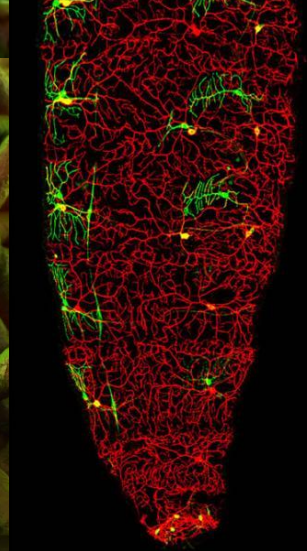
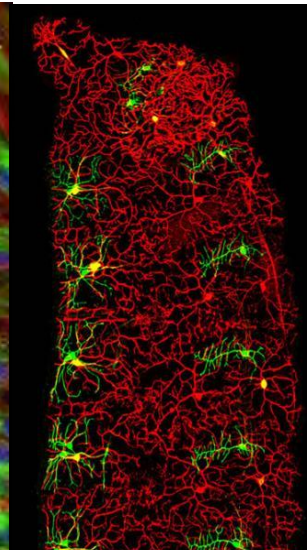
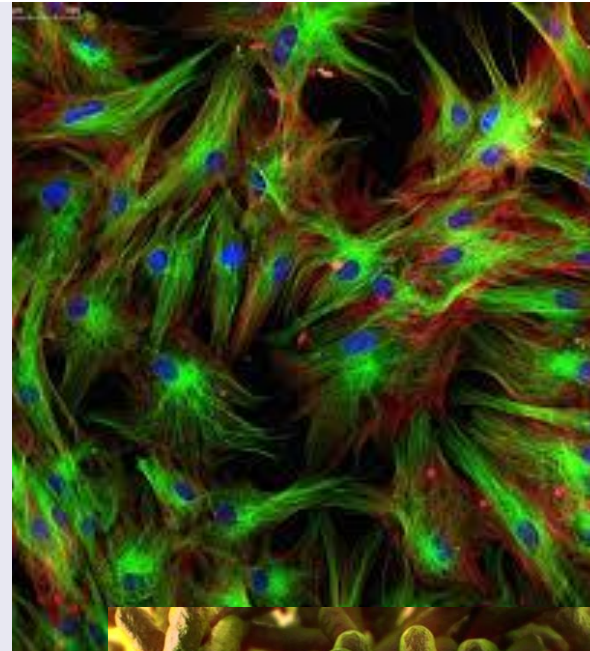
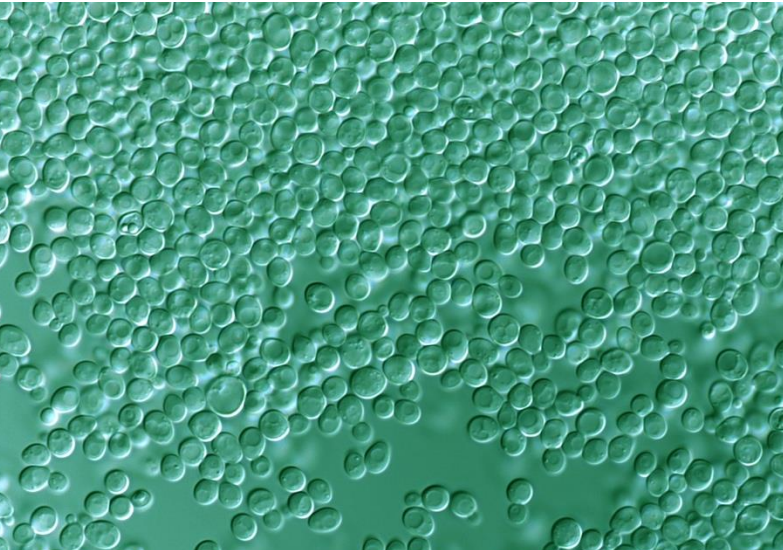


Master studies in Biology



Master Days 2025, BIOLOGY

Programme:

17.00 - 17.20

Introduction to Biology Master programs*

17.20 - 17.40

MSc in Environmental Biology*

17.40 - 18.00

MSc in Molecular Life and Health Sciences*

18.00 - 18.25

MSc in Bioinformatics and Computational Biology*

* Dr Alessandro Puoti (Study advisor Biology and Biochemistry)

* Prof. Laure Weisskopf

* Prof. Daniel Wegmann

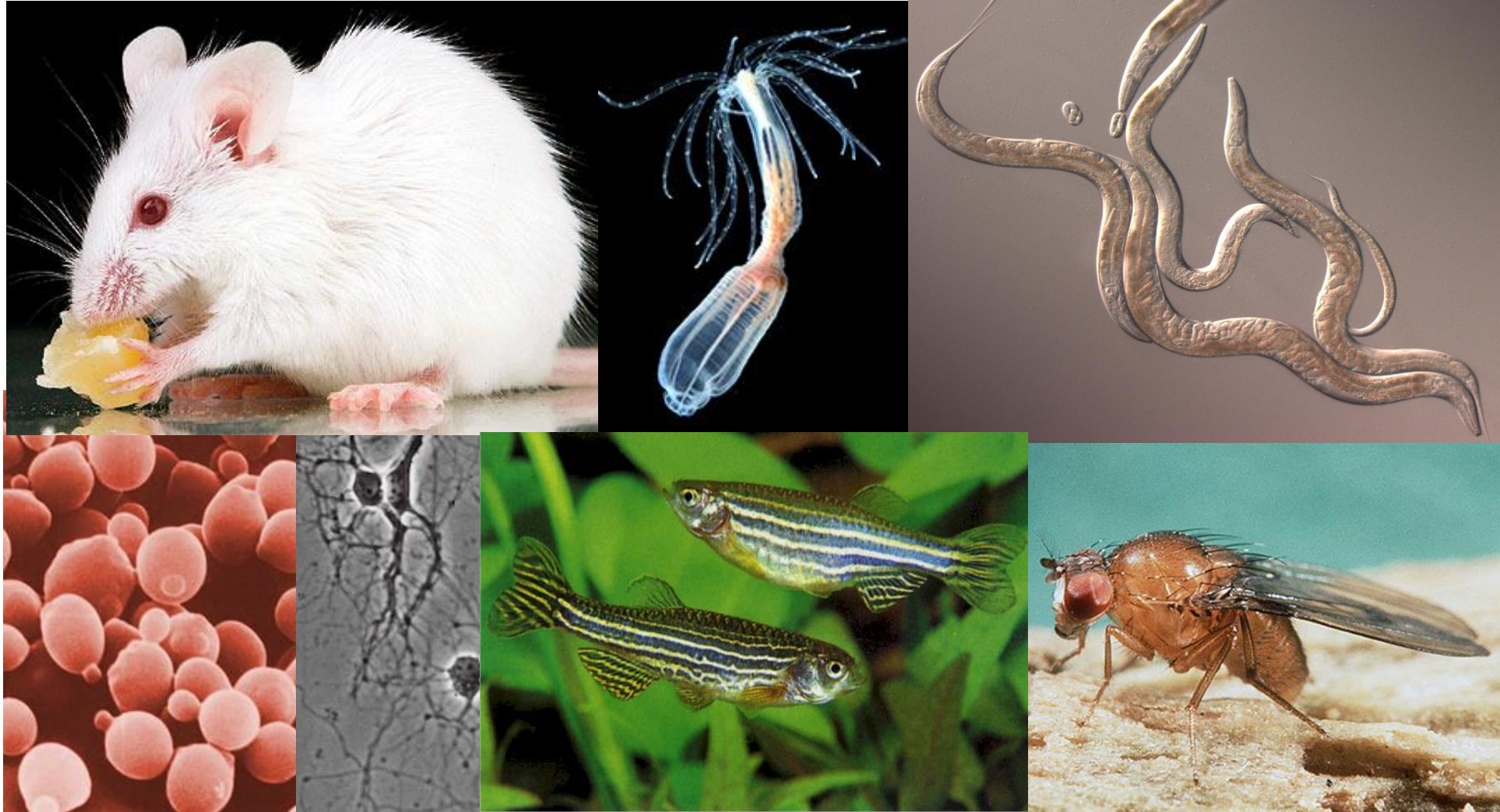
Department of Biology
Chemin du Musée 10
Laboratoire 0.325 (PER 05)
1700 Fribourg

email: alessandro.puoti@unifr.ch

The Department of Biology

Biochemistry

“Zoology”

