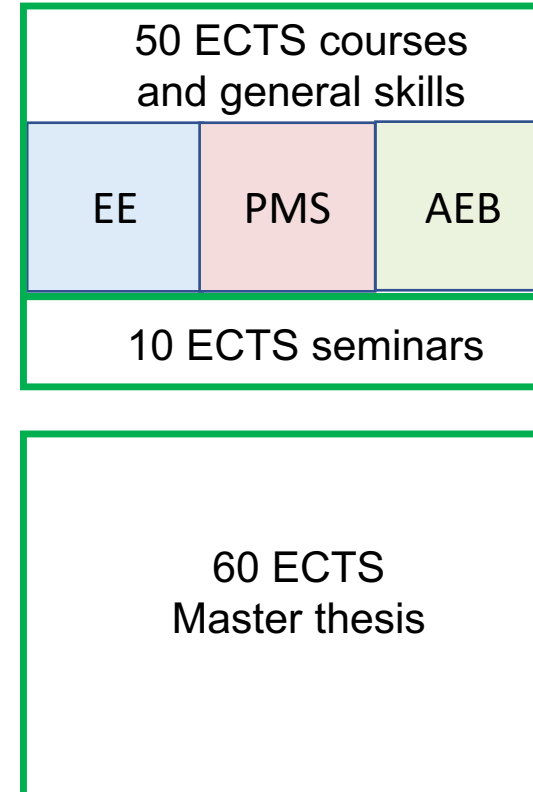
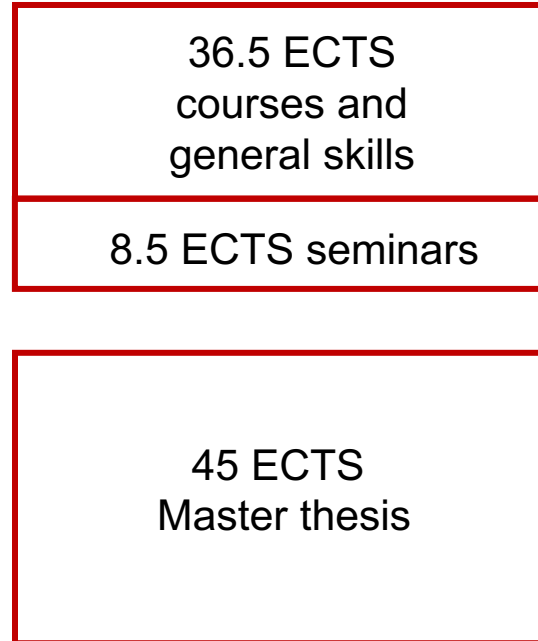
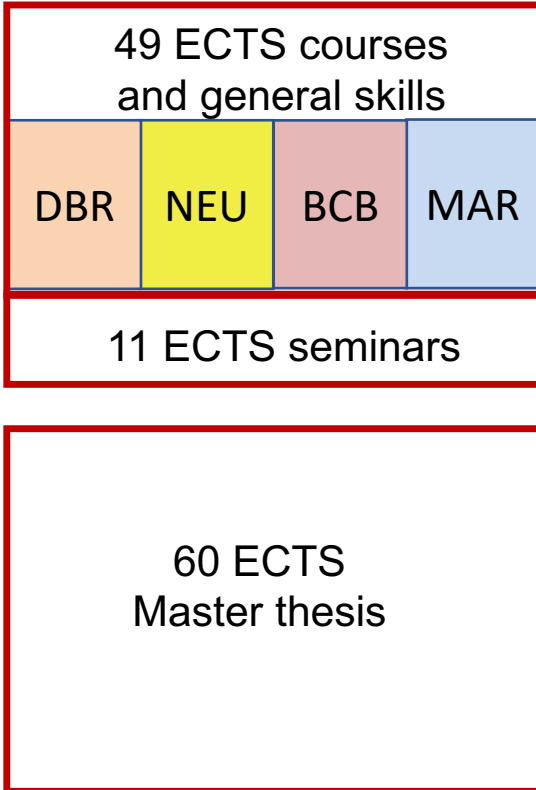
Teaching
90 ECTS

