DOCTORAL SCHOOL OF BIOLOGY - FACULTY OF SCIENCE,

EÖTVÖS LORÁND UNIVERSITY

Name of discipline: Biological sciences

Form of training: Doctoral (Ph.D.) training

Programme objectives: To acquire the academic degree training, acquisition of practice in higher education

Programme duration: 8 semesters

Training type: Regular school

Financing: State-supported, or tuition fee-based

Admission requirements: Master's degree and successful entrance exam

Language requirements: State-recognized type "C" secondary (or equivalent) in English language

Training ends: First 2 years (I): 132 credits and comprehensive examination; Second 2 years (II): 108 credits, final (pre-degree) certificate

The number of credits required: 240

Ways of Getting Credit / modules: Academic credits (I: 32, II: 0), research credits (I: 96-100, II: 100-108), educational credits (I: 0-4, II: 0-8)

Responsible for the Programme: Prof. László Nyitray – Head of the graduate school

PROGRAMMES OF THE DOCTORAL SCHOOL

I. Ecology and Evolution

Programme leader: Dr. Ádám Kun

II. Ethology

Programme leader: Dr. Péter Pongrácz

III. Immunology

Programme leader: Dr. Mihály Józsi

IV. Experimental Plant Biology

Programme leader: Dr.Gábor Kovács M.

V. Genetics

Programme leader: Dr. Tibor Vellai

VI. Molecular Cell and Neurobiology

Programme leader: Dr. Péter Lőw

VII. Neuroscience and Human Biology

Programme leader: Dr. Árpád Dobolyi

VIII. Structural Biochemistry

Programme leader: Dr. Mihály Kovács

IX. Zootaxonomy, Animal Ecology, Hydrobiology

Programme leader: Dr. Gábor Herczeg

DESCRIPTION OF THE EDUCATIONAL PROGRAMMES OF THE DOCTORAL SCHOOL

Course offered by the Doctoral School of Biology (for all students):

BIO/OKT/1

1 credit, educational role, optional, can be taken any number of times

BIO/OKT/2

2 credit, educational role, optional, can be taken any number of times

BIO/OKT/3

3 credit, educational role, optional, can be taken any number of times

BIO/OKT/4

4 credit, educational role, optional, can be taken any number of times

BIO/0/1 Research Trends in Biology

4 credits, lecture, optional, can be taken any number of times

BIO/0/2 Genetic engineering: Principles, methods and advanced applications

4 credits, lecture, optional, can be taken any number of times

I. ECOLOGY AND EVOLUTION PROGRAMM

Students must complete 32 credits from the following courses:

BIO/1/2 Grassland Ecology

4 credits, lecture, optional, can be taken only once

BIO/1/6 Conservation Biology

4 credits, lecture, optional, can be taken any number of times

BIO/1/7 Fundamentals of Seed Bank Ecology

4 credits, lecture, optional, can be taken only once

BIO/1/14 Plant strategies

4 credits, lecture, compulsory, can be taken any number of times

BIO/1/17 Conservation of Biodiversity in Forests

4 credits, lecture, optional, can be taken only once

BIO/1/18 Bryophyte Ecology

6 credits, practical, optional, can be taken only once

BIO/1/20 Spatial Ecology

4 credits, lecture, optional, can be taken only once

BIO/1/20 Spatial Ecology

4 credits, practical, optional, can be taken only once

BIO/1/23 Excerpt from Forest Ecology

4 credits, lecture, optional, can be taken only once

BIO/1/24 Application of Spatial Informatics to Ecology

4 credits, lecture, optional, can be taken only once

BIO/1/25 Holocene Vegetation Dynamics and Phylogeography

4 credits, lecture, optional, can be taken only once

BIO/1/26 Introduction to Restoration Ecology

4 credits, lecture, optional, can be taken only once

BIO/1/27 Epidemiology and Ecology of Newly Encountered Pathogens

4 credits, lecture, optional, can be taken only once

BIO/1/28 Ecology of Invasive Species

2 credits, lecture, optional, can be taken only once

BIO/1/29 Spatial Ecology: from Islands to Metacommunities

4 credits, lecture, optional, can be taken only once

BIO/1/33 Computer Programming for Biologists

4 credits, practical course, optional, can be taken only once

BIO/1/34 Numerical Methods and Computer Simulations in Ecology

4 credits, practical course, optional, can be taken only once

BIO/1/35 Theoretical Evolutionary Biology

4 credits, lecture, optional, can be taken only once

BIO/1/39 Space-time Models in Ecology and Evolution

4 credits, lecture, optional, can be taken only once

BIO/1/41 Evolutionary Game Theory

4 credits, lecture, optional, can be taken only once

BIO/1/42 Nonlinear Phenomena in Ecology

4 credits, lecture, optional, can be taken only once

BIO/1/43 Current Problems in Theoretical Biology

4 credits, lecture, optional, can be taken only once

BIO/1/44 Mathematical Approaches in HIV Research

4 credits, lecture, optional, can be taken only once

BIO/1/45 Models of Prebiotic Evolution

4 credits, practical course, optional, can be taken only once

BIO/1/46 Mathematical Models in Biology

4 credits, lecture, optional, can be taken only once

BIO/1/47 Computer Modelling in Biology

4 credits, practical course, optional, repeatable

BIO/1/48 Evolutionary Background of Human Cooperation

4 credits, seminar, optional, can be taken only once

BIO/1/49 Animal Communication – Game Theoretical Approaches

4 credits, lecture, optional, not repeatable

BIO/1/50 Cultural Evolution

4 credits, lecture, optional, not repeatable

BIO/1/51 Theory-based ecology

4 credits, lecture, optional, not repeatable

BIO/1/52 Theory Introduction tod Prokaryotic Taxonomy

4 credits, practical course, optional, not repeatable

BIO/1/54 Geoinformatics in R

4 credits, practical course, optional, not repeatable

BIO/1/55 Multilevel selection models

4 credits, lecture, optional, not repeatable

BIO/1/56 Current Question in Evolutionary Biology

4 credits, lecture, optional, not repeatable

BIO/1/57 Introduction to Evolutionary biology for non biologists

4 credits, lecture, optional, not repeatable

BIO/1/58 Historical landscape ecology and traditional ecological knowledge

4 credits, lecture, optional, not repeatable

BIO/1/59 The major transitions in evolution

4 credits, lecture, optional, not repeatable

BIO/1/60 Frontiers in terrestrial ecology

4 credits, lecture, optional, not repeatable

BIO/1/61 An introduction to biostatistics

4 credits, lecture, optional, not repeatable

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

II. ETHOLOGY PROGRAMME

Students must complete 32 credits from the following courses:

BIO/2/1 Behaviour Genetics

4 credits, lecture, compulsory, can be taken only once

BIO/2/2 Cognitive Ethology

4 credits, lecture, optional, can be taken only once

BIO/2/3 Human Ethology

4 credits, lecture, compulsory, can be taken only once

BIO/2/4 Ethology

4 credits, lecture, compulsory, can be taken only once

BIO/2/5 Research Management

4 credits, practice, compulsory, can be taken only once

BIO/2/6 Integrated Research Methods in Ethology

6 credits, lecture, optional, can be taken only once

BIO/2/7 Behaviour Ecology

4 credits, lecture, optional, can be taken only once

BIO/2/8 Ethology of Dogs

4 credits, lecture, specialization compulsory optional, can be taken only once

BIO/2/9 PhD students' Reports

4 credits, lecture, compulsory, can be taken only once, to be taken in 2nd semester

BIO/2/10 Animal Welfare

4 credits, lecture, optional, can be taken only once

BIO/2/12 Animal Personality

4 credits, lecture, optional, can be taken only once

BIO/2/13 Strategic Thinking for Scientific Writing

4 credits, lecture, optional, can be taken only once

BIO/2/14 Cognitive and neuroethology

4 credits, lecture, optional, can be taken only once

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

III. IMMUNOLOGY PROGRAMME

Students must complete 32 credits from the following courses:

BIO/3/2 Report of Doctoral Students

4 credits, individual research, compulsory, can be taken only once, to be taken in 2nd semester

BIO/3/6 Immunology of Infections

4 credits, lecture, optional, can be taken only once

BIO/3/7 Immunopathology

4 credits, lecture, optional, can be taken only once

BIO/3/14 Innate Immunoty, Evolution of the Immune System

4 credits, lecture, optional, can be taken only once

BIO/3/18 A Systems Biology View of the Immunology in Pregnancy

4 credits, lecture, optional, can be taken only once

BIO/3/20 Eötvös Immunology PhD Seminar

2 credits, lecture, optional, can be taken any number of times

BIO/3/21 Adaptive immune response

4 credits, lecture, optional, can be taken any number of times

BIO/3/22 Journal Club

4 credits, practice, optional, can be taken any number of times

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

IV. EXPERIMENTAL PLANT BIOLOGY PROGRAMME

Students must complete 32 credits from the following courses:

BIO/4/1 Plant Biotechnology

4 credits, lecture, optional, can be taken only once

BIO/4/5 Writing Scientific Papers in English

4 credits, lecture, optional, can be taken only once

BIO/4/6 Plant Molecular Biology

4 credits, lecture, optional, can be taken any number of times

BIO/4/7 Plant Biochemistry

4 credits, lecture, optional, can be taken any number of times

BIO/4/8 Separation Techniques in Plant Biochemistry

8 credits, practice, optional, can be taken only once

BIO/4/9 Absorption and Fluorescence Spectroscopy for Studying Plant Substances and Metabolism

8 credits, practice, optional, can be taken only once

BIO/4/11 Mechanism of Ion Uptake and Mineral Nutrition of Plants

4 credits, lecture, optional, can be taken only once

BIO/4/12 Biogenesis and Evolution of the Photosynthetic Apparatus

4 credits, lecture, optional, can be taken only once

BIO/4/13 Plant – Bacterium Interactions

4 credits, lecture, optional, can be taken only once

BIO/4/16 Plant Stress Physiology

4 credits, lecture, optional, can be taken only once

BIO/4/18eng Biology of Plant Reproduction

4 credits, lecture, optional, can be taken only once

BIO/4/20 Ultrastructural Basis of Plant Cell Functions

4 credits, lecture, optional, can be taken only once

BIO/4/23 Plant Transformation and Transgenic Plants

4 credits, lecture, optional, can be taken only once

BIO/4/25 Plant Cell and Tissue Culture

4 credits, lecture+pactice, optional, can be taken only once

BIO/4/26 Plastids – Basics and Applications

4 credits, lecture, optional, can be taken only once

BIO/4/27 Plant Pathology

4 credits, lecture, optional, can be taken only once

BIO/4/28 Current Topics in Fungal Biology

4 credits, lecture, optional, can be taken only once

BIO/4/29 Plant gene- and genome construction

4 kredit, elmélet, választható, nem ismételhető

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

V. ~~PROGRAMME~~ GENETICS PROGRAMME

Students must complete 32 credits from the following courses:

BIO/5/1 Genetic Analysis (progressive level)

4 credits, compulsory, can be taken only once

BIO/5/2 Developmental Genetics

4 credits, lecture, optional, can be taken only once

BIO/5/9 Gene Silencing, RNA Interference

4 credits, lecture, optional, can be taken only once

BIO/5/12 Seminars in Bioinformatics

4 credits, lecture, optional, can be taken only once

BIO/5/18 The Function and Biogenesis of Plant Regulatory Small RNAs

4 credits, lecture, optional, can be taken only once

BIO/5/21 Plant-microbe Symbiosis, Mycorrhyza Relation and the Genetic Analysis of Symbiotic Nitrogen Fixation

4 credits, lecture, optional, can be taken only once

BIO/5/22 Recombination Models, Gene Conversion, Enzymes, Gene Map

4 credits, lecture, compulsory, can be taken only once

BIO/5/23 Mobile genetic elements

4 credits, lecture, compulsory, can be taken only once

BIO/5/24 Mathematical and Statistical Methods in Genetic Identification and Genealogy

4 credits, lecture, optional, repeatable

BIO/5/25 Next Generation Genome Editing and Gene Regulatory Techniques

4 credits, lecture, optional, repeatable

BIO/5/26 Plant Viral Genetics, Virus Diagnostics

4 credits, lecture, optional, repeatable

BIO/5/27 Archaeogenomics of Human Populations

4 credits, lecture, seminar, optional, repeatable

BIO/5/28 The World of Eukaryotic Transposons: Parasites, Domesticated Residents and / or Genetic Tools

4 credits, lecture, optional, can be taken only once

BIO/5/29 Small RNAs and their Roles in Plant Immunity

4 credits, lecture, optional, can be taken only once

BIO/5/30 Bioinformatics aspects of aging and rejuvenation

4 credits, lecture, optional, can be taken only once

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

VI. MOLECULAR CELL AND NEUROBIOLOGY PROGRAMME

Students must complete 32 credits from the following courses:

BIO/6/3 Developmental biology

4 credits, lecture, optional, can be taken only once

BIO/6/4 Light and electron microscopical immunocytochemistry

6 credits, practice, optional, can be taken only once

BIO/6/6 Membrane biology

4 credits, lecture, optional, can be taken only once

BIO/6/7 Neuroanatomy

6 credits, practice, optional, can be taken only once

BIO/6/10 Stem cell biology I.