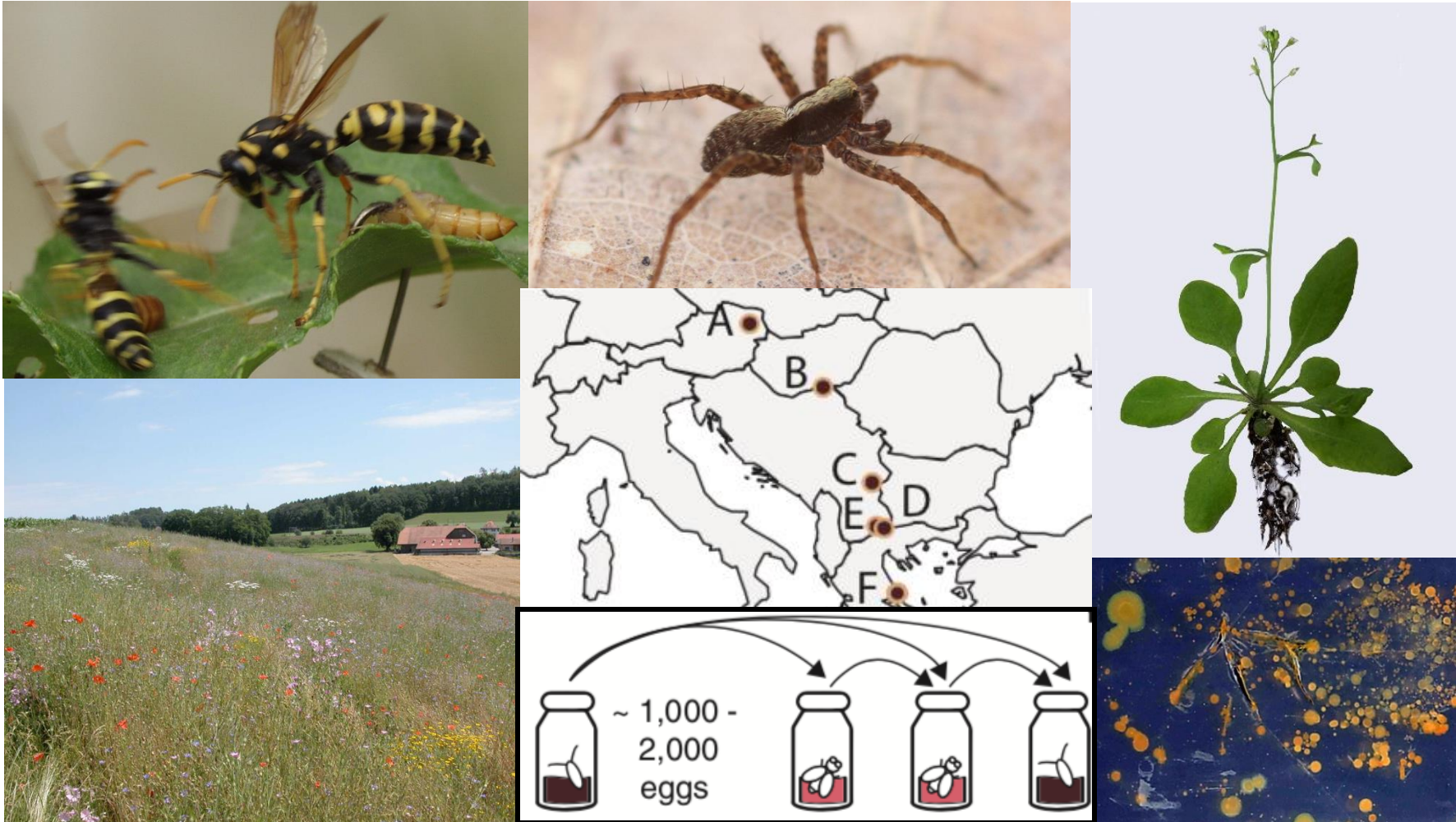


“MSc in Molecular Life and Health Sciences”

