

MSC Biology- Course Curriculum 2022/23								
Subject Name	Type	Hours Per Semester				Credit	Pre-requisite	Course Instructor
OBLIGATORY SUBJECTS		1	2	3	4			
NATURAL SCIENCES BASIC COURSES 6-24 Credits						12		
Biophysics	Lecture/ Colloquium	2				3		Dr. Hideg Éva
Biostatistics	Practice	2				3		Dr. Csabai Zoltán
Molecular genetics - I.	Lecture	2				3		Dr. Hoffmann Gyula
Molecular cell biology	Lecture/ Colloquium	2				3		Dr. Jakab Gábor
NATURAL SCIENCES SPECIALISED COURSES 15-30 Credits						23		
Proposal preparation and scientific communication	Practice	1				2		Dr. Gábrriel Róbert
Evolution of the structure and function in the living being	Lecture/ Colloquium	4				5		Dr. Hoffmann Gyula
Ecological fundamentals in environmental protection and nature conservation	Practice	3				4		Dr. Csiky János
Biotechnology	Lecture/ Colloquium	4				5		Dr. Jakab Gábor
Regulatory biology	Lecture/ Colloquium		3			4	Molecular genetics I. Lecture and Molecular Cell Biology Lecture	Dr. Gábrriel Róbert
Developmental and stress physiology of plants	Lecture/ Colloquium		2			3	Molecular genetics I. ea. and Molecular Cell Biology Lecture	Dr. Jakab Gábor
ELECTIVE CREDITS						12		

Optional credit from any university course						6		
A professional credit from any other special knowledge block is mandatory						6		
DIPLOMA WORK						30		
Diploma Work I	Practice			15		15		Assigned Supervisor
Diploma Work II	Practice				15	15	Diploma Work I fulfillment	Assigned Supervisor
SPECIALISATION: REGULATORY BIOLOGY CREDITS TO BE COMPLETED= 43 CREDITS(35 + 8)						38		
Immunobiology lecture	Lecture/Colloquium			2		3		Dr. Gábrriel Róbert
Immunobiology practical	Practice			4		6	Immunobiology Lecture	Dr. Kovács-Öller Tamás
Developmental biology	Seminar/Practice				2	3		Dr. Hoffmann Gyula
Experimental neuroanatomy I.	Lecture/Colloquium		2			3		Dr. Pollák Edit
Experimental neuroanatomy II.	Seminar/Practice		3			4	Experimental neuroanatomy I lecture	Dr. Pollák Edit
Neuroimmune interactions	Seminar/Practice				2	3	Immunobiology Lecture	Dr. Wilhelm Márta
Genomics	Seminar/Practice		2			3	Molecular genetics I. Lecture and Molecular Cell Biology Lecture	Dr. Fekete Csaba
Nucleic acid methods	Seminar/Practice		2			3	Molecular genetics I. Lecture and Molecular Cell Biology Lecture	Dr. Fekete Csaba
Cellular and integrative neurobiology I.	Lecture/Colloquium		2			3		Dr. Gábrriel Róbert
Cellular and integrative neurobiology II.	Lecture/Colloquium			2		3	Cellular and integrative neurobiology I	Dr. Hernádi István

Cellular and integrative neurobiology III.	Seminar/Practice				3	4	Cellular and integrative neurobiology II	Dr. Hernádi István
FURTHER 8 CREDITS TO BE CHOSEN FROM THE FOLLOWING:								
Cellular transformations	Seminar/Practice		2			3	Molecular genetics I. Lecture and Molecular Cell Biology Lecture	Dr. Kovács-Öller Tamás
Regeneration biology and tissue engineering	Seminar/Practice		2			3		Dr. Molnár László
Recent advances in cognitive neuroscience	Seminar/Practice				2	3	Cellular and integrative neurobiology II. Lecture fulfillment	Dr. Hernádi István
Neurobiology of learning and memory	Seminar/Practice			2		3	Cellular and integrative neurobiology I. Lecture fulfillment	Dr. Hernádi István
Journal club (Advances in neurobiology and regeneration biology)	Seminar/Practice			2		3	Cellular and integrative neurobiology I. Lecture fulfillment	Dr. Völgyi Béla
Image acquisition and processing in biology	Lecture/Colloquium		2			2		Dr. Kovács-Öller Tamás
Human-machine interface systems in neurobiology	Seminar/Practice			2		3		Dr. Völgyi Béla
SPECIALISATION: HYDROECOLOGY CREDITS TO BE COMPLETED= 43 CREDITS (35 + 8)						35		
Population ecology	Lecture/Colloquium		2			2		Dr. Horváth Győző
Community ecology	Lecture/Colloquium			2		2		Dr. Horváth Győző
Research planning and methodology	Seminar/Practice		2			2		Dr. Csabai Zoltán
Publication challenges and scientific communication in practice	Seminar/Practice		2			2		Dr. Csabai Zoltán

