

Curriculum 'M Sc in Biology' (120 ECTS)

GENERAL STRUCTURE	ECTS	Status	Course controller
CORE CURRICULUM	36		
a) Compulsory courses	21		
MB-1: Module Generic skills	9	Compulsory	KZ
MB-2: Computer tools	3	Compulsory	JK
MB-3: Module Seminars	6	Compulsory	TT
MB-4: Laboratory and field methods	3	Compulsory	FK
b) Elective courses	15		
MB-5: Basics of Conservation biology	3 to 12	Elective	CP
MB-6: Special skills	3 to 15	Elective	N.N.
MB-7: Excursion	6	Elective	RB
MB-8: Internship	6	Elective	KZ
MB-9: Free elective	6	Elective	KZ
SPECIALISATIONS <i>(choose two from two different groups)</i>	24		
Group I			
MB-10: Module Sustainable agriculture	12	Elective	BB
MB-11: Module Animal behaviour	12	Elective	RB/KZ
Group II			
MB-12: Module Biodiversity conservation: an interdisciplinary perspective	12	Elective	N.N.
MB-13: Module Ecology and evolution	12	Elective	JK
Group III			
MB-14: Module Conservation biology	12	Elective	EM
MB-15: Module Chemical ecology	12	Elective	TT
MASTER THESIS	60		
Total MSc in Biology	120		

CORE CURRICULUM (36 ECTS)

a) Compulsory courses (21 ECTS)

Modules/courses	Hours of courses	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
MB-1 Module Generic skills			9 ECTS			
Statistics	30	A	3	Dr R. Slobodeanu		CA (graded)
Scientific writing	30	A	3	Prof. K. Zuberbühler		CA (graded)
Seminars by externals	28	A and S	3	Prof. T. Turlings et Dr T. Degen		CA (pass)
MB-2 Computer tools (choose one)			3 ECTS			
Bioinformatic tools	30	A	3	Prof. D. Croll	PD Dr N. Ivanov	CA (graded)
Models and parameter estimation	30	A	3	Prof. J. Koella		CA (graded)
MB-3 Module Seminars (choose two)			6 ECTS			
Ecology and biochemistry	30	A	3	Profs B. Mauch-Mani et T. Turlings	Profs F. Kessler, J. Veermer	CA (graded)
Ecology and evolution	30	A	3	Prof. K. Zuberbühler	Profs J. Koella, B. Benrey, R. Bshary	CA (graded)
Ecology and biodiversity	30	A	3	Prof. D. Croll	Profs S. Rasmann, P. Junier and Dr M. Mulot	CA (graded)
MB-4 Laboratory and field methods (choose one)			3 ECTS			
Molecular methods	7 half days	A	3	Prof. F. Kessler	Prof. J. Veermer and Dr P. Longoni	CA (graded)
Natural substances analyses	7 half days	A	3	Profs S. von Reuss and G. Roeder	Prof. T. Turlings	CA (graded)
Faunistic methods ¹⁾	3 days	S	3	Infofauna		CA (graded)

b) Elective courses (15 ECTS)

MB-5 Basics of Conservation biology¹⁾			3-12 ECTS			
Methods in biodiversity and conservation	28	A	3	Dr C. Praz		Written, 1 hour
Global change and restoration ecology	30	A	3	Prof. E. Mitchell		CA (graded)
Animal conservation	30	A	3	Dr Y. Gonseth	Infofauna	CA (graded)
Natural ecosystems of Switzerland	3 days	S	3	Infofauna		Written, 1 hour
MB-6 Special skills			3-15 ECTS			
Soil and water management	30	A	3	Profs P. Brunner and D. Hunkeler		CA (graded)
Spatial modelling of natural systems - 1 (in French)	28	A	3	Prof. M. Bouzelboudjen		CA (graded)
Spatial modelling of natural systems - 2 (in French)	28	S	3	Prof. M. Bouzelboudjen	Dr Y. Gonseth	CA (graded)
Microscopy	7 half days	A	3	Prof. M. Dadras		CA (graded)
Environmental problems and socio-anthropology: directed readings	28	S	3	Prof. A. Aebi		CA (graded)
Séminaire de socio-anthropologie de l'aide internationale (in French)	28	A	4	Prof. M. Fresia		CA (graded)
Non-validated courses of MB-2, MB-3 and MB-4		A or S	max. 3			CA (graded)

Master of Science in Biology

(from the academic year 2020-2021)

Modules/courses	Hours of courses	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
MB-7 Excursion (choose one maximum**)			max. 6 ECTS			
EXC Tropical ecology	7 days*	A	6	Prof. B. Benrey		CA (pass)
EXC Marine biology	7 days*	S	6	Prof. R. Bshary		CA (pass)
EXC Mediterranean ecology	7 days*	S	6	MER W. Müller		CA (pass)
EXC Alpine ecology (Switzerland)	7 days*	S	6	Prof. S. Rasmann	Dr S. Bindschedler and Prof. J. Grant	CA (pass)
MB-8 Internship			6 ECTS			
Approved by course controller	160 total	A or S	6	Prof. K. Zuberbühler	Prof. R. Bshary	CA (pass)
MB-9 Free electives			max. 6 ECTS			
Meet your future employer (industry, public sector, NGOs) not given in 2020-2021	1 half day	A	1	Prof. T. Turlings		CA (pass)
Approved by course controller ²⁾		A or S	max. 6	Prof. K. Zuberbühler	Prof. R. Bshary	