MSc in Environmental Biology

3 options
120 ECTS

MSc in Environmental Biology

Teaching
90 ECTS



DBR : Developmental Biology and Regeneration

NEU: Neurobiology

BCB: Biochemistry and Cell Biology

MAR: Marine Biology

EE : Ecology and Evolution

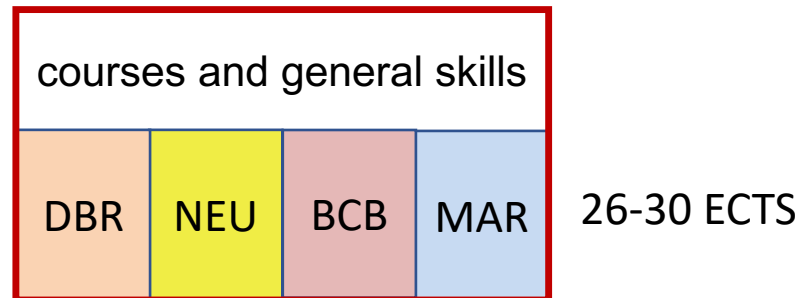
PMS: Plant and Microbial Sciences

AEB: Applied Environmental Biology

Option-specific mandatory courses

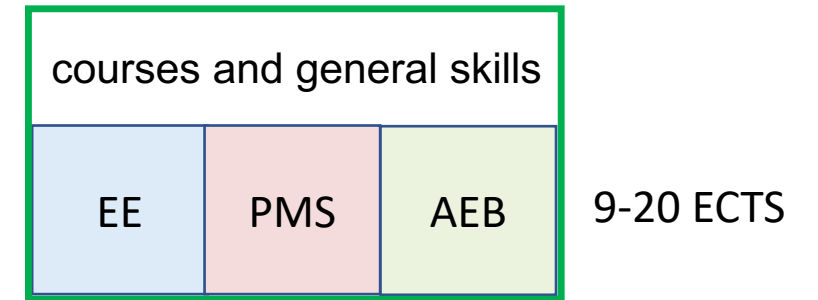
MSc in Molecular Life and Health Sciences

4 options
120 ECTS

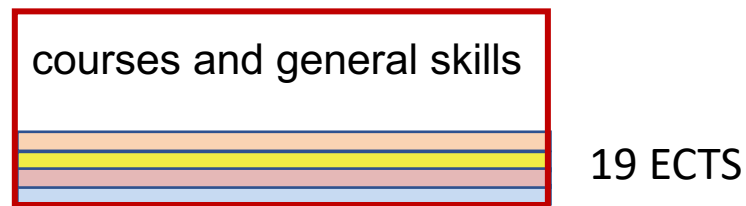


MSc in Environmental Biology

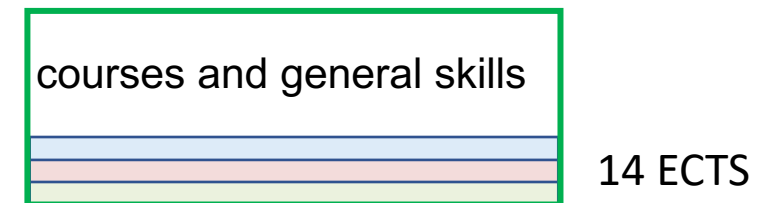
3 options
120 ECTS



Teaching option
90 ECTS



Teaching option
90 ECTS



General skills

SBL.00501	Introduction to data analysis	(Fall, 1 ECTS)
SBL.30001	Introduction to R	(Fall, 2 ECTS)

plus, depending on the option:

SBL.00427	Visual communication of data	(Spring, 1 ECTS)
SBL.20005	Critical reading	(Fall/Spring, 3 ECTS)
SBL.00410	Scientific writing	(Fall, 3 ECTS)
SBL.20001	Biostatistics I	(Fall, 3 ECTS)
SBL.20002	Biostatistics II	(Fall, 3 ECTS)

