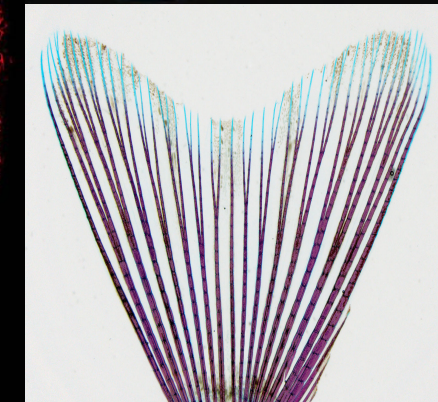
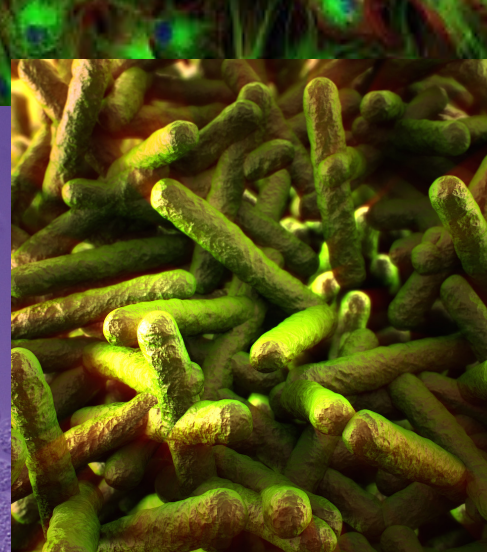
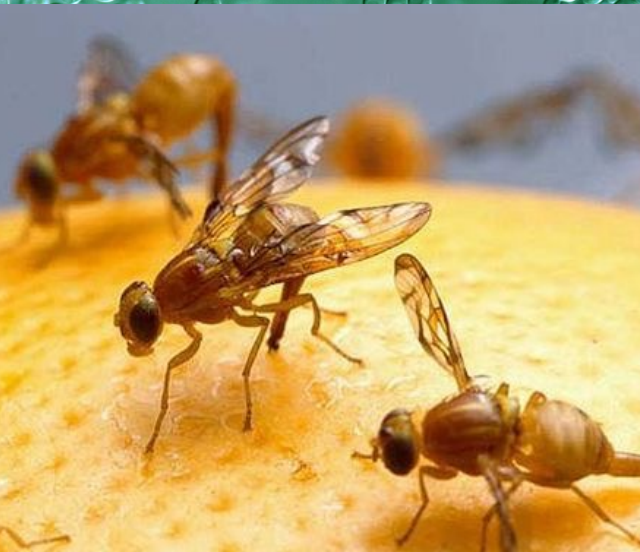
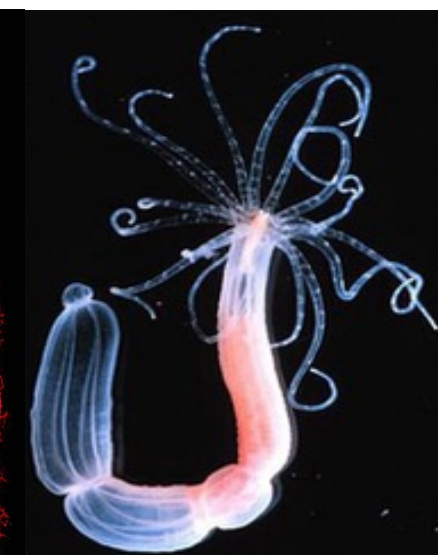
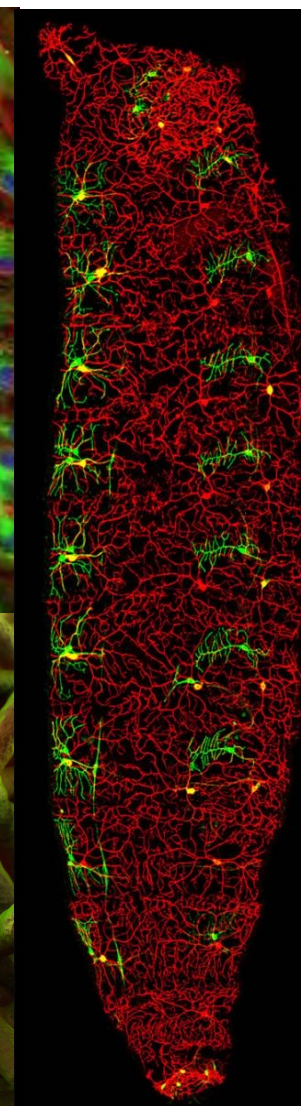
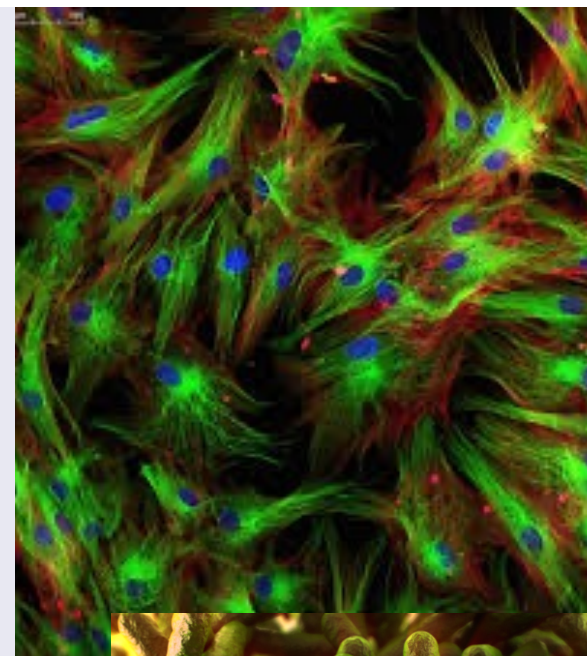
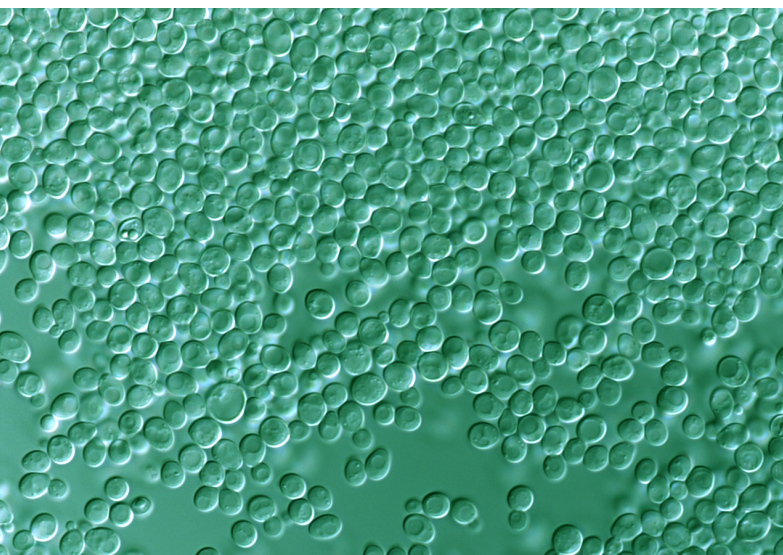