Hydroecology I.	Lecture/ Colloquium		3			3		Dr. Csabai Zoltán
Hydroecology II.	Lecture/ Colloquium			2		2	Hydroecology I	Dr. Csabai Zoltán
Introduction to the knowledge of aquatic life forms	Lecture/ Colloquium		2			2		Dr. Móra Arnold
Water quality assessment, monitoring, conservation	Lecture/ Colloquium		3			3		Dr. Ajkai Adrienne, Ortmann-né
Water quality assessment, monitoring, conservation	Practice			2		2		Dr. Ajkai Adrienne, Ortmann-né
Fieldwork and in situ measurements in Hydroecology I.	Practice			2		3		Dr. Móra Arnold
Fieldwork and in situ measurements in Hydroecology II.	Practice				2	3	Fieldwork and in situ measurements in Hydroecology I.	Dr. Móra Arnold
Lab techniques in hydroecology I.	Practice			2		3		Pernecker Bálint
Lab techniques in hydroecology II.	Practice				2	3	Lab techniques in hydroecology I.	Pernecker Bálint
Journal club (Advances in hydrobiology)	Seminar/Practice				2	3		Dr. Csabai Zoltán
FURTHER 8 CREDITS TO BE CHOSEN FROM THE FOLLOWING:								
Advances and hot topics in hydroecology	Seminar/Practice				2	2	Hydroecology I and II	Dr. Csabai Zoltán
Taxonomy	Lecture/ Colloquium			2		2		Dr. Móra Arnold
Microscopic aquatic organisms	Seminar/Practice		2			2		Pernecker Bálint

Aquatic vegetation	Seminar/Practice		2			2		Dr. Ajkai Adrienne, Ortmann-né
Aquatic macroinvertebrates	Seminar/Practice			2		2		Dr. Móra Arnold
Aquatic vertebrates	Seminar/Practice			2		2		Dr. Móra Arnold
Aquatic habitats	Seminar/Practice			2		2		Dr. Móra Arnold
Evaluation and assessment of wetland biodiversity	Seminar/Practice			2		2		Dr. Ajkai Adrienne, Ortmann-né
EU Water framework directive and other conventions	Seminar/Practice				2	2		Dr. Ajkai Adrienne, Ortmann-né
Aquatic turnovers and production	Seminar/Practice		2			2		Pernecker Bálint
Applied hydrobiology	Seminar/Practice		2			2	Hydroecology I	Pernecker Bálint
SPECIALISATION: LAND ECOLOGY CREDITS TO BE COMPLETED= 43 CREDITS (35 + 8)						35		
Population ecology	Lecture/ Colloquium		2			2		Dr. Horváth Győző
Community ecology	Lecture/ Colloquium			2		2		Dr. Horváth Győző
Urban ecology	Seminar/Practice		2			2		Dr. Csiky János
Applied ecology	Seminar/Practice				2	2		Dr. Kurucz Kornélia
Behavioral ecology	Seminar/Practice		2			2		Dr. Purger Jenő
Field zoology I.	Practice		3			3		Dr. Purger Jenő

Field zoology II.	Practice			3		3		Dr. Purger Jenő
Field botany I.	Practice		3			3		Dr. Csiky János
Field botany II.	Practice			3		3		Dr. Csiky János
Field ecological measurements and data processing I.	Practice		3			3		Dr. Horváth Győző
Field ecological measurements and data processing II.	Practice			2		2		Dr. Horváth Győző
Lab techniques and analysis in zoology	Practice		3			4		Dr. Kurucz Kornélia
Lab techniques and analysis in botany	Practice			3		4		Dr. Albert Éva, Salamonné
FURTHER 8 CREDITS TO BE CHOSEN FROM THE FOLLOWING:								
Zoogeography	Seminar/Practice				2	2		Dr. Purger Jenő
Landscape ecology	Seminar/Practice		2			2		Dr. Ajkai Adrienne, Ortmann-né
Taxonomy	Lecture/ Colloquium		2			2		Dr. Móra Arnold
Ecology of mammals	Seminar/Practice				2	2		Dr. Horváth Győző
Invasion biology	Seminar/Practice				2	2		Dr. Csiky János
Parameter estimation of animal population	Seminar/Practice				2	2		Dr. Horváth Győző
Publication challenges and scientific communication in practice	Seminar/Practice		2			2		Dr. Csabai Zoltán