Technical skills

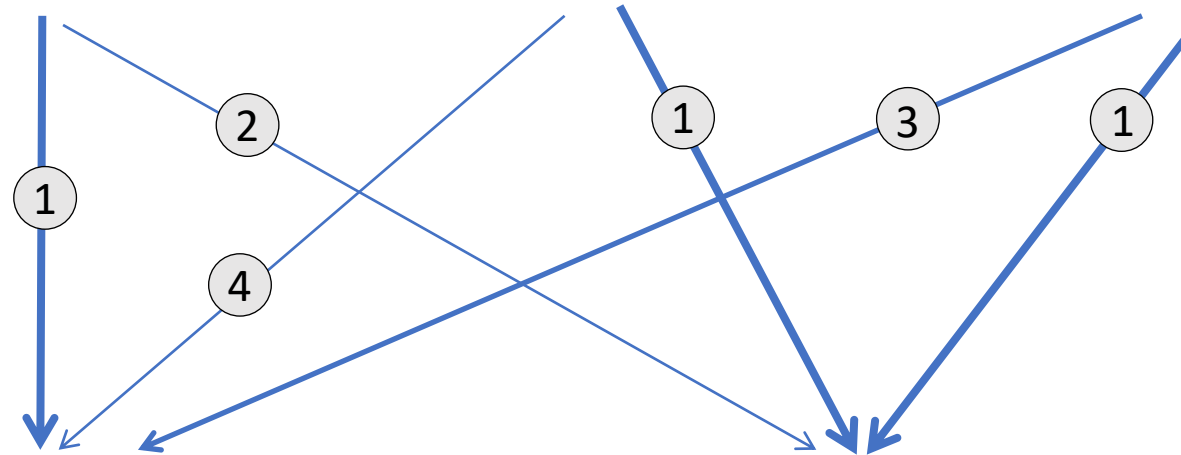
SBL.00125	Light and fluorescence microscopy	(Fall, 3 ECTS)
SBL.20003	Methods in plant pathogen interactions	(Fall, 2 ECTS)
SBL.20004	Introduction to metabolomics	(Spring, 2 ECTS)
SBL.00451	Introduction to mass spectrometry and proteomics	(Fall, 1 ECTS)
SBL.00452	Advanced quantitative proteomics	(Spring 2 ECTS)
SBL.06002	Classical models in biology (with exercises)	(Fall, 3 ECTS)
SBC.04203	Genotyping	(Fall, 2.5 ECTS)
SBC.07110	Introduction to UNIX and BASH	(Fall, 2.5 ECTS)
SBC.07107	Bioinformatics	(Fall, 3 ECTS)
SBL.05001/2	Master thesis	(45 / 60 ECTS)

Admission with a BSc from UniFr

Biology I (120 ECTS)	Minor (30 ECTS)
	Minor (30 ECTS)

Biology II (120 ECTS)	Minor (30 ECTS)
	Minor (30 ECTS)

Biochemistry (120 ECTS)	Minor (30 ECTS)
	Minor (30 ECTS)



MSc Environmental Biology 3 options 120 ECTS 1 option 90 ECTS
--

MSc Molecular Life and Health Sciences 4 options 120 ECTS 1 option 90 ECTS

MSc in Bioinformatics and Computational Biology (120 ECTS)

Admission with a BSc from another University

MSc in Environmental Biology

BSc in Biology, BSc in Biochemistry, or equivalent

Prerequisites (may vary, depending on the option):

- Propaedeutics in Biology, Math, Chemistry, and Physics
- Vertebrates
- Invertebrates
- Botanics
- Comparative anatomy
- Microbiology
- Ecology
- Evolution
- Statistics
- Plant physiology
- Animal physiology
- Molecular biology
- Population genetics
- Experience in the laboratory

MSc in Molecular Life and Health Sciences

BSc in Biology, BSc in Biochemistry, or equivalent

Prerequisites (may vary, depending on the option):

- Propaedeutics in Biology, Math, Chemistry, and Physics
- Cell Biology
- Biochemistry
- Organic chemistry, kinetics,
- Microbiology
- Methods in molecular biology
- Methods in biochemistry
- Animal physiology
- Molecular biology
- Developmental biology
- Neurobiology
- Advanced genetics
- Experience in the laboratory



Master in Environmental Biology

Major environmental problems, in particular global change and its consequences for biodiversity and ecosystem functioning, are intimately interconnected and pose a threat to our future. Solving these problems requires an integrative and synergistic approach in terms of both fundamental and applied research.