The Department of Biology

Ecology and Evolution

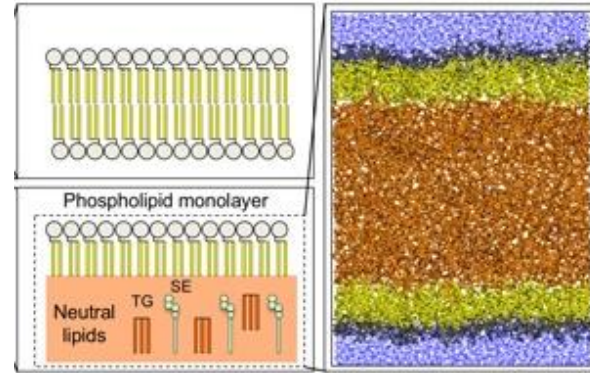
Plant and Microbial
Sciences



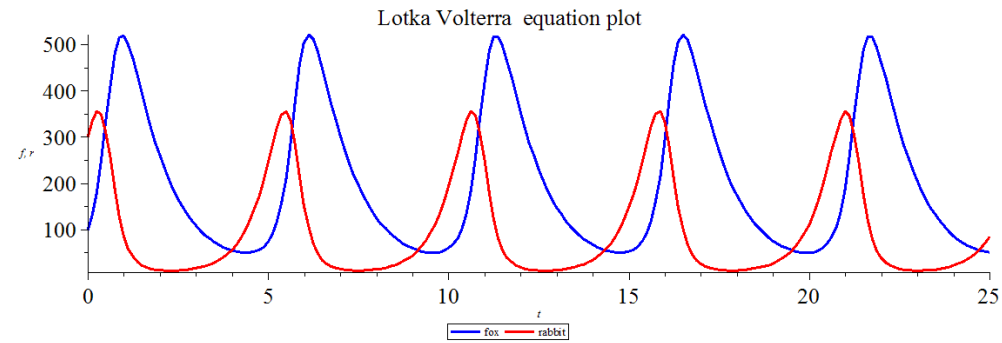
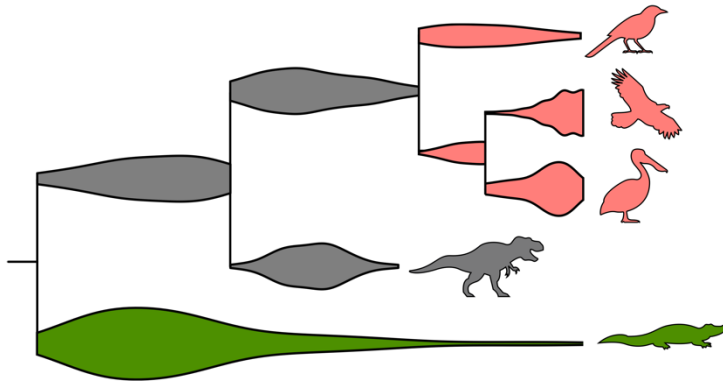
“MSc in Environmental Biology”