4 credits, lecture, optional, can be taken only once

BIO/6/11 Receptors, signalling, cell-cell communication

4 credits, lecture, optional, can be taken only once

BIO/6/12 Methods in cell biology

6 credits, practice, optional, can be taken only once

BIO/6/16 The cytoskeleton of eukaryotic cells

4 credits, practice, optional, can be taken only once

BIO/6/20 Transgenic techniques: GFP, gene knockout and more

4 credits, lecture, optional, can be taken only once

BIO/6/21 The ubiquitin-proteasome system and its roles

4 credits, lecture, optional, can be taken only once

BIO/6/22 The biology of cancer

4 credits, lecture, optional, can be taken only once

BIO/6/23 Molecular cell biology of autophagy and cell death

4 credits, lecture, optional, can be taken only once

BIO/6/24 Stem cell biology II.

4 credits, theoretical, optional, non-repeatable

BIO/6/25 Neuroimmunology

4 credits, theoretical, optional, non-repeatable

BIO/6/26 Drosophila genetic analysis methods

4 credits, practice, optional, non-repeatable

BIO/6/27 Gland cell biology

4 credits, lecture, optional, non-repeatable

BIO/6/28 Principles of electron microscopy

6 credits, practice, optional, can be taken only once

BIO/6/29 Principles of molecular cell biology

8 credits, lecture, optional, can be taken only once

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

VII. NEUROSCIENCE AND HUMANBIOLOGY PROGRAMME

Students must complete 32 credits from the following courses:

BIO/7/1 Molecular biology of learning and memory

4 credits, lecture, optional, can be taken only once

BIO/7/2 Differentiation of neuronal cells

4 credits, lecture, optional, can be taken only once

BIO/7/3 Neuropharmacology

4 credits, lecture, optional, can be taken only once

BIO/7/4 Neurochemistry

4 credits, lecture, optional, can be taken only once

BIO/7/6 Neurobiology of behaviour

4 credits, lecture, optional, can be taken only once

BIO/7/7 Daily rhythm, sleep and wakefulness

4 credits, lecture, optional, can be taken only once

BIO/7/8 Behavioural pharmacology

4 credits, lecture, optional, can be taken only once

BIO/7/9 Cognitive neuroscience

4 credits, lecture, optional, can be taken only once

BIO/7/10 Human molecular genetics

4 credits, lecture, optional, can be taken only once

BIO/7/16 Modeling in neurobiology

4 credits, practice, optional, can be taken only once

BIO/7/17 Imaging of brain structure and function

4 credits, practice, optional, can be taken only once

BIO/7/18 Electrophysiology

4 credits, practice, optional, can be taken only once

BIO/7/19 In vitro cell technology

4 credits, practice, optional, can be taken only once

BIO/7/21 Molecular basis of learning and memory

4 credits, theory, optional, can be taken only once

BIO/7/27 Data management and modeling in human biology

4 credits, practice, optional, can be taken only once

BIO/7/28 Applied anthropometry

4 credits, practice, optional, can be taken only once

BIO/7/29 Auxology

4 credits, lecture, optional, can be taken only once

BIO/7/30 Human ecology

4 credits, lecture, optional, can be taken only once

BIO/7/32 Methodology of writing dissertations

4 credits, lecture, optional, can be taken only once

BIO/7/33 Genetics of human growth

4 credits, lecture, optional, can be taken only once

BIO/7/34 Paleopathology

4 credits, lecture, optional, can be taken only once

BIO/7/36 Glia physiology

4 credits, theory, optional, can be taken only once

BIO/7/39 Neuroinformatics: basis and neurobiological applications

4 credits, theory, optional, can be taken only once

BIO/7/40 Presentation in science (paper, talk, poster, essay)