The Department of Biology of the Faculty of Science and Medicine offers a multidisciplinary **Master of Environmental Biology**. The program ranges from fundamental concepts in **ecology and evolution, molecular aspects of plant and microbial sciences to applied solutions for environmental policies and sustainable development**. It provides students with state-of-the-art training and background in conceptual, technical, and applied aspects of environmental biology, from genes to ecosystems.

Master students are integrated into active research teams and can thus gain extensive experience in basic and applied academic research in environmental biology. Students will have the opportunity to choose between four options. English is the official language for all activities.

Available options

1. [Ecology and Evolution](#) | 120 ECTS
2. [Plant and Microbial Sciences](#) | 120 ECTS
3. [Applied Environmental Biology](#) | 120 ECTS
4. [Teaching](#) | 90 ECTS

Study Plan
Available soon

Degree Conferred
Master of Science
in Environmental Biology

Language(s) of Study
English

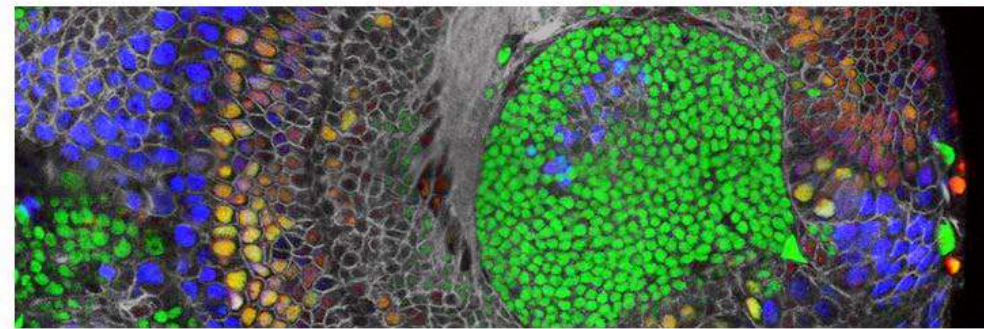
Programme Structure
120 ECTS credits
4 semesters
or
90 ECTS credits
3 semesters full-time

Programme Start
September or February

Student Advisor
Dr Alessandro Puoti
bio-scimed@unifr.ch

Additional Information
→ [Regulations](#)
Study Plan - Available soon

[Apply for Admission](#) →



Master in Molecular Life and Health Sciences

Molecular mechanisms govern the fate and the function of every cell, from archaea living in the remotest trench in the ocean, to the highly connected cells of our brain. Interestingly, cells of various origins share common genes, and therefore use similar proteins and molecular pathways. These can be explored in a variety of model organisms and cultured cells, which you will discover in this exciting Master programme that bridges fundamental molecular science and potential applications to understanding human health and disease.

The Department of Biology of the Faculty of Science and Medicine offers a multidisciplinary study programme leading to the degree of

Master of Science in Molecular Life and Health Sciences

with four research options.

The programme consists of **120 ECTS credits** and corresponds to **24 months of full-time study**.

Students aiming at becoming **high school teachers** and having to acquire 30 additional ECTS credits in a different study domain, can choose the **option "Teaching"** consisting of 90 ECTS (18 months).

Available options

1. [Developmental Biology and Regeneration](#) | 120 ECTS
2. [Neurobiology](#) | 120 ECTS
3. [Biochemistry and Cell Biology](#) | 120 ECTS
4. [Marine Biology](#) | 120 ECTS
5. [Teaching](#) | 90 ECTS

Degree Conferred
Master of Science in Molecular
Life and Health Sciences

Language(s) of Study
English

Programme Structure
120 ECTS credits
4 semesters full-time
or
90 ECTS credits
3 semesters full-time

Programme Start
September or February

Student Advisor
Dr Alessandro Puoti
bio-scimed@unifr.ch

Additional Information
→ [Regulations](#)
Study Plan - Available soon

[Apply for Admission](#) →

<https://www.unifr.ch/bio/en/studies/master/>

Application deadline (Fall semester) : April 30th (late admission : August 31th)

Language courses

We do not require a language test for admission, but students must at least be able to read and understand English.

Most students greatly improve their English and communication skills during the Master.