The Department of Biology

Bioinformatics, Modelling, and Biomathematics



Trends in Ecology & Evolution
1 cm



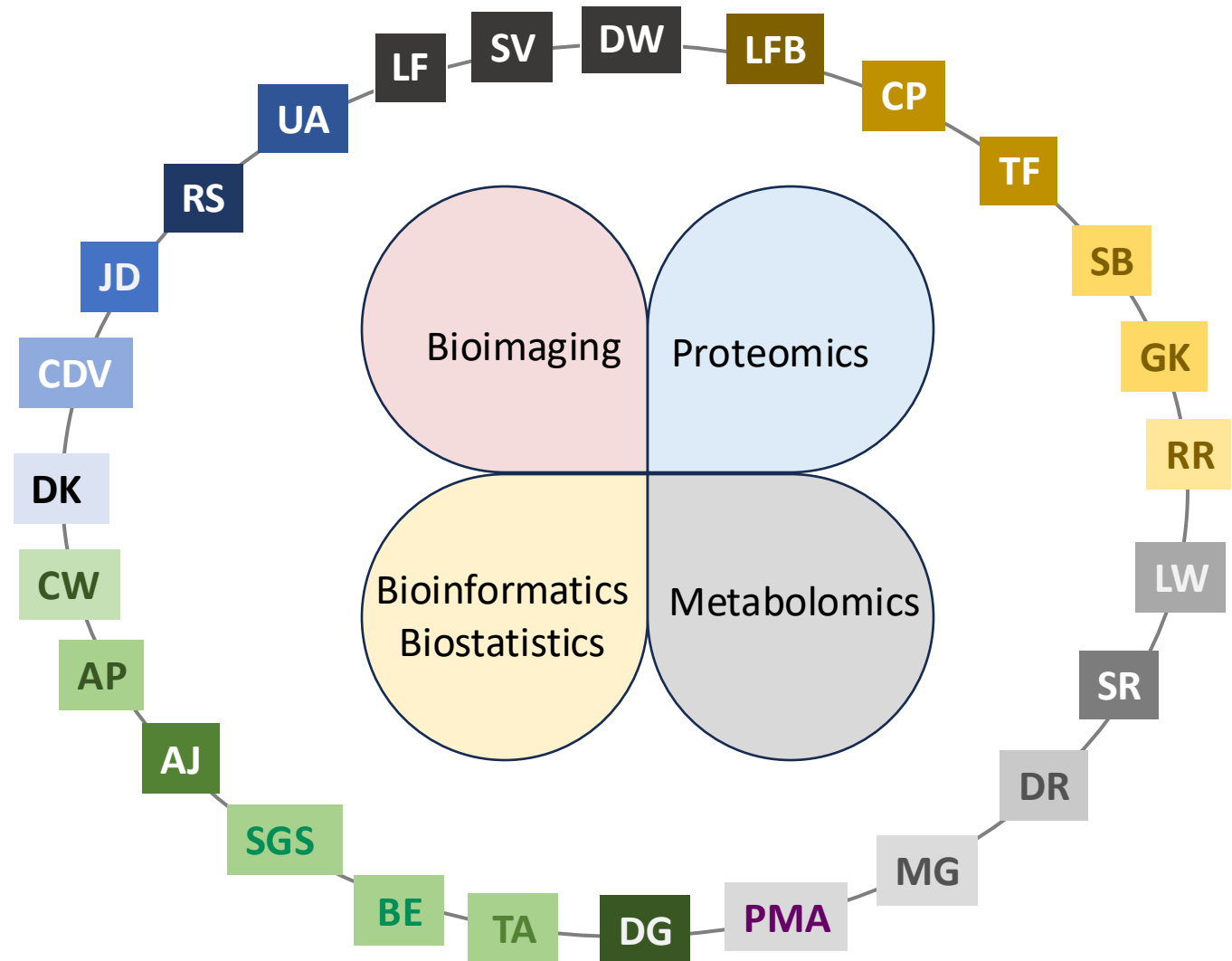
“MSc in Bioinformatics and Computational Biology”

Structure of the Department of Biology

- Bioinformatics
- Evolution
- Ecology
- Plant-Microbe Interactions
- Cell Biology
- Neurobiology
- Developmental Biology
- Biochemistry
- Molecular Biology
- Genetics

26
Independent
research groups

4
Technical platforms



Research activities at 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
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 Department's Master programmes