Master studies in Biology



Master Week 2022, BIOLOGY

Programme:

14.00 - 14.20	General introduction to Biology Master programs*
14.20 - 14.40	MSc in Molecular Life and Health Sciences*
14.40 - 15.00	MSc in Environmental Biology
15.00 - 15.15	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

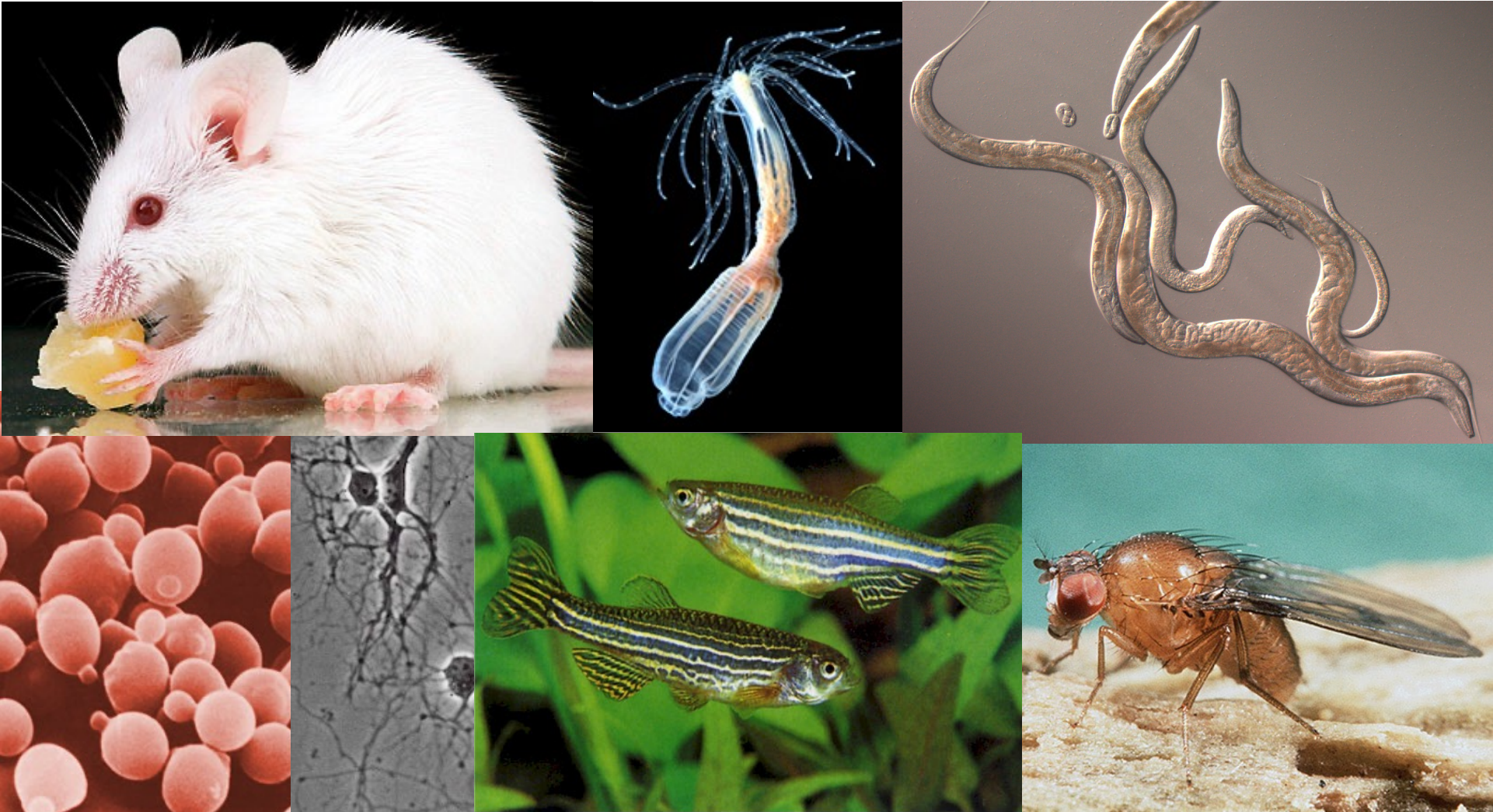