Our Master students often take:

| SA-2020 | UE-I04.00012

B2 - C1 Academic English for Master's Students: presentation, discussion and team-working skills

📅 Mardi 13:15 - 15:00

👤 Schaller-Schwaner Iris

📄 Anglais

<https://www.unifr.ch/centredelangues/en/courses/students/>



UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

Language Centre

Home Centre **Language Courses** Self-Learning Bilingue Plus Tests & Certificates

🏠 Language Courses · **Language Courses for all Students**

Language Courses

- For all Students
- French
- German
- English
- Italian
- Registration
- For Employees
- For Students in the Faculty of Law
- Intensive Courses
- Testimonials



Language Courses for Students from all Faculties

If you are studying at the University of Fribourg and would like to attend a language course, the Language Centre offers courses in **French, German, English** und **Italian** at levels A1 to C2. Attending these language courses is **free of charge**.

French
See the courses →

German
See the courses →

English
See the courses →

Italian
See the courses →

[Participation, Registration, Deadlines and Dates →](#)

Courses in Bern and Neuchâtel

BeNeFri

Legal basis

All the BeNeFri network details are available on the University [rules and regulations web page](#).

Registration

Registration requests to BeNeFri courses must be submitted on the [MyUnifr](#) portal within the following deadlines:

- Autumn semester: **30 September**
- Spring semester: **28 February**

❗ Registrations are valid for **one semester only**. You will therefore have to reregister for each semester if you wish to remain registered with the BeNeFri network.

<https://www3.unifr.ch/studies/en/organisation/administrative-services-unifr-students/benefri.html>

Why continuing with a Master?

After the Bachelor, the Master is your second step towards becoming a biologist/biochemist

- Use the knowledge acquired during the Bachelor
- explore a more specialized topic
- independent and creative thinking
- learn how to communicate and present your results
- learn how to write a scientific paper in English
- learn how to have a critical approach of your and other's results
- organize yourself in planning experiments

The duration of the 120 ECTS Master (Research options) is 4 **semesters**, including 1.5 years full-time dedicated to the thesis / laboratory work

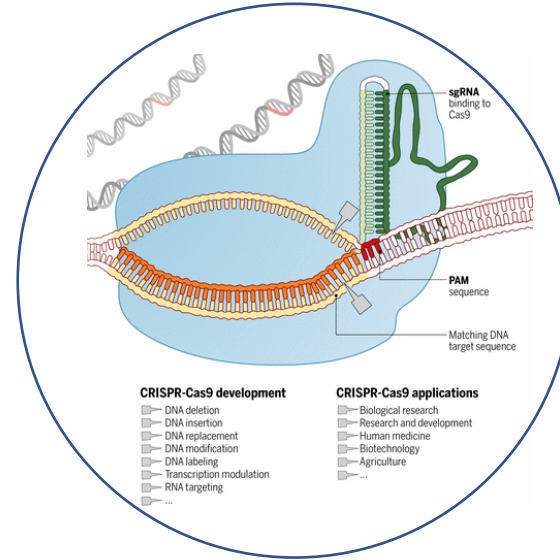
For a 90 ECTS Master (Teaching options), the duration is 3 **semesters**, including 1 year full-time dedicated to the thesis / laboratory work

