

Curriculum 'MSc 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 methods	3	Compulsory	FK
b) Elective courses	15		
MB-5: Special skills	3 to 15	Elective	JMN
MB-6: Excursion	6	Elective	RB
MB-7: Internship	6	Elective	MV
MB-8: Free elective	max. 6	Elective	MV
SPECIALISATIONS <i>(choose two from two different groups)</i>	24		
Group I			
MB-9: Sustainable agriculture	12	Elective	BM-M/BB
MB-10: Animal behaviour	12	Elective	RB/KZ
Group II			
MB-11: Module Chemical ecology	12	Elective	TT
MB-12: Module Biology-anthropology	12	Elective	AA
MB-13: Module Evolution & biodiversity	12	Elective	DC
Group III			
MB-14: Module Ecology & environment	12	Elective	SR
MB-15: Module Parasitology	12	Elective	JK
MASTER THESIS	60		
Total MSc in Biology	120		

CORE CURRICULUM (36 ECTS)

a) Compulsory courses (21 ECTS)

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

b) Elective courses (15 ECTS)

MB-5 Special skills			3-15			
Ethics & biosecurity	7 half days	A	3	Profs J.-M. Neuhaus and B. Mauch-Mani		CA (graded)
Spatial modelling of natural systems - 1 (in French)	7 half days	A	4	Dr M. Bouzelboudjen		CA (graded)
Spatial modelling of natural systems - 2 (in French)	2	S	3	Dr M. Bouzelboudjen		CA (graded)
Microscopy	7 half days	A	3	Dr M. Dadras		CA (graded)
Non-validated courses of MB-2; MB-3 and MB-4		A	max. 9			CA (graded)
MB-6 Excursion (choose one**)			6			
EXC Alpine ecology	7 days*	S	6	PD R. Bergmüller		CA (pass)
EXC Tropical ecology	7 days*	A	6	MER B. Benrey		CA (pass)
EXC Marine biology	7 days*	S	6	Prof. R. Bshary		CA (pass)
EXC Mediterranean ecology	7 days*	S	6	Dr W. Müller		CA (pass)
EXC Microbiology in agriculture and health	7 days*	A	6	Profs J. Koella and P. Junier		CA (pass)
EXC Primate ecology	7 days*	S	6	Prof. K. Zuberbühler		CA (pass)

Modules/courses	Hours per week	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
MB-7 Internship			6			
Approved by course controller	160 h total	A or S	6	Prof. M. Voordouw		CA (graded)
MB-8 Free electives			max. 6			
Approved by course controller ²⁾		A or S	3 or 6	Prof. M. Voordouw		

SPECIALISATION (24 ECTS)

(choose two from two different groups)

Modules/courses	Hours per week	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
Group I			12			
MB-9 Sustainable agriculture			12			
Integrated pest management (course + workshop)	3 ¹⁾	S	4	Prof. T. Turlings		Written, 2 hours
Plant domestication and insect interactions	3 ¹⁾	S	2	MER B. Benrey		
Soil and water management	3 ¹⁾	S	3	Prof. P. Brunner and Dr V. Ponsin		
Plant pathology	3 ¹⁾	S	3	Prof. B. Mauch-Mani		
MB-10 Animal behaviour			12			
Integrative approach to animal behaviour	4 ¹⁾	S	4	Profs R. Bshary and K. Zuberbühler		CA (graded)
Behavioural ecology	4 ¹⁾	S	4	Prof. R. Bshary		
Comparative cognition	4 ¹⁾	S	4	Prof. K. Zuberbühler		
Group II			12			
MB-11 Module Chemical ecology			12			
Basics of chemical ecology + labs	7 half days	S	2	Prof. T. Turlings	Dr P. Longoni	Written, 2 hours
Biosynthesis and function of secondary compounds	7 half days	S	2	Profs F. Kessler and J.-M. Neuhaus		
Recent advances in chemical ecology	7 half days	S	2	Prof. T. Turlings		CA (graded)
Molecular genetics of secondary metabolism + labs	7 half days	S	3	Prof. J.-M. Neuhaus	Dr P. Longoni	CA (graded)
Natural products chemistry + labs	7 half days	S	3	Prof. S. von Reuss		CA (graded)
MB-12 Module Biology-anthropology			12			
Environmental problems interdisciplinary perspective: directed readings ³⁾	2	S	4	MER A. Aebi and Prof. E. Hertz		CA (graded)
Anthropologie thématique: Environment and agri-food systems	2	S	4	Dr C. D. Bentia and Dr. J. Forney		CA (graded)
Anthropologie thématique - Séminaire de socio-anthropologie du développement (in French)	2	S	4	Prof. M. Fresia		CA (graded)
Anthropologie thématique - Sociologie de l'engagement dans les associations de défense de l'environnement (in French) (si donné)	2	A	4	Dr C. Dubuis		CA (graded)

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Modules/courses	Hours per week	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
MB-13 Module Evolution & biodiversity			12			
Landscape genetics	2 ¹⁾	S	2	Dr C. Parisod		CA (graded)
Plant population genetics and conservation	2 ¹⁾	S	2	PD Dr F. Felber		CA (graded)
Conservation biology	2 ¹⁾	S	2	Dr C. Praz		CA (graded)
Evolutionary ecology	3 ¹⁾	S	3	Prof. D. Croll		CA (graded)
Biodiversity	3 ¹⁾	S	3	Dr S. Dubey (Prof. E. Mitchell)	Dr C. Praz	CA (graded)
Group III			12			
MB-14 Module Ecology & Environment			12			
From genes to ecosystems	3 ¹⁾	S	3	Prof. S. Rasmann		CA (graded)
Microbial ecology	3 ¹⁾	S	3	Prof. P. Junier		CA (graded)
Environmental mycology	2 ¹⁾	S	2	Dr S. Binschedler		CA (graded)
Biologie du sol (in French)	2 ¹⁾	S	2	Dr I. Koenig (Prof. E. Mitchell)		CA (graded)
Paléoécologie (In French)	2 ¹⁾	S	2	Dr I. Koenig (Prof. E. Mitchell)		CA (graded)
MB-15 Module Parasitology			12			
Parasitoid-host interactions	3 ¹⁾	S	3	MER B. Benrey		CA (graded)
Evolution of parasites	3 ¹⁾	S	3	Prof. M. Voordouw		CA (graded)
Topics in parasitology	3 ¹⁾	S	3	Prof. J. Koella		CA (graded)
Experimental parasitology	2	S	3	Profs J. Koella and D. Croll		CA (graded)

MASTER THESIS (60 ECTS)

Modules/courses	Hours per week	Semester	ECTS per module/course	Instructor	Participant / contributor	Evaluation
MB-16 Master thesis⁴⁾		A and S	60			CA (graded)
Total MSc in Biology			120			

Abbreviations and notes

- 1) **The courses will take place over 10 weeks rather than 14**
 - 2) Free elective courses must be chosen from courses that are evaluated independently of other courses of the same module.
 - 3) Compulsory for students without relevant background in social anthropology
 - 4) **Master thesis must be supervised by a professor of the Institute of Biology**
- * Travel time to be added for excursions abroad
** Check availability

Elective courses are validated with a sufficient mark.

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 coordinator: **Prof. K. Zuberbühler** (klaus.zuberbuehler@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

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