email: alessandro.puoti@unifr.ch

Tel: 026 300 8878

The Department of Biology

Biochemistry

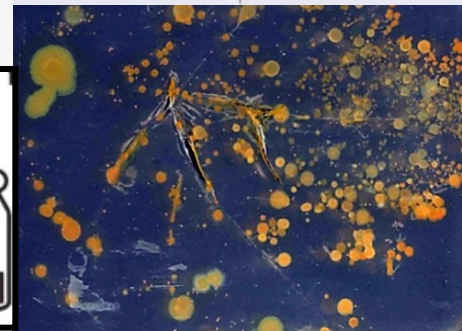
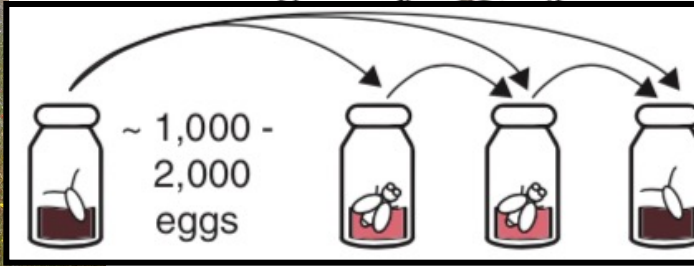
“Zoology”



The Department of Biology

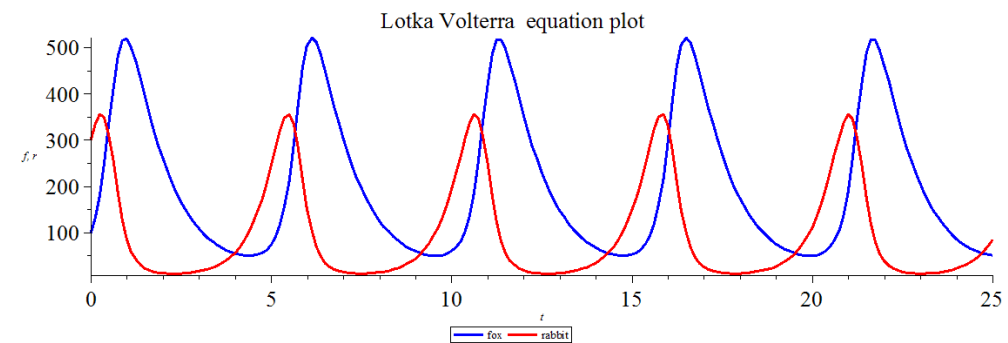
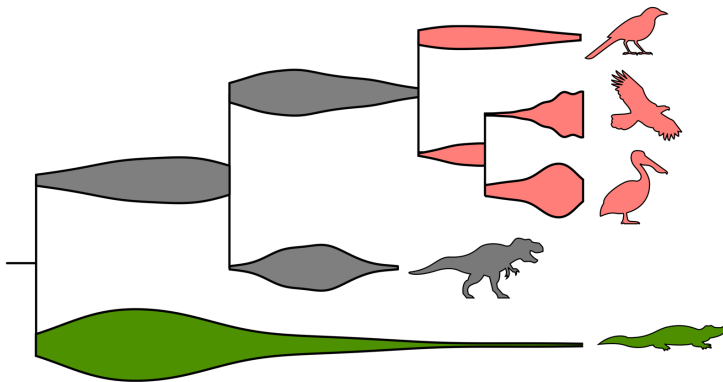
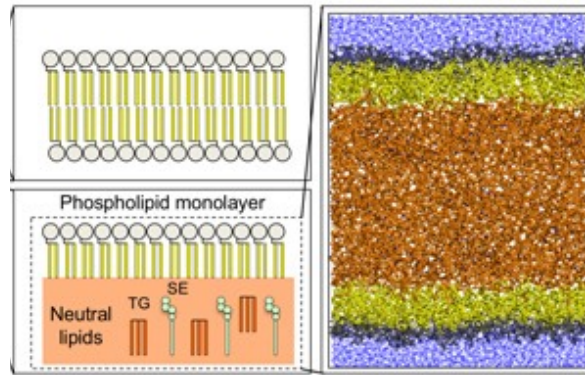
Ecology and Evolution