It is the right time to immerse yourself into biology research

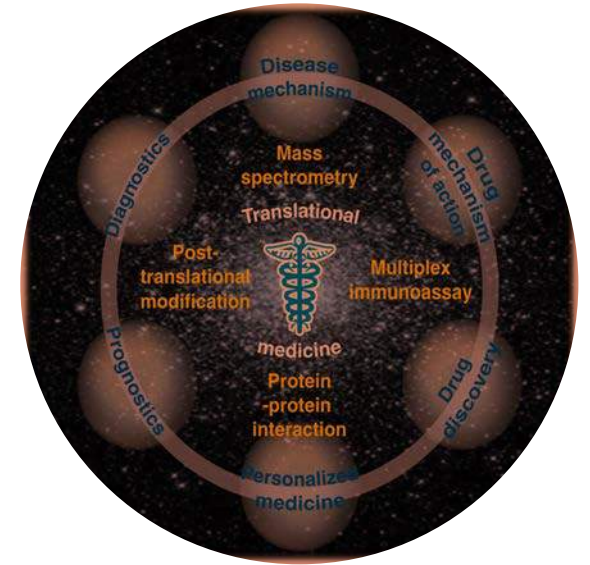
Our assets



Diamandis, 2019

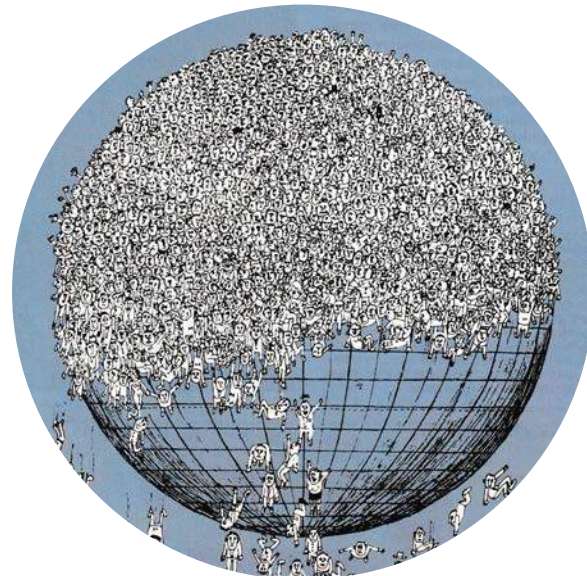


Doudna and Charpentier, 2014



CEEP Conference, 2022

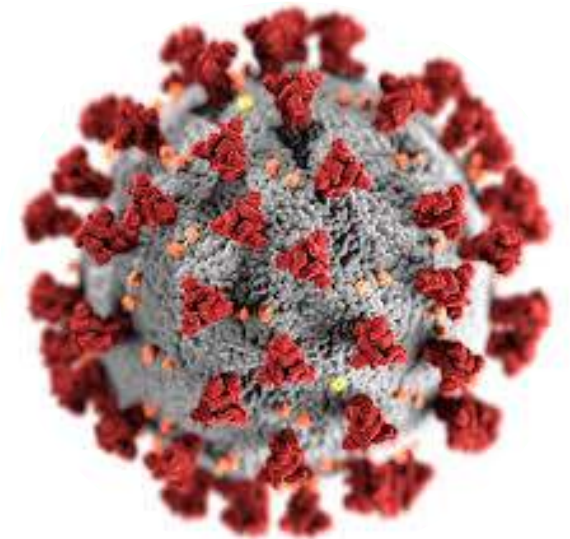
Our challenges



Readers digest, 1974



WMO, 2018



Wikipedia

Perspectives with a Master degree in Science

The Master widens your job opportunities. Your next step might be in...

- starting a PhD
- working or being trained in a pharmaceutical company
- working as a lab manager in an academic research laboratory
- working as a salesperson
- working in patent offices
- working in regulatory affairs (GO and NGO)
- becoming a medical analyst (FAMH)
- getting a teaching diploma (DEEM / LDM)

Timeline (120 ECTS programmes)

Semester 1

- Take as many classes as possible (Master courses, complements)
- Start looking for a laboratory
- Follow the seminars (mandatory)

Semester 2

- Start the laboratory work
- Start organizing the written Master's thesis, literature searches
- Take the mandatory classes offered in the Spring semester
- Take complementary courses, if this applies
- Follow the seminars, give your first progress report

Semester 3

- Carry on your laboratory work. New questions? New perspectives?
- Read and organize the literature related to your thesis project
- Seminars: mandatory presentations (progress report, Journal club)
- Take additional classes

Semester 4

- Carry on and bring your laboratory work to an end
- Finish writing the thesis (50-100 pages)
- Take remaining classes
- Prepare and present the Master thesis (30 minutes).

Timeline (90 ECTS programmes)

Semester 1

- Take as many classes as possible (Master courses, minor)
- Start looking for a laboratory
- Follow some mandatory seminars

Semester 2

- Start the laboratory work
- Start organizing the written Master's thesis. Literature study.
- Take the mandatory classes offered in the Spring semester
- Take complementary courses
- Take courses for the 30-ECTS minor
- Follow the seminars, give your first progress report

Semester 3

- Carry on and bring your laboratory work to an end
- Read and organize the literature related to your thesis project
- Seminars: mandatory presentations (progress report, Journal club)
- Finish writing the thesis (50-100 pages)
- Take remaining classes, if this applies
- Prepare and present the Master thesis (30 minutes).