

University of Maribor
Faculty of Natural Sciences and Mathematics

**Information on the postgraduate doctoral
programme**
Ecological Sciences

QUALIFICATION AWARDED

- **Doctoral programme on Ecological Sciences**

Qualification rewarded: Doktor znanosti

Duration of studies: 3 years

ADMISSION REQUIREMENTS

- Successfully completed master programme
- Successfully completed graduate university programme
- Successfully completed graduate professional or specialisation university programme
- Successfully completed graduate professional according to the EU Directives and other master programme assessed with 300 ECTS

A programme completed in biology, ecology, nature protection or comparable biotechnical sciences (veterinaries, agriculture, forestry) or in medicine is recommended.

EDUCATIONAL AND PROFESSIONAL GOALS

The main professional and educational goal is to supremely qualify and educate the students theoretically and practically in developing of new knowledges and solving most exacting problems in ecology enabling the developement of new solutions in the professional and science fields. Students acquire knowledges and skills in practices which enable the recognition of scientific problems, an appropriate top-level planning and conveying of research and investigations on the basic as well as on applicative fields of ecology, and a successful application of the new knowledges.

The main general competences achieved by the doctoral level are:

- Ability of supreme scientific research and developement of new knowledges
- Ability for supreme individual and team solving of most exacting scientific problems and developement of new solutions
- Ability of using known, and developing new scientific methods in expected, concrete and modified circumstances
- Ability of menagement of supreme working systems
- Ability of menagement of scientific research projects
- Ability of independant communication within the international scientific sphere, including presentations and publishing of new own findings
- Developement of criticism concernig the life and functioning of the modern society as for its scientific reasearch and applicative problems

The main specific competences achieved by the doctoral postgraduates are:

- Profound understanding of theoretical and methodological concepts in ecology, and of ecological application in nature and environment protection
- Ability of using supreme knowledge in the areas of special issues in ecology and applied areas
- Ability for supreme individual and team solving of most exacting scientific problems in ecology and applied areas using known, newly developed and adjusted solutions in national as well as in international environments

- Ability for supreme scientific research in the field of ecology and applicative areas, and independant developement of new knowledge and innovation
- Ability of using, and development of new ecological scientific research methodologies in expected, unexplored and modified conditions
- Ability of menagement of scientific research projects in the field of ecology and applied areas
- Supreme ability of individual and team developing of new knowledges in the specific field of ecology and applied areas
- Supreme ability of individual and team transfering of new knowledges in solving specific ecological problems in the working environment, where sach knowledge should be implied
- Developement of individual criticism and reflection concernig modern scientific research and applicative problems with respect to the scientific research and applicative problemes concerning the ecology, nature protection, environment protection and related areas

ACCESS TO FURTHER STUDIES

Doctoral university programme Ecological Sciences is a supreme degree of university study in the area of ecology.

COURSE STRUCTURE DIGRAM WITH CREDITS

Complete curricula in the doctoral programme of the Ecological Sciences is given in the following pages. All the courses (obligatory and elective) are given together with the semester of study, the amount and type of the contact hours and the assigned number of the ECTS credits. The abbreviations in the curriculum have the following meaning:

L – lectures
 EL – experimental lectures
 S – seminar
 T – tutorial
 LW – lab work
 FW – field work

Doctoral Programme “Ecological Sciences”

The programme consists of 10 ECTS of obligatory courses, 50 ECTS of elective courses, 90 ECTS of individual work, and 30 ECTS of the Doctoral Thesis and adequate publication preparation, in total summ of 180 ECTS.

Obligatory courses and Doctoral Dissertation: 130 ECTS

Course title	ECTS
Selected Topics in Informatics in Biology and Ecology	5
Selected Topics in Methods of Scientific Research in Biology and Ecology	5
Individul research work I	15
Individul research work II	15
Individul research work III	30
Individul research work IV	30
Doctoral dissertation	30
Total	130

Elective courses

Course title ¹	L	S	T	LW	FW
Educational Experiments in Ecology	5	5			
Selected Topics in Animal Communication	5	5			
Selected Topics in Animal Ecophysiology	5			5	
Selected Topics in Animal Taxonomy	5	5			
Selected Topics in Approaches in Nature Conservation	5	5			
Selected Topics in Arachnology	5	5			
Selected Topics in Biochemistry of Insects	5	5			
Selected Topics in Biochemistry of Proteins and Enzymes	5	5			
Selected Topics in Biodiversity in Slovenia	5	5			
Selected Topics in Biodiversity Methodology	5			5	
Selected Topics in Biology of Birds	5				5
Selected Topics in Biology of Insects	5	5			
Selected Topics in Biology of Mammals	5				5
Selected Topics in Conservation Biology	5				
Selected Topics in Cytology and Histology	5	5			
Selected Topics in Diversity and Identification of Microorganisms	5	5			
Selected Topics in Ecology of Hypogean Habitats	5				5
Selected Topics in Ecophysiology of Arthropods	5	5			
Selected Topics in Ecotoxicology	5	5			
Selected Topics in Entomology and Nature Conservation	5	5			
Selected Topics in Environmental Education	5	5			
Selected Topics in Environmental Management	5	5			
Selected Topics in Environmental Pollution	5	5			
Selected Topics in Ethology	5			5	
Selected Topics in ex situ Conservation of Plants	5	5			
Selected Topics in Forest Entomology	5	5			
Selected Topics in Forest Vegetation of Slovenia	5				5
Selected Topics in Geobotany	5				5
Selected Topics in Human Ecology	5	5			
Selected Topics in Insect Biochemistry	5	5			
Selected Topics in Karst Ecology	5				5
Selected Topics in Landscape Ecology	5	5			
Selected Topics in Membrane Biology	5	5			
Selected Topics in Marine Ecology	5				5
Selected Topics in Modelling of Environmental System	5			5	
Selected Topics in Modern Molecular Biology Analyses	5			5	
Selected Topics in Molecular Biophysics	5	5			
Selected Topics in Natura 2000 Areas in Slovenia	5	5			
Selected Topics in Nature Conservation Legislation	5	5			
Selected Topics in Nature Conservation within the Cultural Landscape	5	5			
Selected Topics in Neuroethology	5	5			
Selected Topics in Organic Agriculture	5		5		
Selected Topics in Plant Tissue Cultures	5	5			
Selected Topics in Pollutants in Living Environment	5	5			
Selected Topics in Predatory Behaviour	5	5			
Selected Topics in Soil Ecology	5				5
Selected Topics in Terrestrial Habitats					10
Selected Topics in Toxinology	5			5	
Selected Topics in Sensory Systems	5			5	
Selected Topics in Social Insects	5	5			
Selected Topics in Space Planning	5	5			
Selection in Arthropod Biology	5	5			
Selection in Mathematics for Ecologists	5		5		
Selection in Physiological Plant Ecology	5			5	
Selection in Plant Biology	5			5	