**Plant and Microbial
Sciences**

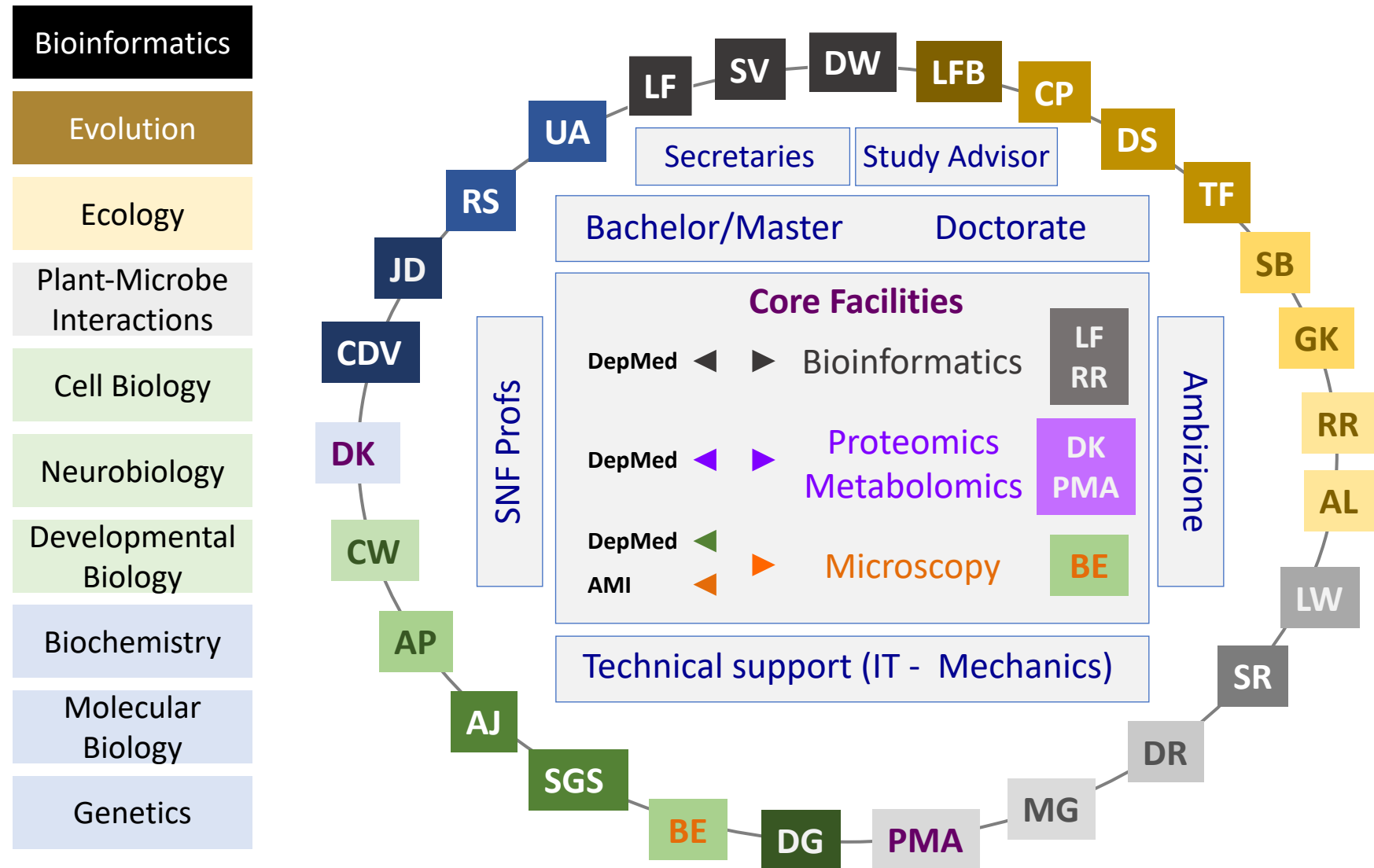


The Department of Biology

Bioinformatics and Computational Biology



Structure of the Department of Biology



DEPARTMENT OF BIOLOGY

In figures - 2019/2020



215

Collaborators

30

Nationalities



187

Researchers

29

Research groups

258

Publications



69

PhD students

88

Master students

237

Bachelor students



3.1 M CHF

Internal funding

7.7 M CHF

External funding

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
Microbiology
Control of gene expression
Neurobiology
Regeneration
Biological clocks
Behaviour
Marine Biology
Epigenetics

Methodologies/Tools

Molecular Biology
Histology
Microscopy
Cell culture
Proteomics
Phospho-proteomics
Optogenetics
Genome editing
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

Our Biology Master programmes

Today:

Research MSc in Molecular Life and Health Sciences, 120 ECTS

Master thesis 60 ECTS

14.20 – 14.40

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

14.40 – 15.00

Teaching MSc in Environmental Biology, 90 ECTS

Master thesis 45 ECTS

MSc in Bioinformatics and Computational Biology, 120 ECTS

Master thesis 45 ECTS

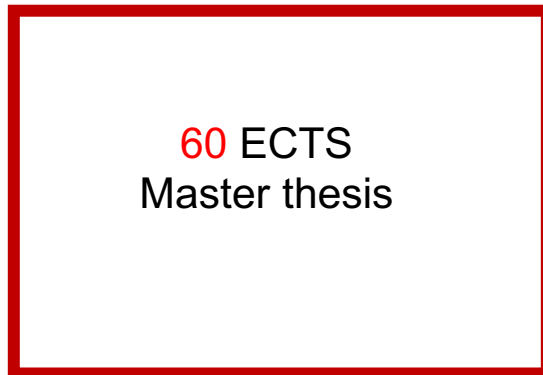
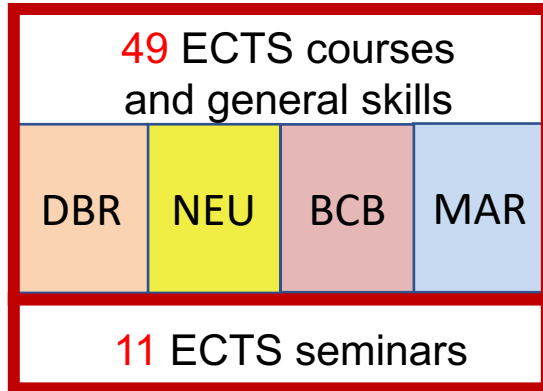
15.15 – 16.00