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

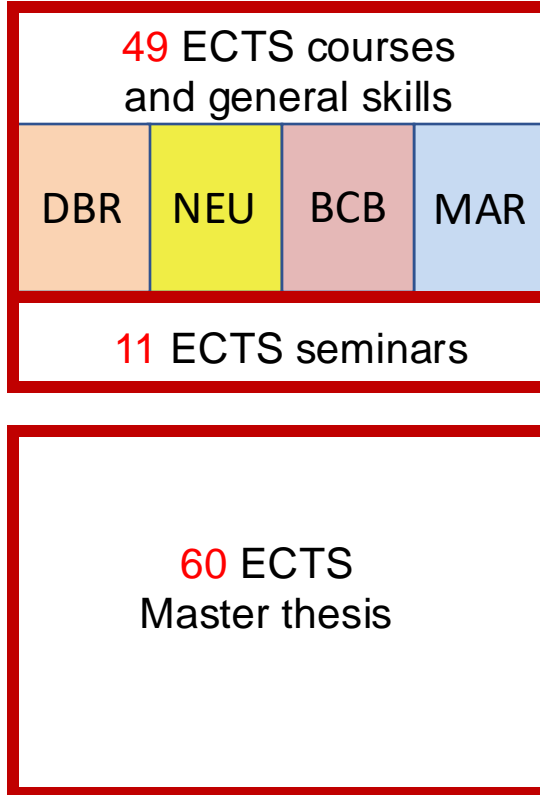
Master thesis 45 ECTS

Structure of our Biology MSc Programmes

MSc in Molecular Life and Health Sciences

4 options

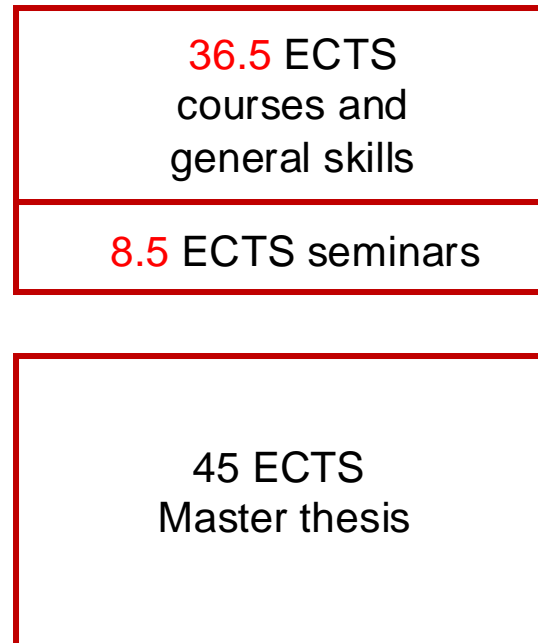
120 ECTS



MSc in Molecular Life and Health Sciences

Teaching

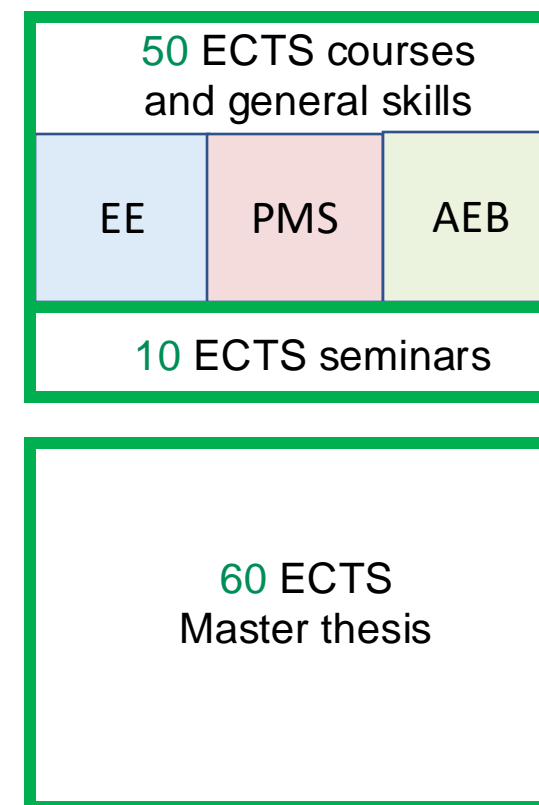
90 ECTS



MSc in Environmental Biology

3 options

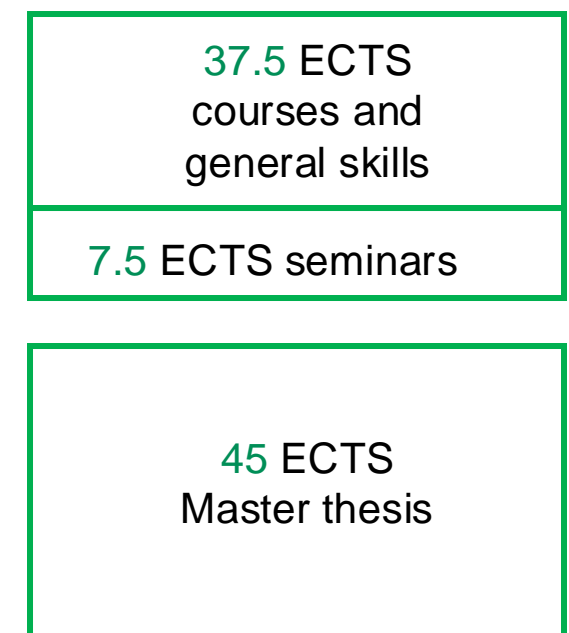
120 ECTS



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

General skills

SBL.00504	Basics in Biostatistics	(Fall, 1.5 ECTS)
SBL.30001	Introduction to R	(Fall, 2 ECTS)
SBL.00431	Seminars in Biology	(all, 2 ECTS)
Various	Scientific English for MSc students	(all, max 6 ECTS)

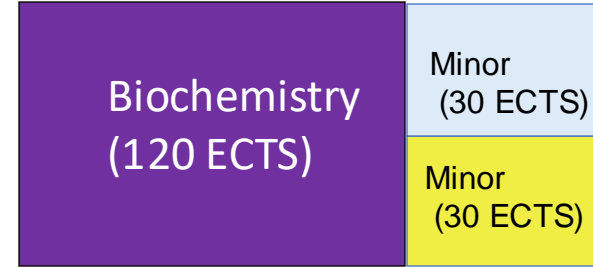