4 credits, practical, optional, can be taken only once

BIO/7/41 Discussion of scientific papers

4 credits, theory, optional, can be taken any number of times

BIO/7/42 Neurotoxicology

4 credits, theory, optional, can be taken only once

BIO/7/43 Light microscopy techniques

4 credits, practice, optional, can be taken only once

BIO/7/44 Neuropeptides and neuroendocrinology

4 credits, theory, optional, can be taken only once

BIO/7/45 Experimental stem cell biology

4 credits, theory, optional, can be taken only once

BIO/7/46 Psychophysiology of sensory functions

4 credits, theory, optional, can be taken only once

BIO/7/47 Human evolution

4 credits, theory, optional, can be taken only once

BIO/7/48 Dermatoglyphics

4 credits, theory, optional, can be taken only once

BIO/7/49 Physical anthropology of the ancient Carpathian Basin

4 credits, theory, optional, can be taken only once

BIO/7/50 Methodology of bioarcheology

4 credits, practice, optional, can be taken only once

BIO/7/51 Cellular neurophysiology

4 credits, theory, optional, can be taken only once

BIO/7/52 Neuroendocrinology

4 credits, theory, optional, can be taken only once

BIO/7/53 Regulatory biology L

4 credits, theory, optional, can be taken only once

BIO/7/54 Neurophysiology L

4 credits, theory, optional, can be taken only once

BIO/7/55 Human growth and development L

8 credits, theory, optional, can be taken only once

BIO/7/56 Human morphology I L

4 credits, theory, optional, can be taken only once

BIO/7/57 Human morphology II L

4 credits, theory, optional, can be taken only once

BIO/7/58 Data analysis in neurophysiology

4 credits, practice, optional, can be taken only once

BIO/7/59 Neural circuits

4 credits, practice, optional, can be taken only once

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

VIII. STRUCTURAL BIOCHEMISTRY PROGRAMME

Students must complete 32 credits from the following courses:

BIO/8/1 Directed evolution approaches in protein science

4 credits, lecture, optional, can be taken only once

BIO/8/3 Eukaryotic gene expression systems

4 credits, lecture, optional, can be taken only once

BIO/8/4 DNA repair mechanisms: cellular aspects

4 credits, lecture, optional, can be taken only once

BIO/8/5 Structural biology of DNA repair

4 credits, lecture, optional, can be taken only once

BIO/8/6 Structure and function of intrinsically disordered proteins

4 credits, lecture, optional, can be taken only once

BIO/8/7 Journal Club

4 credits, lecture, optional, can be taken any number of times

BIO/8/8 Elucidation of biomolecular mechanisms

4 credits, practical course, optional, can be taken only once

BIO/8/9 Fluorescence spectroscopy

4 credits, practical course, optional, can be taken only once

BIO/8/10 Elucidation of biomolecular mechanisms

4 credits, lecture, optional, can be taken only once

BIO/8/11 Fluorescence spectroscopy

4 credits, lecture, optional, can be taken only once

BIO/8/12 Protein folding: mechanisms of formation of correctly folded and misfolded structures

4 credits, lecture, optional, can be taken only once

BIO/8/13 Methods for studying protein structure and interactions

4 credits, lecture, optional, can be taken only once

BIO/8/15 Physical biochemistry

4 credits, lecture, optional, can be taken only once

BIO/8/16 Eukaryotic signal transduction: protein networks

4 credits, lecture, optional, can be taken only once

BIO/8/17 Research progress reports

4 credits, lecture, compulsory, to be taken in 2nd semester

BIO/8/19 Statistical analysis of biological measurements

4 credits, lecture course, optional, can be taken only once

BIO/8/20 Methods of protein crystallography

4 credits, lecture, optional, can be taken only once

BIO/8/23 Albert Szent-Györgyi lecture series

4 credits, lecture, optional, can be taken any number of times

BIO/8/24 From basic research to targeted tumor therapy

4 credits, lecture, optional, can be taken only once

BIO/8/27 Structural bioinformatics of drug design

4 credits, lecture, optional, can be taken only once

BIO/8/29 Practical applications of protein bioinformatics tools

4 credits, lecture, optional, can be taken only once

BIO/8/30 Investigation of protein and peptide structure by NMR spectroscopy

4 credits, lecture, optional, can be taken only once

BIO/8/31 Research progress reports

0 credit, lecture, compulsory, to be taken in 6th semester

BIO/8/32 Beginning Programming for biologists

4 credits, practical course, optional, can be taken only once

BIO/8/33 Methods for studying disease development, stem cell differentiation and tumour progression

4 credits, lecture, optional, can be taken only once

BIO/8/34 Introduction to Protein Science – Upgrade Course

4 credits, lecture, optional, can be taken only once

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

IX. ZOOTAXONOMY, ANIMAL ECOLOGY, HYDROBIOLOGY PROGRAMME

Students must complete 32 credits from the following courses:

BIO/9/1 Advanced Zootaxonomy

4 credits, lecture, compulsory, can be taken only once

BIO/9/2 New trends and tasks in animal ecology

4 credits, lecture, compulsory, can be taken only once

BIO/9/5 Aquatic ecosystems for maintaining and regulating possibilities

4 credits, lecture, can be taken only once

BIO/9/7 Current issues in conservation biology

4 credits, lecture, can be taken only once

BIO/9/8 Biogeography

4 credits, lecture, can be taken only once

BIO/9/9 Ecological informatics

4 credits, practice, can be taken only once

BIO/9/10 Chemical ecology of insects

4 credits, lecture, can be taken only once

BIO/9/13 Progress in enchytraeid (Enchytraeidae, Annelida) taxonomy and ecology

4 credits, lecture, can be taken only once

BIO/9/14 Molecular taxonomy techniques in zoology

4 credits, lecture, can be taken only once

BIO/9/14 Molecular taxonomy techniques in zoology

8 credits, practice, can be taken only once

BIO/9/15 Animal-microbe interactions

4 credits, lecture, can be taken only once

BIO/9/18 Ecology and evolution of parasitism

4 credits, lecture, can be taken only once

BIO/9/19 Ecological and evolutionary studies in ornithology

4 credits, lecture, can be taken only once

BIO/9/20 Life history and foraging strategies

4 credits, lecture, can be taken only once

BIO/9/21 Reproductive physiology of birds

4 credits, lecture, can be taken only once

BIO/9/23 Pheromone biology of insects

4 credits, lecture, can be taken only once

BIO/9/24 Predator-prey systems and their application in biological control

4 credits, lecture, can be taken only once

BIO/9/25 Advances in protistology

4 credits, lecture, can be taken only once

BIO/9/26 Student's report (semester 3)

4 credits, lecture, compulsory, can be taken only once

BIO/9/29 Evolutionary ecology - main concepts and approaches

4 credits, lecture, can be taken only once

BIO/9/30 Perspectives in conservation ecological research of arthropods

4 credits, lecture, optional, can be taken only once

BIO/9/31 Water in Hungary – Ecology and water management

4 credits, lecture, optional, can be taken only once

BIO/9/32 Microbial Ecology of waters and aquatic habitats

4 credits, lecture, optional, can be taken only once

BIO/9/33 Plankton ecology: From patterns to processes

4 credits, lecture, optional, can be taken only once

BIO/RK-KV Credits transferred from other Programmes (max: 16)

Research module (for a total of 196-208 credits):

BIO/KUT Supervised research

Doctoral research, compulsory, can be taken any number of times

THE LIST OF COMPLEX EXAMINATION SUBJECT

Can be selected as main and secondary subject:

- Anatomy
- Animal systematics
- Biochemistry
- Bioinformatics
- Cytology
- Ecology
- Ethology
- Evolutionary biology
- Genetics
- Human biology
- Hydrobiology
- Immunology
- Microbiology
- Mycology
- Molecular biology
- Neurobiology
- Ontogeny
- Physiology
- Plant anatomy
- Plant physiology
- Plant systematics

Can be selected only as secondary subject:

- Behavioural ecology
- Behavioural physiology
- Biogeography
- Biological plant protection
- Biophysics
- Biostatistics
- Cognitive ethology
- Conservation biology
- Evolutionary genetics
- Gene technology
- Human ethology
- Human genetics
- Immune pathology
- Immune regulation
- Immunological methods
- Immunology of infections
- Major transitions in evolution
- Methodology of teaching biology
- Methods of multivariate data processing
- Microbial biotechnology
- Modeling in biology
- Molecular developmental genetics
- Molecular tumor cell biology
- Neurochemistry
- Neuronal cell- and developmental biology
- Paleopathology
- Plant biotechnology
- Plant molecular biology
- Plant stress
- Protein science

- Psychopharmacology
- Virology
- Behavioural neuroscience
- Neuroendocrinology
- Cognitive neuroscience

KNOWLEDGE ASSESSMENT

Fulfilment of the requirements of a given course is evaluated by the lecturer in a five-grade scale system (5- excellent, 4-good, 3-satisfactory, 2-passing, 1-fail). Research activities are evaluated and recorded in the transcript by the supervisor on a three-point scale (excellent – acceptable - failed). Credits are recorded in the Neptun system. Evaluation of the comprehensive examination is detailed in the Operational Regulations of the DSB.