Structure of our Biology MSc Programmes

MSc in **Molecular Life and Health Sciences**

4 options

120 ECTS



DBR : Developmental Biology and Regeneration

NEU: Neurobiology

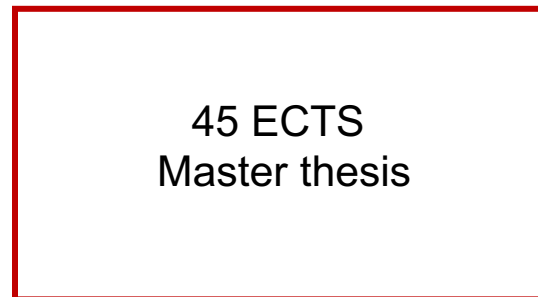
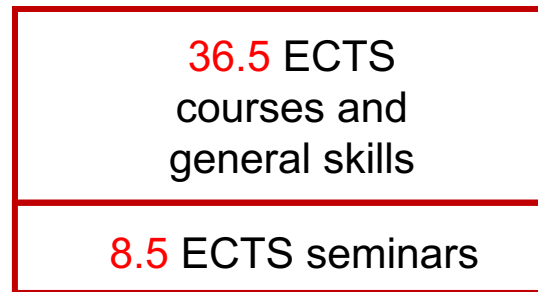
BCB: Biochemistry and Cell Biology

MAR: Marine Biology

MSc in **Molecular Life and Health Sciences**

Teaching

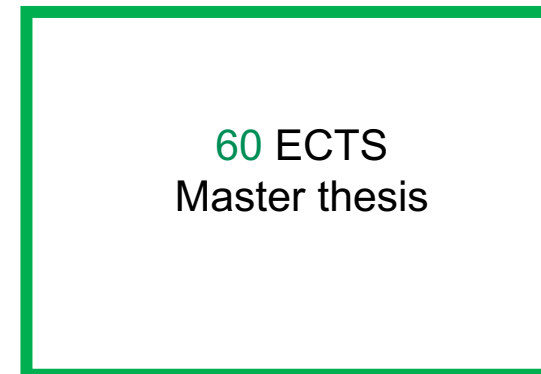
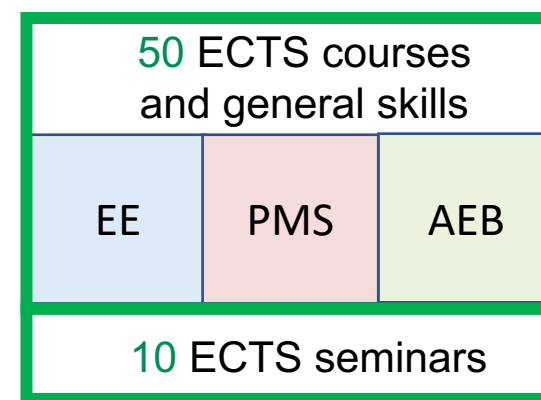
90 ECTS



MSc in **Environmental Biology**

3 options

120 ECTS



EE : Ecology and Evolution

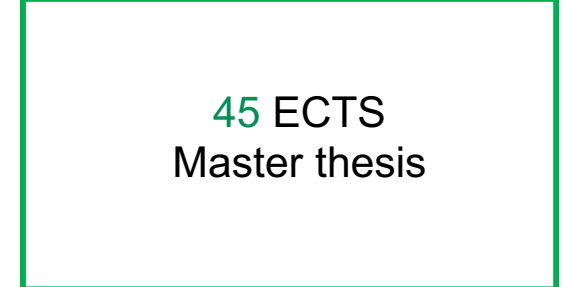
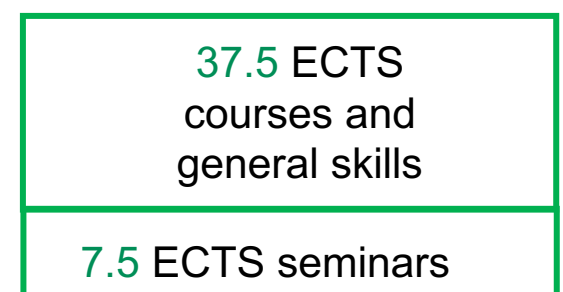
PMS: Plant and Microbial Sciences