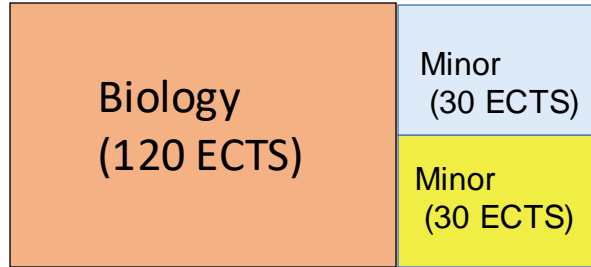
plus, depending on the option:

SBL.00427	Visual communication of data	(Spring, 1 ECTS)
SBL.10004	Ethics in stem cell research	(Spring, 1 ECTS)
SBL.10001	Modelling human disease in experimental model organisms	(Spring, 2 ECTS)
SBL.10002	From bench to bedside	(Spring 0.5 ECTS)
SBL.10100	Journal club in molecular life sciences	(all, 3 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.10013	Zebrafish license course (practical)	(all, 1 ECTS)
SBL.20003	Methods in plant pathogen interactions	(Fall, 2 ECTS)
SBL.20004	Introduction to metabolomics	(Spring, 2 ECTS)
SBL.00419	Advanced imaging	(Spring, 1 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 (including research seminars)	(45 / 60 ECTS)