SPECIALISATION (24 ECTS)

(choose two from two different groups)

Group I		12 ECTS				
MB-10 Module Sustainable agriculture			12 ECTS			
Integrated pest management (course + workshop)	40	S	4	Prof. T. Turlings		CA (graded)
Plant domestication and insect interactions	20	S	2	Prof. B. Benrey		CA (graded)
Microbial ecology	30	S	3	Prof. P. Junier	Dr S. Bindschedler	CA (graded)
Plant pathology	30	S	3	N.N.		CA (graded)
MB-11 Module Animal behaviour			12 ECTS			
Integrative approach to animal behaviour	40	S	4	Prof. R. Bshary	Prof. K. Zuberbühler	CA (graded)
Behavioural ecology	40	S	4	Prof. R. Bshary		CA (graded)
Comparative cognition	40	S	4	Prof. K. Zuberbühler		CA (graded)
Group II		12 ECTS				
MB-12 Biodiversity conservation: an interdisciplinary perspective			12 ECTS			
Anthropological approaches to agro-environmental governance in Switzerland	28	S	3	Dr J. Forney		CA (graded)
Biodiversity and agriculture: a transdisciplinary perspective	28	S	3	Prof. A. Aebi		CA (graded)
Introduction to the law of biodiversity conservation	28	S	3	Dr V. Wyssbrod (FD)		CA (graded)
Introduction to environmental economics	28	S	3	Dr V. Boisvert (FSE)		CA (graded)
MB-13 Module Ecology and evolution			12 ECTS			
Ecological interactions	30	S	3	Prof. B. Benrey		CA (graded)
Evolutionary parasitology	30	S	3	Prof. J. Koella		CA (graded)
Evolutionary ecology	30	S	3	Prof. D. Croll		CA (graded)
Methods in evolutionary ecology	30	S	3	Prof. J. Koella	Ambizione fellows	CA (graded)

Master of Science in Biology

(from the academic year 2020-2021)

Modules/courses	Hours of courses	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
Group III						
MB-14 Module Conservation biology (choose 4)			12 ECTS			
Conservation biology	30	S	3	Dr C. Praz		CA (graded)
Advanced topics in conservation biology	30	S	3	Prof. D. Zemp		CA (graded)
From genes to ecosystems	30	S	3	Prof. S. Rasmann		CA (graded)
Plant population genetics and conservation	30	S	3	Dr F. Felber		CA (graded)
Plant systematics and evolution	30	S	3	Prof. J. Grant		CA (graded)
MB-15 Module Chemical ecology			12 ECTS			
Basics of chemical ecology + labs	7 half days	S	2	Prof. T. Turlings	Prof. G. Roeder	Written, 2 hours
Biosynthesis and function of secondary compounds	7 half days	S	2	Prof. J. Veermer	Prof. F. Kessler and Dr P. Longoni	
Recent advances in chemical ecology	7 half days	S	2	Prof. T. Turlings		CA (graded)
Plant molecular genetics + labs	7 half days	S	3	Prof. J. Veermer		CA (graded)
Natural products chemistry + labs	7 half days	S	3	Prof. S. von Reuss		CA (graded)

MASTER THESIS (60 ECTS)

Modules/courses	Hours of courses	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
MB-16 Master thesis³⁾		A and S	60			CA (graded)

Total MSc in Biology			120 ECTS			
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Important remarks

When an evaluation of a course chosen in the compulsory modules MB-2, MB-3 et MB-4 is failed after a second attempt and not compensable, students have the possibility to choose another course in the concerned module until all choices are exhausted.

All elective courses are validated only with a sufficient mark.

Transitional provisions

For courses with a content that has changed from earlier years, the students enrolled in earlier years must be examined on the earlier content.

Abbreviations and notes

¹⁾ Highly recommended for students following specialisations in conservation (MB-10, MB-12 or MB-14)

²⁾ Free elective courses must be chosen from courses that are evaluated independently of other courses of the same module.

³⁾ **Master thesis must be supervised by a professor of the Institute of Biology**

* Travel time to be added for excursions abroad

** Check availability, available spaces may be limited (not possible for external students)

CA (pass) = continuous assessment without grading, modalities fixed in course descriptives

CA (graded) = continuous assessment that is graded, modalities fixed in course descriptives

A = autumn semester

S = spring semester

Informations

Master coordinators: **Prof. K. Zuberbühler** (klaus.zuberbuehler@unine.ch) et **Prof. R. Bshary** (redouan.bshary@unine.ch)

Exams and regulation

Candidates must be registered in IS-Academia for both courses and exams.

For regulation, please consult the homepage of the Faculty of Sciences, www.unine.ch/sciences ("règlement d'études et d'examens" and existing directives) or the administrative staff of the Faculty.