AEB: Applied Environmental Biology

MSc in **Environmental Biology**

Teaching

90 ECTS

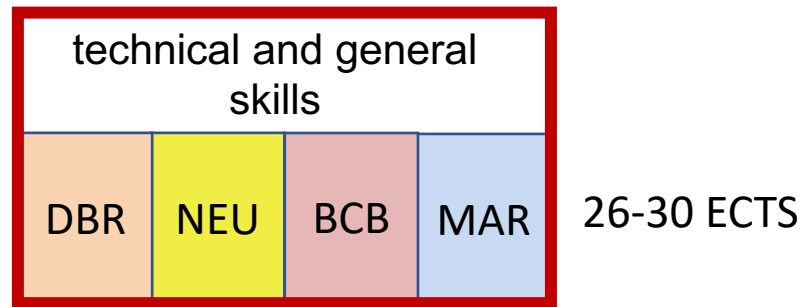


Option-specific mandatory courses

MSc in **Molecular Life and Health Sciences**

4 options

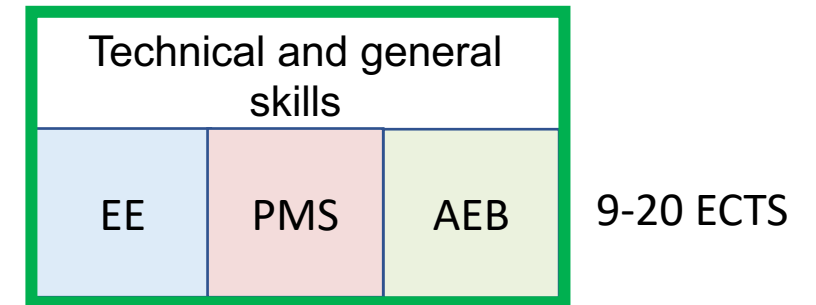
120 ECTS



MSc in **Environmental Biology**

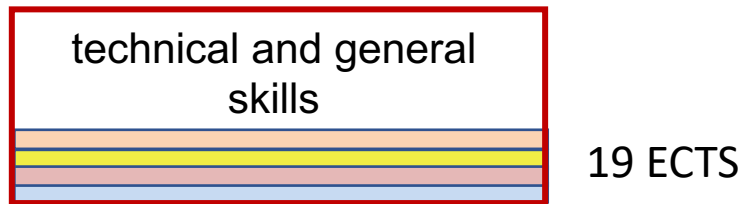
3 options

120 ECTS



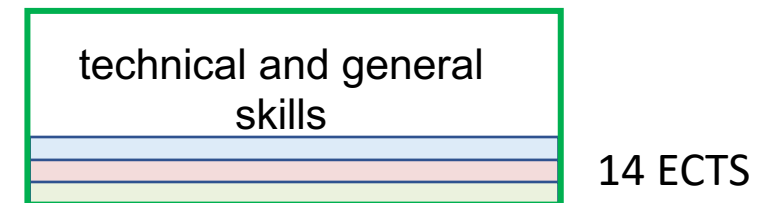
Teaching option

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)

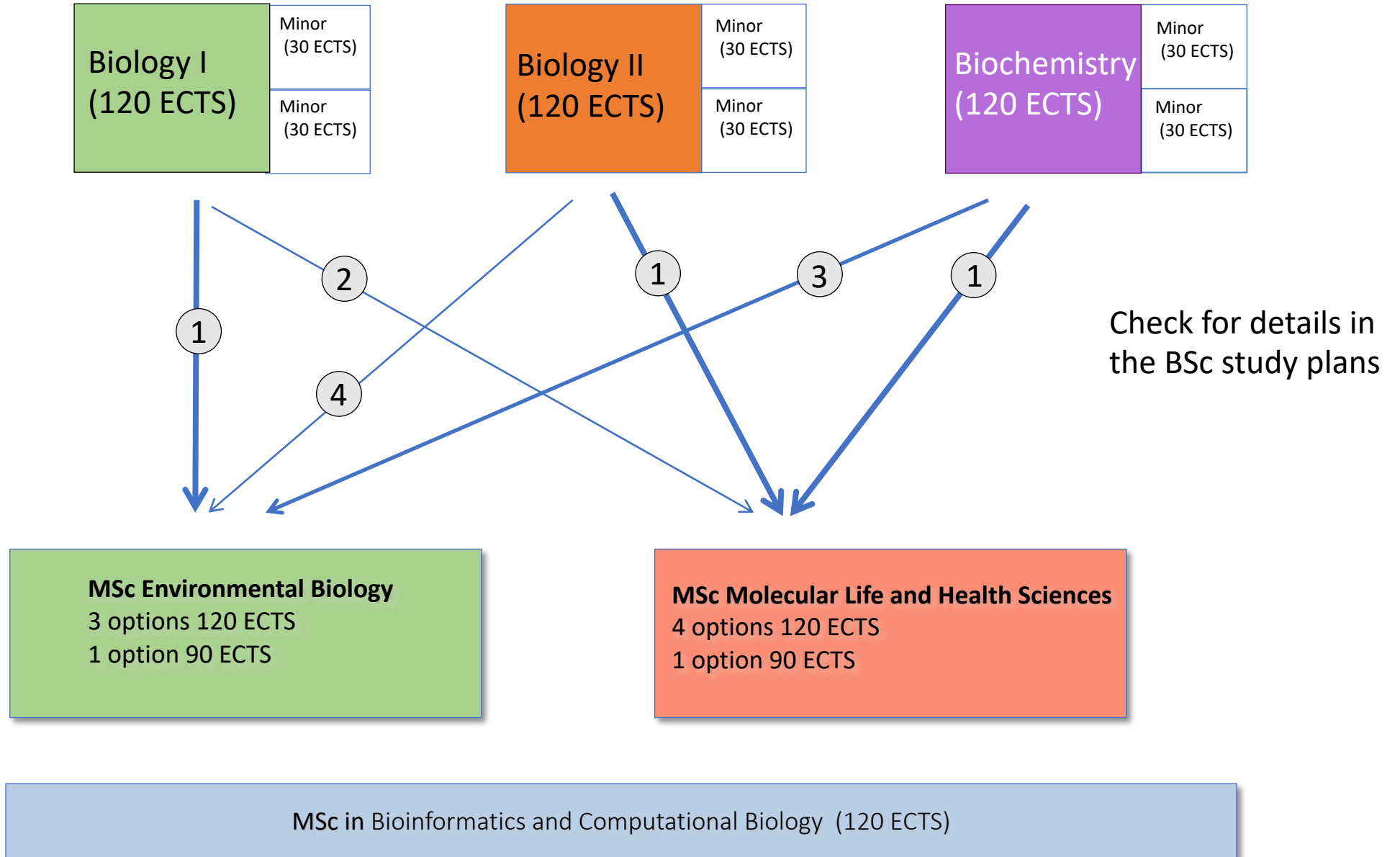
plus, depending on the option:

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



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
- Laboratory and communication skills

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
- Microbiology
- Methods in molecular biology
- Methods in biochemistry
- Animal physiology
- Molecular biology
- Developmental biology
- Neurobiology
- Genetics
- Laboratory and communication skills

Get informed about our Biology Master programmes

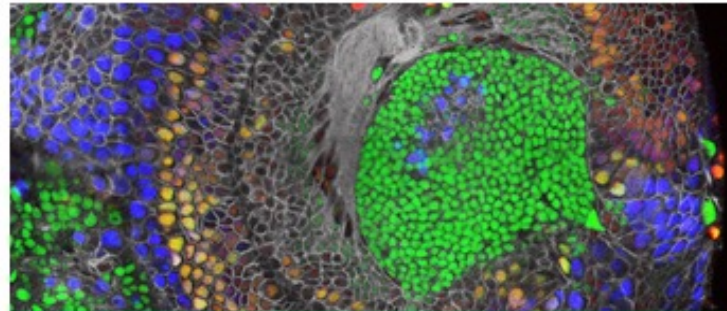
The University of Fribourg offers multidisciplinary study programmes leading to the degree of Master of Science:

- **Master in Environmental Biology**
- **Master in Molecular Life and Health Sciences**
- **Master in Bioinformatics and Computational Biology**

The programmes consist of 120 ECTS credits and correspond to 24 months of full-time study. English is the principal language for all activities, but students can take their exams in English, French or German.



MSc in Environmental Biology



MSc in Molecular Life and Health Sciences



MSc in Bioinformatics and Computational Biology

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



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

Degree Conferred

Master of Science
in Environmental Biology

Language(s) of Study

English

Programme Structure

120 ECTS credits
4 semesters

or

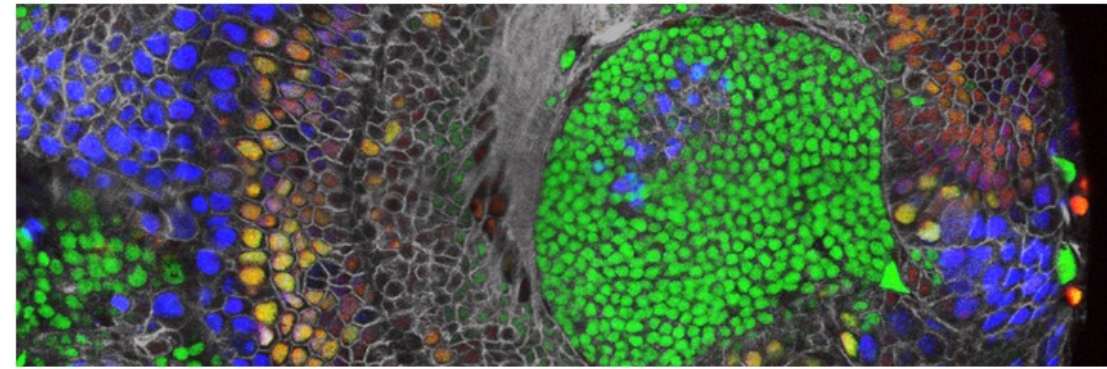
90 ECTS credits
3 semesters full-time

Programme Start

September or February

Student Advisor

Dr Alessandro Puoti
bio-scimed@unifr.ch



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](#)

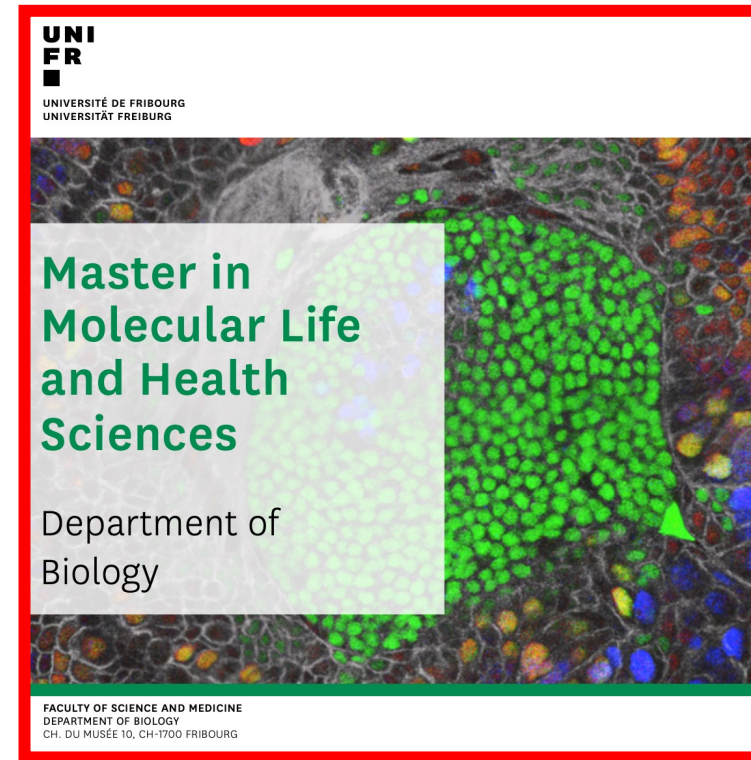
[Apply for Admission](#) →

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

Get informed about Biology Master programmes at UniFr



Info booklets



→ Masterweek online talks

Study Plan

↓ [Study Plan of the Master in Environmental Biology](#)

Weekly schedule

↓ [Schedule Autumn Semester \(ver. 26.05.21\)](#)

↓ [Schedule Spring Semester \(ver. 12.11.21\)](#)

Additional Information

→ [Regulations](#)

Apply for Admission →

Masterweek documents

↓ Info booklet

↓ General information

↓ EB Master (to follow)

→ Masterweek online talks

Study Plan

↓ [Study Plan of the Master in Molecular Life and Health Sciences](#)

Weekly schedule

↓ [Schedule Autumn Semester](#)

↓ [Schedule Spring Semester](#)

Masterweek documents

↓ Info booklet

↓ General information

↓ MLHS Master (to follow)

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/centredelanguages/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
- acquire 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.