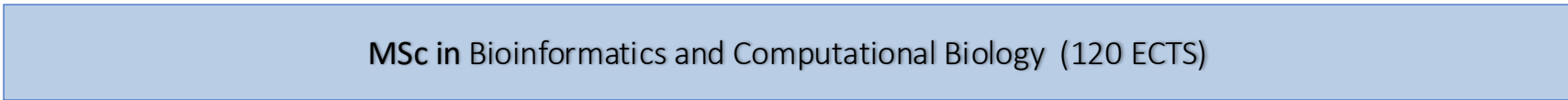
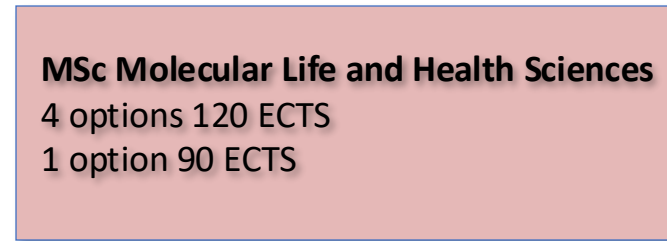
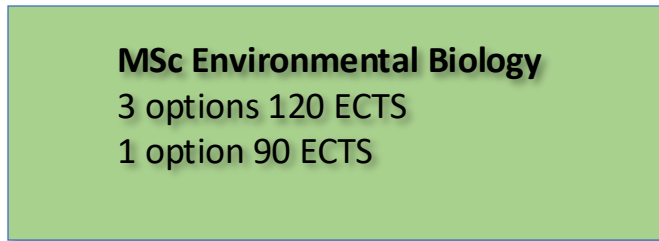
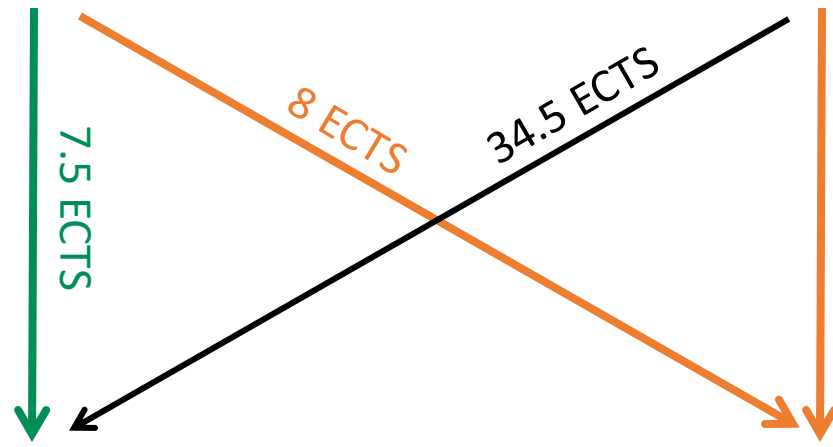
Admission with a BSc from UniFr



Small complements can be easily acquired within a minor during the bachelor

No complement required

- Teaching options
- MSc in Bioinformatics



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):

- **Practical skills**
- Vertebrates
- Invertebrates
- Botany
- Comparative anatomy
- Microbiology
- Ecology
- Evolution
- Statistics
- Plant physiology
- Animal physiology
- Molecular biology
- Population genetics

MSc in Molecular Life and Health Sciences

BSc in Biology, BSc in Biochemistry, or equivalent

Prerequisites (may vary, depending on the option):

- **Laboratory skills**
- Cell Biology
- Biochemistry
- General and organic chemistry
- Microbiology
- Methods in molecular biology
- Methods in biochemistry
- Animal physiology
- Molecular biology
- Developmental biology
- Neurobiology
- Genetics

Get informed about our Biology Master programmes

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

MSc in Environmental biology

- Ecology and evolution
- Plant and microbial sciences
- Applied environmental biology
- Teaching



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

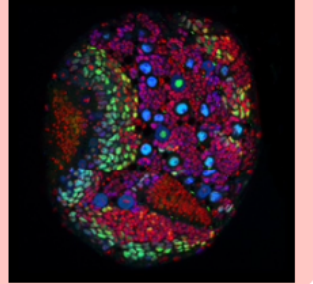
September or February

Student Advisor

Dr Alessandro Puoti
bio-scimed@unifr.ch

MSc in Molecular life and health sciences

- Biochemistry and cell biology
- Developmental biology and regeneration
- Neurobiology
- Marine biology
- Teaching



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



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
- 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**.

Perspectives with a Master degree in Science

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

- 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, funding agencies
- working in regulatory affairs (GO and NGO)
- becoming a medical analyst (FAMH)
- getting a teaching diploma (DEEM / LDM)

One year after having obtained a MSc from UniFr:

93.4 % are active in sciences, including 4.9 % in search of an employment
6.6 % are inactive in sciences. (family, travelling, other studies,...)

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).