

Note:

The following curriculum is a consolidated version. It is legally non-binding and for informational purposes only.

The legally binding versions are found in the University of Innsbruck Bulletins (in German).

Original version published in the University of Innsbruck Bulletin of 21 June 2010, Issue 34, No. 319

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Complete Version from 1 October 2021

Curriculum for the **Master's Programme in Zoology** at the Faculty of Biology of the University of Innsbruck

§ 1 Classification of the study programme

According to §54 para. 1 Universities Act 2002, the Master's Programme in Zoology belongs to the group of studies in the Natural Sciences.

§ 2 Qualification profile

- (1) Graduates of the Master's Programme in Zoology have the necessary knowledge as well as the required skills and competences to find methodologically sound answers to subject-specific questions related to research in zoology, to apply them in practice and to communicate the resulting assessments clearly.
- (2) Graduates are able to scientifically assess and further develop zoological areas and to use the skills acquired in an interdisciplinary manner in an international context
- (3) The graduates have the competence to develop their knowledge and understanding in the field of zoology independently and with new strategic approaches.
- (4) Graduates are able to find scientifically sound solutions to problems based on theories and methods. This competence enables them to deal with pertinent problems of their respective professional fields backed by science and oriented towards practice. Possible professional fields:
 - zoologically oriented research and teaching activities at universities, technical colleges and other public and private research and educational institutions,
 - basic biological-biomedical research and applied research,
 - scientific and managerial work in public institutions and in private companies (e.g. in the fields of basic biological-biomedical research and environmental sciences, biological and environmental monitoring, agriculture and forestry, fisheries), in museums, zoological gardens and in protected areas,
 - working as consultant for private companies and public institutions in areas that require zoological expertise,
 - all other types of work in the area bordering to other disciplines, e.g. journalism, didactics, in combination with respective additional qualifications.
- (5) The Master's Programme Zoology provides an in-depth scientific training based on pertinent bachelor programmes. The master programme also prepares for a doctoral study programme.

§ 3 Scope and duration

The Master's Programme Zoology comprises 120 ECTS-Credits. This corresponds to a duration of the studies of four semesters. One ECTS-Credit corresponds to a workload of 25 hours.

§ 4 Admission

- (1) Completion of a relevant university bachelor's programme or a relevant bachelor's programme at a university of applied science, or completion of other equivalent studies at an accredited Austrian or non-Austrian post-secondary educational institution is required for admission to the Master's Programme Zoology.
- (2) A completed Bachelor's Programme in Biology at the University of Innsbruck is in any case a relevant study programme. The rectorate decides based on the regulations specified in the Universities Act on the admission of graduates who have completed other study programmes at approved Austrian or non-Austrian post-secondary education institutions and on the equivalence of the achievements.
- (3) In the event that equivalence has been established in principle but with certain qualifications missing for full equivalence, supplemental examinations may be required. These examinations must be completed during the master's programme.

§ 5 Types of courses and maximum number of students per course

- (1) Courses without continuous performance assessment:
Lectures (VO) are courses held in lecture format. They introduce the research areas, methods and schools of thought for a given subject. Maximum number of participants: 300
- (2) Courses with continuous performance assessment:
 1. **Introductory seminars** (PS) introduce students interactively to scientific literature through the treatment of selected issues. They convey knowledge and methods of academic work. Maximum number of participants: 15-20
 2. **Practical courses** (UE) focus on the practical treatment of concrete scientific tasks within an area. Maximum number of participants: 8 - 16.
 3. **Seminars** (SE) provide in-depth treatment of scientific topics through students' presentations and discussion thereof. Maximum number of participants: 10 - 30
 4. **Lectures with practical elements** (VU) focus on the practical treatment of concrete scientific tasks that are discussed during the lecture parts of the course. Maximum number of participants: 8 - 16
 5. **Excursions with practical elements** (EU) conducted outside the premises of the university, serve to demonstrate and deepen course contents through practical experience with concrete scientific tasks. Maximum number of participants: 14-20
 6. **Project studies** (PJ) promote scientific collaboration of two or more fields through the treatment of multidisciplinary topics and the use of various methods and techniques. Maximum number of participants: 10

§ 6 Procedure for the allocation of places in courses with a limited number of participants

The following criteria shall be applied for the allocation of places in courses with a limited number of participants:

1. Presence at the preliminary meeting (in person or represented by a proxy)
2. Students of the Master's Programme in Zoology are to be given priority.
3. Number of semesters the students have been enrolled for the Master's in Programme in Zoology (or other equivalent master's programmes of the Faculty of Biology); students who have been enrolled for a longer time are to be given priority.
4. By lot.