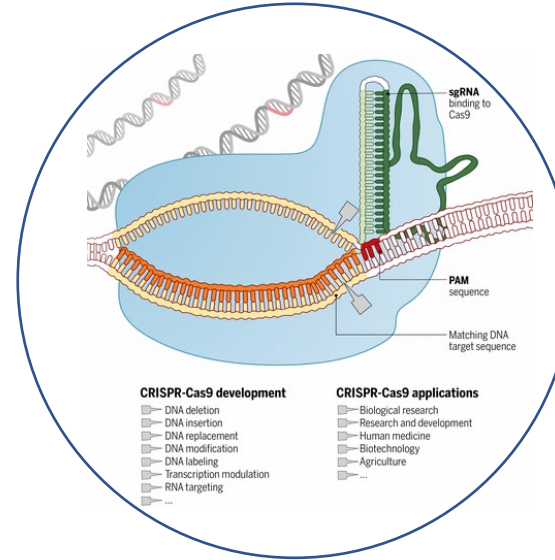
For a **90-ECTS** Master (Teaching options), the duration is 3 **semesters**, including 1 year full-time dedicated to the thesis / laboratory work. This option is specifically designed for future **teachers at secondary level II**. The 90-ECTS options require that you take additional 30 ECTS in your second teaching domain.

It is the right time to immerse yourself into biology research

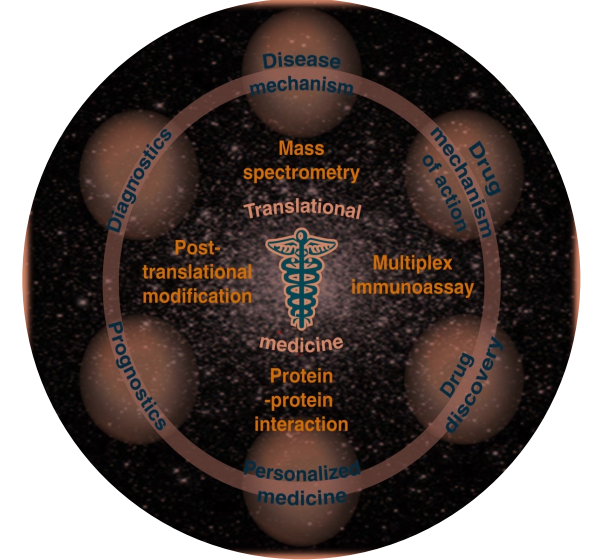
Our assets



Diamandis, 2019

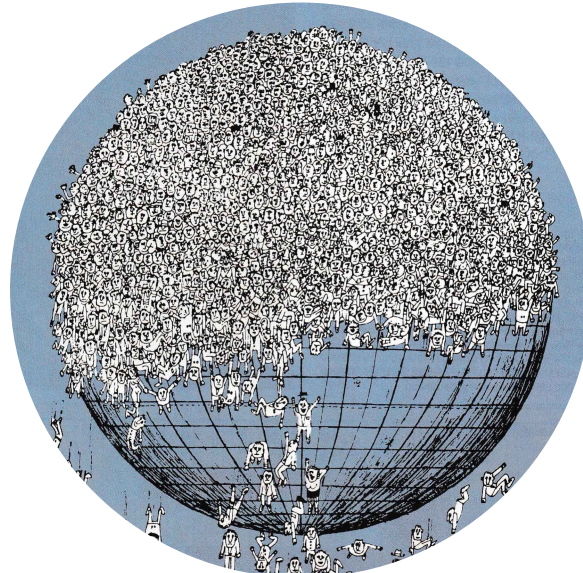


Doudna and Charpentier, 2014



CEEP Conference, 2022

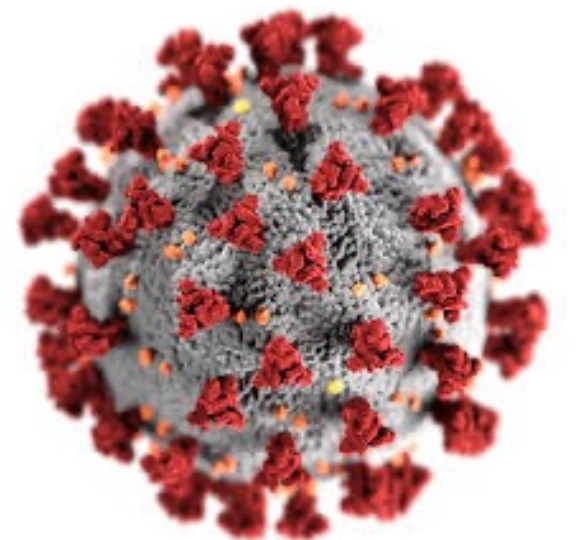
Our challenges



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 Master thesis (50-100 pages)
- Take remaining classes
- Prepare and present the Master thesis defense (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 Master thesis (50-100 pages)
- Take remaining classes, if this applies
- Prepare and present the Master thesis defense(30 minutes).