¹Each course consists of 150 hours / 5 ECTS each; 10 are contact hours and 140 hours of individual work

Doctoral programme Ecological Sciences

1st year, 1st semester

Course number	Course title	L /EL	S	T	LW	FW	Total contact hours	Individual work	Total hours/ ECTS
1	Selected Topics in Informatics in Biology and Ecology	15	15	30			60	90	150/5
2	Selected Topics in Methods of Scientific Research in Biology and Ecology ¹	15	30		15		60	90	150/5
3	Elective course ²	15	15	30			60	90	150/5
4	Elective course ²	15	15	30			60	90	150/5
5	Elective course ²	15	15	30			60	90	150/5
6	Elective course ²	15	15	30			60	90	150/5
Total		90	105	150	15		360	540	900/30

1st year, 2nd semester

Course number	Course title	L /EL	S	T	LW	FW	Total contact hours	Individual work	Total hours/ ECTS
7	Elective course ²	15	15	30			60	90	150/5
8	Elective course ²	15	15	30			60	90	150/5
9	Elective course ²	15	15	30			60	90	150/5
10	Individual Research Work I			30			30	420	450/15
Total		45	45	120			210	690	900/30

2nd year, 3rd semester

Course number	Course title	L /EL	S	T	LW	FW	Total contact hours	Individual work	Total hours/ ECTS
11	Elective course ²	15	15	30			60	90	150/5
12	Elective course ²	15	15	30			60	90	150/5
13	Elective course ²	15	15	30			60	90	150/5
14	Individual Research Work II			20			20	430	450/15
Total		45	45	80			80	700	900/30

2nd year, 4th semester

Course number	Course title	L /EL	S	T	LW	FW	Total contact hours	Individual work	Total hours/ ECTS
15	Individual Research Work III			20			20	880	900/30
Total				20			20	880	900/30

3rd year, 5th semester

Course number	Course title	L /EL	S	T	LW	FW	Total contact hours	Individual work	Total hours/ ECTS
16	Individual Research Work IV			40			40	860	900/30
	Total			40			40	860	900/30

3rd year, 6th semester

Course number	Course title	L /EL	S	T	LW	FW	Total contact hours	Individual work	Total hours/ ECTS
17	Doctoral Dissertation; Publication of scientific paper/s ³			120			120	780	900/30
	Total			120			120	780	900/30

¹The student and the supervisor determine the appropriate basic scientific field

²The L:S:T:LW:FW ratios can vary, while the ratio between the contact against individual work remains unchanged

³According to the University Statute, the student can not be awarded to degree of Doctor before the Doctoral Dissertation is defended and (a) publication(s) in a peer reviewed scientific journal is at least accepted in print

FINAL EXAMINATION

There is no final examination other than the defence of the doctoral thesis.

EXAMINATION AND ASSESMENT REGULATIONS

The examinations are usually written and oral. Some of the courses involve the preparation of a seminar work which is usually defended by an oral presentation. The oral examination is usually preconditioned by laboratory attendance, the successful completion of the written exam and the seminar work where required. In individual work, the student's successful start, one third-, two third- accomplishments and finishing of the investigations are assessed. Timetables of examinations are issued individually in a consense between the student and the lecturers. Otherwise, timetables of examinations are issued yearly by the Faculty Senate at the beginning of the academic year and are published on the faculty web page and on the notice boards. There are at least 6 examinations for each course per academic year and students are free to choose the date of examination. The students need to register for examination 7 days before the examination date. The examination can be cancelled no later than 3 days before the examination date. The use of literature and other items during the examination is determined by the lecturer and may vary from course to course.

The Ph.D. thesis is publicly presented and defended before an examination board, chaired by an internationally recognized academician, who is an expert in the field. The members of the board are also the Dean of the Faculty, the mentor, co-mentor and one or two internationally recognized academicians, who are experts in the field.

ECTS DEPARTMENTAL CO-ORDINATOR

ECTS departmental co-ordinator is the actual head of the department.