§ 7 Compulsory and Elective Modules

(1) The following compulsory modules covering altogether 27.5 ECTS-Credits must be passed:

1.	Compulsory Module: Selected Topics in Zoology	h	ECTS-Credits
a.	VO Selected Topics in Zoology	3	4.5
b.	PS Selected Topics in Zoology	2	3
	Total	5	7.5
	Learning Outcomes: Students are able to understand current methods, techniques and approaches towards research in zoology.		
	Prerequisites: none		

2.	Compulsory Module: Instructions for Scientific Working as Preparation for the Master's Thesis	h	ECTS-Credits
	PS Instructions for Scientific Working as Preparation for the Master's Thesis	1	17.5
	Total	1	17.5
	Learning Outcomes: The students are able to formulate scientific questions for their Master's Thesis based on the state of knowledge. They can then develop hypotheses, test them with suitable methods and reflect the results in scientific discourse.		
	Prerequisites: none		

3.	Compulsory Module: Master's Thesis Defence	h	ECTS-Credits
	Final oral defence of the Master's Thesis before an examination board.		2.5
	Total		2.5
	Learning Outcomes: Examination of the Master's Thesis in the overall context of the Master's Programme; with special focus on theoretical comprehension, methodical issues, communication of findings of the Master's Thesis and presentation skills.		
	Prerequisites: positive evaluation of all other compulsory and elective modules as well as the Master's Thesis.		

(2) Elective modules covering altogether 67.5 ECTS-Credits are to be passed, whereby at least three elective modules must be taken from the elective modules 2 to 15.

1.	Elective Module: Scientific Project Study - Zoology	h	ECTS-Credits
	PJ Scientific Project Study - Zoology	1	15
	Total	1	15
	Learning Outcomes: Students are able to apply modern methods for current research issues and to analyse and evaluate the results. They can present their research results scientifically and discuss them critically beyond the discipline.		
	Prerequisites: none		

2.	Elective Module: Evolution and Development	h	ECTS-Credits
a.	PS Evolution and Development	2	3
b.	UE Evolution and Development	3	4.5
	Total	5	7.5
Learning Outcomes: Students are able to understand the role of Developmental Biology in modern Evolution Theory and are able to apply their knowledge in practice.			
Prerequisites: none			

3.	Elective Module: Ultrastructure of the Cell	h	ECTS-Credits
a.	VO Introduction to Electron Microscopy	1	1.5
b.	VU Transmission Electron Microscopy	4	6
	Total	5	7.5
Learning Outcomes: Students understand the basics and special methods of transmission electron microscopy (TEM) including energy filtered transmission electron microscopy (EFTEM), electron energy loss spectroscopy (EELS) and electron spectroscopic imaging (ESI). They are able to independently prepare tissues by fixing, embedding, trimming and cutting. They are able to independently work with a transmission electron microscope and to interpret the results gained.			
Prerequisites: none			

7.	Elective Module: Histology and Cytology	h	ECTS-Credits
a.	VU Working Methods in Histological Microscopy	2	3
b.	VU Methods in Histology and Scanning Electron Microscopy	3	4.5
	Total	5	7.5
Learning Outcomes: Students are able to employ histological and immunohistological methods in biological research and diagnostics. They are also familiar with theoretical and practical aspects of microscopy, including fluorescence and contrast methods and can apply these techniques in practice.			
Prerequisites: none			

5.	Elective Module: Stress Physiology	h	ECTS-Credits
a.	SE Stress Physiology	2	3
b.	UE Stress Physiology	3	4.5
	Total	5	7.5

	Learning Outcomes: Students have a command of selected methods for proving environmental stress and can discuss and use them in practice. They know the principles of the effects of environmental stress on the physiology of organisms.
	Prerequisites: none