Ecology of zoonotic infections	Seminar/Practice		2			2		Dr. Kurucz Kornélia
Population genetics	Seminar/Practice				2	2		Dr. Kurucz Kornélia
Research planning and methodology	Seminar/Practice		2			2		Dr. Csabai Zoltán
SPECIALISATION: MOLECULAR PLANT PHYSIOLOGY CREDITS TO BE COMPLETED:43 CREDITS (35 +8)						35		
Developmental and stress physiology of plants	Practice			3		6	Developmental and stress physiology of plants	Dr. Jakab Gábor
Photosynthesis	Lecture/ Colloquium		2			3		Dr. Hideg Éva
Photosynthesis	Practice		2			3	Photosynthesis Lecture	Dr. Czégény Gyula
Plant specific biosynthesis pathways	Lecture/ Colloquium		2			3		Dr. Csepregi Kristóf
Plant specific biosynthesis pathways	Seminar/Practice		2			3	Plant specific biosynthesis Lecture	Dr. Csepregi Kristóf
Plant pathology	Seminar/Practice			2		3	Developmental and stress physiology of plants	Dr. Jakab Gábor
Hormone regulation in plants	Seminar/Practice			2		3	Developmental and stress physiology of plants	Dr. Jakab Gábor
Introduction to metrology	Practice		1			2	Biophysics Lecture	Dr. Hideg Éva
Modern methods and instruments in biology I.	Seminar/Practice		2			3	Biophysics Lecture	Dr. Czégény Gyula
Modern methods and instruments in biology II.	Seminar/Practice			2		4	Biophysics Lecture	Dr. Czégény Gyula

Publication challenges and scientific communication in practice	Seminar/Practice		2			2		Dr. Csabai Zoltán
FURTHER 8 CREDITS TO BE CHOSEN FROM THE FOLLOWING:								
Plant ecophysiology	Seminar/Practice		2			3		Dr. Albert Éva, Salamonné
Plant reproductiv biology	Lecture/ Colloquium		2			2		Dr. Stranczinger Szilvia
Plant taxonomy and evolution	Seminar/Practice				2	3		Dr. Stranczinger Szilvia
Plant microtechniques	Seminar/Practice		2			3		Dr. Kocsis Marianna
Plant antioxidant systems	Seminar/Practice			2		3		Dr. Hideg Éva
Journal Club: Advances in Plant Biology	Seminar/Practice		2	2		3		Dr. Hideg Éva
Presenting research results	Practice			2		3		Dr. Czégény Gyula
Research planning and methodology	Seminar/Practice		2			2		Dr. Csabai Zoltán
SPECIALISATION: MOLECULAR BIOLOGY CREDITS TO BE COMPLETED:43 CREDITS (35 + 8)						35		
Immunbiology lecture	Lecture/ Colloquium			2		3		Dr. Gábrriel Róbert
Immunbiology practical	Practice			4		6	Immunobiology Lecture	Dr. Kovács-Öller Tamás
Developmental biology lect.	Seminar/Practice				2	3		Dr. Hoffmann Gyula

Genomics	Seminar/Practice				3	5	Molecular Genetics Lecture and Cell Biology Lecture	Dr. Fekete Csaba
Nucleic acid methods	Seminar/Practice			2		3	Molecular Genetics I Lecture and Molecular Cell Biology Lecture	Dr. Fekete Csaba
Cellular transformations	Seminar/Practice		2			3		Dr. Kovács-Öller Tamás
Evolutionary genetics	Seminar/Practice			2		3		Dr. Hoffmann Gyula
Bioinformatics in practice	Seminar/Practice		2			3		Dr. Kemenesi Gábor
Virology	Practice		2			3		Dr. Jakab Ferenc
Bacteriology	Practice		2			3		Dr. Jakab Ferenc
FURTHER 8 CREDITS TO BE CHOSEN FROM THE FOLLOWING:								
Regeneration biology and tissue engineering	Seminar/Practice		2			3		Dr. Molnár László
Bacterial genetics	Seminar/Practice			3		5	Bacteriology Lecture	Dr. Fekete Csaba
Journal club (Advances in neurobiology and regeneration biology)	Seminar/Practice			2	2	3		Dr. Fekete Csaba
Environmental microbiology	Seminar/Practice				3	5		Dr. Gazdag Zoltán
Molecular genetics - II.	Seminar/Practice		2			3	Molecular Genetics I Lecture and Molecular Cell Biology Lecture	Dr. Hoffmann Gyula