6.	Elective Module: Zoophysiology	h	ECTS-Credits
a.	VO Zoophysiology:	1	1.5
b.	SE Zoophysiology:	1	1.5
c.	UE Zoophysiology:	3	4.5
	Total	5	7.5
	Learning Outcomes: The students know the physiology of animal systems and can discuss it. They can apply the spectrum of physiological measurement methods to animals of different habitats and to humans and evaluate and interpret the data collected. They can critically analyse and present original scientific papers on the topic.		
	Prerequisites: none		

7.	Elective Module: Molecular Physiology	h	ECTS-Credits
a.	VO Molecular Physiology	1	1.5
b.	SE Molecular Physiology	1	1.5
c.	UE Molecular Physiology	3	4.5
	Total	5	7.5
	Learning Outcomes: Students are able to understand and discuss interrelations between molecular and physiological processes and are able to apply their knowledge in practice.		
	Prerequisites: none		

8.	Elective Module: Analysis of Food Relationships	h	ECTS-Credits
a.	VO Analysis of Food Relationships	1	1.5
b.	SE Current Topics in the Analysis of Food Relationships	1	1.5
c.	UE Methods for the Analysis of Food Relationships	3	4.5
	Total	5	7.5
	Learning Outcomes: Students understand the different methods and concepts of the analysis of food relationships and can apply them in practice. They master molecular biological and chemical/physical working techniques for the analysis of trophic interactions. They can critically analyse and present original scientific papers on the topic.		
	Prerequisites: none		

9.	Elective Module: Circadian Rhythm and Gene Activation	h	ECTS-Credits
a.	SE Circadian Rhythm and Gene Activation	2	3
b.	UE Circadian Rhythm and Gene Activation	3	4.5
	Total	5	7.5
	Learning Outcomes: Students learn quantification methods for mRNA by using real-time polymerase chain reaction and get an insight into the way gene regulation with a special focus on circadian rhythm works. They are able to relate the results won in experiments to current literature and to evaluate them.		
	Prerequisites: none		

10.	Elective Module: Physiological Toxicology and Environmental Toxicology	h	ECTS-Credits
a.	VO Physiological Toxicology and Environmental Toxicology	1	1.5
b.	SE Physiological Toxicology and Environmental Toxicology	1	1.5
c.	UE Physiological Toxicology and Environmental Toxicology	3	4.5
	Total	5	7.5
	Learning Outcomes: Students are able to understand the fundamentals of toxicological and ecotoxicological effects caused by pollution stress and can discuss them. They are able to put their knowledge into practice.		
	Prerequisites: none		

11.	Elective Module: Biocybernetics and Bionics	h	ECTS-Credits
a.	VO Biocybernetics and Bionics	1	1.5
b.	SE Biocybernetics and Bionics	1	1.5
c.	UE Biocybernetics and Bionics	3	4.5
	Total	5	7.5
	Learning Outcomes: Students are able to grasp and discuss basic relationships between biological structures and their function. They understand the design of sensors and have a command of non-invasive measurements on animals and humans. They can carry out biophysical measurements and know various methods of rapid prototyping and 3D printing. The students understand how bio-inspired processes and products are developed through technology transfer.		
	Prerequisites: none		

12.	Elective Module: Gene Regulation in the Early Embryonic Stages	h	ECTS-Credits
a.	PS Gene Regulation in the Early Embryonic Stages	2	3
b.	UE Gene Regulation in the Early Embryonic Stages	3	4.5
	Total	5	7.5

	Learning Outcomes: Students are familiar with the principles of gene regulation and have a command of selected experimental and molecular methods to analyse gene regulation in early embryonic stages.
	Prerequisites: none

13.	Elective Module: Regeneration and Molecular Phylogeny	h	ECTS-Credits
a.	PS Regeneration and Molecular Phylogeny	2	3
b.	UE Regeneration and Molecular Phylogeny	3	4.5
	Total	5	7.5

	Learning Outcomes: Students are able to make regeneration experiments with organisms and to colour and analyse important organ systems. The students are able to carry out regeneration experiments on animal organisms and to stain and analyse important organ systems. They also master molecular work with marker molecules and the evaluation of phylogenetic information in phylogenetic trees.
	Prerequisites: none

14.	Elective Module: Biological Control of Harmful Organisms	h	ECTS-Credits
a.	VO Biological Control of Harmful Organisms	2	3
b.	VU Biology of Harmful Animals and their Opponents	2	3
c.	EU Biological Control in Practice	1	1.5
	Total	5	7.5

	Learning Outcomes: Students know the biology of important animal groups which are of international importance as pests or disease vectors and can identify them on the basis of morphological characteristics. They know the biology and identification characteristics of the essential opponents of these pests and disease vectors. They understand the biological and economic relationships required for biological control of these pests. The students can apply this knowledge in practice.
	Prerequisites: none

15.	Elective Module: Genomic and Bioinformatic Methods in Zoology	h	ECTS-Credits
a.	SE Genomic and Bioinformatic Methods in Zoology	1	1.5
b.	VU Genomic and Bioinformatic Methods in Zoology	4	6
	Total	5	7.5

	Learning Outcomes: Students understand the methods and concepts of genomic procedures and bioinformatic analyses in zoology. They master basic molecular biological working techniques such as high-throughput sequencing and the bioinformatic analyses of such data sets. The students can critically analyse and present original scientific work on the topic.
	Prerequisites: none

16.	Elective Module: Anatomy and Systematics of Invertebrates	h	ECTS-Credits
a.	VO Anatomy and Systematics of Invertebrates	2	3
b.	UE Anatomy and Systematics of Invertebrates	3	4.5
	Total	5	7.5
	Learning Outcomes: Students have an overview of the diversity of invertebrates, the most species-rich group of the animal world and can apply their knowledge in practice.		
	Prerequisites: none		

17.	Elective Module: Anatomy and Systematics of Vertebrates	h	ECTS-Credits
a.	VO Comparative Anatomy and Systematics of Vertebrates	2	3
b.	UE Comparative Anatomy of Vertebrates	3	4.5
	Total	5	7.5
	Learning Outcomes: Students are able to understand systematics, phylogeny and evolutionary development of the building plans and organ systems of vertebrates and can apply their knowledge in practice.		
	Prerequisites: none		

18.	Elective Module: Marine Biology I: Developmental Biology	h	ECTS-Credits
a.	SE Marine Biology – Developmental Biology	1	1.5
b.	EU Marine Biology – Developmental Biology	4	3.5
	Total	5	5
	Learning Outcomes: The students know the diversity of the marine fauna and can identify and classify important taxa. They are able to conduct developmental biology experiments on marine invertebrates.		
	Prerequisites: none		

19.	Elective Module: Marine Biology II: Ecophysiology	h	ECTS-Credits
a.	SE Marine Biology – Ecophysiology	1	1.5
b.	EU Marine Biology – Ecophysiology	4	3.5
	Total	5	5
	Learning Outcomes: Students are familiar with the basic characteristics of marine habitats and can analyse and discuss the physiological adaptation strategies of marine fauna.		
	Prerequisites: none		

20.	Elective Module: Zoological Field Trips	h	ECTS-Credits
a.	SE Zoological Field Trips - Seminar	1	1.5
b.	EU Zoological Field Trips	4	3.5
	Total	5	5
	Learning Outcomes: Students are familiar with the fauna and their habitats in selected biogeographic regions and are able to understand biogeographical interrelations.		
	Prerequisites: none		

21.	Elective Module: Monitoring in Zoology	h	ECTS-Credits
a.	VO Monitoring in Zoology	1	1.5
b.	PS Monitoring in Zoology	1	1.5
c.	UE Monitoring in Zoology in Practice	3	4.5
	Total	5	7.5
	Learning Outcomes: Students know and understand the methods, concepts and legal basis of animal monitoring and are able to apply them in practice. They understand the biology of selected animal groups and are able to evaluate the living conditions of different animal species.		
	Prerequisites: none		

22.	Elective Module: Selected Chapters in Zoology	h	ECTS-Credits
a.	VO Selected Chapters in Zoology:	1	1.5
b.	SE Selected Chapters in Zoology:	1	1.5
c.	UE Selected Chapters in Zoology:	3	4.5
	Total	5	7.5
	Learning Outcomes: In this module, which is offered on a case-by-case basis, students gain in-depth insights into zoological sub-disciplines.		
	Prerequisites: none		

23.	Elective Module: Citizen Science, Communication in Science and Gender Research	h	ECTS-Credits
a.	VU Citizen Science	2	3
b.	VU Communication in Science	2	3
b.	SE Philosophy of Science, Ethics and Gender Research	1	1.5
	Total	5	7.5
	Learning Outcomes: Students understand the methods, concepts and legal framework of the Citizen Science approach and can apply it in practice. They are able to prepare and present scientific content for presentations in oral, written and pictorial form. In consideration of gender aspects,		

	students are able to understand the peculiarities of biology in relation to the philosophy of science, its relationship with other disciplines and its history. Moreover, the students have a command of basic ethic terms and approaches, which enables them to independently reflect on ethical questions of research and its application in biology.
	Prerequisites: none

24.	Elective Module: Module from other Master's Programmes at the Faculty of Biology	h	ECTS-Credits
	A module from another master's programme offered at the Faculty of Biology of the University of Innsbruck can be passed.		7.5
	Total		7.5
	Learning Outcomes: The objectives defined by the respective module give the students insights into another field of biology.		
	Prerequisites: The prerequisites specified by the respective curricula must be met.		

25.	Elective Module: Interdisciplinary Skills	h	ECTS-Credits
	Providing the availability of places, courses corresponding to 7.5 ECTS-Credits can be freely chosen from the curricula of the master's and/or diploma programmes offered at the University of Innsbruck.		7.5
	Total		7.5
	Learning Outcomes: This module serves to expand the study programme and to acquire additional qualifications.		
	Prerequisites: The prerequisites specified by the respective curricula must be met.		

§ 8 Master's Thesis

- (1) In the Master's Programme in Zoology a Master's Thesis corresponding 25 ECTS-Credits must be written. The Master's Thesis is a scientific paper that serves as proof of the ability to deal with a scientific topic independently and appropriately with regards to content and methodology.
- (2) Possible topics include all questions related to increasing knowledge in modern research in zoology.
- (3) Students are entitled to write their Master's Thesis in English if their supervisor agrees to it.
- (4) It is possible for several students to work on one topic if it is possible to separately evaluate the achievements of the individual students.

§ 9 Examination regulations

- (1) Modules are evaluated by module examinations. Module examinations are examinations that serve to prove the knowledge and skills acquired in a module. If all parts of a module examination have been positively evaluated, the respective module is passed.
- (2) The courses of the modules are evaluated by means of course examinations. Course examinations are
 1. examinations that serve to demonstrate the knowledge and skills gained in a single course and where the performance is assessed with a single exam at the end of the course. The course lecturer must communicate the examination method (written and/or oral) and the evaluation criteria before the start of the course.
 2. examinations on courses with continuous performance assessment, where the evaluation is

based on the student's regular, written and/or oral contributions. The course lecturer must communicate the examination method (written and/or oral) and the evaluation criteria before the start of the course.

- (3) Assessment of the compulsory module "Master's Thesis Defence" is based on an oral exam before an examination board consisting of at least three examiners.

§ 10 Academic degree

Graduates of the Master's Programme Zoology are awarded the academic degree of "Master of Science", abbreviated as "MSc".

§ 11 Coming into Force

- (1) The curriculum for the Master's Programme Zoology comes into force on 1 October 2010.
- (2) The modification of the curriculum in the version of the University of Innsbruck Bulletin of 6 May 2015, Issue 29, No. 389 comes into force on 1 October 2015 and is to be applied to all students.
- (3) The changes to the curriculum acc. to the version of the University of Innsbruck Bulletin of 28 June 2019, Issue 65, No. 577 come into effect on 1 October 2019 and are to be applied to all students.
- (4) The changes to the curriculum acc. To the version of the University of Innsbruck Bulletin of 11 June 2021, Issue 76, No. 849 comes into effect on 1 October 2021 and is to be applied to all students.

§ 12 Transitional Provisions

- (1) Positively passed elective modules according to the regulations of the curriculum for the Master's Programme Zoology in the version of the University of Innsbruck Bulletin of 21 June 2010, Issue 34, No. 319 (in the following referred to as curriculum 2010) count as elective modules for the curriculum in the version of the University of Innsbruck Bulletin of 6 May 2015, Issue 29, No. 389 (in the following referred to as curriculum of 2015).
- (2) Elective modules from the curriculum 2015 that have the same contents as a passed elective module from the curriculum 2010 or contain a course according to the curriculum 2010 may not be passed. A list of courses that may not be taken is published on the homepage of the Faculty of Biology.
- (3) An equivalence list for compulsory modules and their courses as well as for individual passed courses of elective modules is to be published by the Director of Studies.