

Course Structure for M.A. Program
Ecology and Evolution, Department of Life Science
National Taiwan Normal University

Adaptive to Class of	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
111	10.0	14.0	0.0	24.0

Note: The first alphabet "E" on the course name refers to the course in English as a medium of instruction

I. Required Courses: 0.0 credit is required

II. Elective Courses: 0.0 credit is required

III. Courses Offered to Students in Different Divisions

Required Course, 10.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
BIC0173	1 Evolutionary Biology	3.0	3.0	0.0	
BIC0174	2 E Advanced Ecology	3.0	3.0	0.0	
BIM0123	3 Seminar	2.0	2.0	0.0	This course must be retaken with a passing score for 2 times

Elective Course: 14.0 credits are required

Students can choose to take up to 8 credits outside the school with the guidance of a professor.

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
1 Core Elective Curriculum 2 courses are least required					
BIC8010	1-1 Research Methods in Ecology and Evolution	1.0	1.0	0.0	
BIC0011	1-2 Experimental Design and Data Analysis	3.0	3.0	0.0	
BIC7007	1-3 Population Genetics and Evolution	3.0	3.0	0.0	
BIC8022	1-4 E Behavioral Ecology	3.0	3.0	0.0	
BIC7012	1-5 Principles of Phylogenetics	3.0	3.0	0.0	
BIC0006	1-6 Biological Geography	3.0	3.0	0.0	
BIC9025	1-7 Island Biogeography	3.0	3.0	0.0	
BIC9035	1-8 Data Analysis for Ecology and Evolution in R Programming Language	3.0	3.0	0.0	
BIC0153	1-9 Regression Analysis	3.0	3.0	0.0	
BIC0185	1-10 Adaptation and Natural Selection	3.0	3.0	0.0	
BIC0085	1-11 Marine Biology	2.0	2.0	0.0	
BIC0108	1-12 Marine Ecology	2.0	2.0	0.0	
BIC0170	1-13 E Forest Ecology	3.0	3.0	0.0	
BIC0175	1-14 Biological Invasions	3.0	3.0	0.0	
BIC9008	1-15 E Landscape Ecology	3.0	3.0	0.0	
BIC9024	1-16 Principles of Systematic Biology	3.0	3.0	0.0	
BIC9037	1-17 Conservation Biology	3.0	3.0	0.0	
BIC9038	1-18 Disease Ecology	3.0	3.0	0.0	
BIC8015	1-19 Topics on Interaction between Marine Biology and Physical Oceanography	3.0	3.0	0.0	
BIC0029	1-20 Topics in Biosystematics	2.0	2.0	0.0	
BIC0061	1-21 Principles and Methods of Plant Taxonomy	2.0	2.0	0.0	
BIC7003	1-22 Molecular Evolution	3.0	3.0	0.0	
BIC8025	1-23 E Introduction to Statistical Analysis	3.0	3.0	0.0	
BIC8026	1-24 E Linear and Logistic Regression Models	3.0	3.0	0.0	
BIC9021	1-25 E Wildlife Biology	3.0	3.0	0.0	
BIC0084	2 Animal Behaviour	3.0	3.0	0.0	
BIC0086	3 Ornithology	3.0	3.0	0.0	
BIC0087	4 Herpetology	2.0	2.0	0.0	
BIC0088	5 Recreation Ecology	3.0	3.0	0.0	
BIC0111	6 Respiratory and Circulatory Physiology	2.0	2.0	0.0	
BIC9009	7 Plant Genetic Engineering	3.0	3.0	0.0	
BIC9011	8 Bioindustry	2.0	2.0	0.0	
BIC9013	9 Program Language in Bioinformatics	3.0	3.0	0.0	
BIC9014	10 Algorithms in Bioinformatics	3.0	3.0	0.0	
BIC9015	11 Biological Microtechnique (including Lab.)	3.0	2.0	2.0	
BIC9027	12 Concept and Experimental Learning of Plant Factory	2.0	1.0	2.0	
BIC9028	13 Translational Application of Stem Cell	1.0	1.0	0.0	
BIC9029	14 Translational Application of Stem Cell Experiment	1.0	0.0	3.0	
BIC9030	15 Biodiesel Biotechnology	1.0	1.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
BIC9031	16 Biodiesel Biotechnology Experiment	1.0	0.0	3.0	
BIC9032	17 Cancer Biology	2.0	2.0	0.0	
BIC9033	18 Reactive Oxygen Species and Biological Medicine	1.0	1.0	0.0	
BIC9034	19 Methods for Reactive Oxygen Species Measurement	1.0	0.0	3.0	
BIC9036	20 Ecological Plant Physiology	3.0	3.0	0.0	
BIC9062	21 Plant Cell and Tissue Culture	3.0	3.0	0.0	
BIC0016	22 E Topics in Plant Molecular Biology	2.0	2.0	0.0	
BIC0017	23 Topics in Fish Physiology	3.0	3.0	0.0	
BIC0021	24 Topics in Molecular Genetics	3.0	3.0	0.0	
BIC0023	25 Topics in Biochemistry	2.0	2.0	0.0	
BIC0038	26 Studies in Adaptation and Natural Selection	2.0	2.0	0.0	
BIC0052	27 Neuropharmacology	3.0	3.0	0.0	
BIC0059	28 Architecture of Brain	3.0	3.0	0.0	
BIC0075	29 Biomathematics	3.0	3.0	0.0	
BIC9054	30 Ecophysiology	3.0	3.0	0.0	
BIC0101	31 Paper Writing and Presentation in Biological Science	2.0	2.0	0.0	
BIC0138	32 Cellular and Molecular Biology	3.0	3.0	0.0	
BIC0186	33 Protein Engineering	3.0	3.0	0.0	
BIC8003	34 Ecology and Evolution of Amphibians and Reptiles	2.0	2.0	0.0	
BIC8006	35 Topics on Animal Physiology (II)	2.0	2.0	0.0	
BIC8016	36 Writing Scientific Papers in English	2.0	2.0	0.0	
BIC8018	37 Topics on Animal Physiology (I)	2.0	2.0	0.0	
BIC8020	38 Biotechnology for the Drug Development	2.0	2.0	0.0	
BIC7001	39 Special Topics on Intellectual Property	2.0	2.0	0.0	
BIC7002	40 Industrial Practice	3.0	3.0	0.0	
BIC7004	41 Translational Medicine — Novel Compounds and Chinese Herbal Medicines	2.0	2.0	0.0	
BIC7005	42 E Drug Development and Translational Medicine	2.0	2.0	0.0	
BIC7009	43 Immunochemistry	3.0	3.0	0.0	
BIC7010	44 Neuroethology	3.0	3.0	0.0	
BIC7011	45 Developmental Neurobiology	3.0	3.0	0.0	
BIC7013	46 Plant Ecology	3.0	3.0	0.0	
BIC7014	47 Conservation Genetics	3.0	3.0	0.0	
BIC0133	48 Topics in Molecular Biology	2.0	2.0	0.0	
BIC8007	49 Research Methods of Experimental Biology	2.0	2.0	0.0	
BIC0123	50 Developmental Biology	3.0	3.0	0.0	
BIC9006	51 Stem Cell Biology	3.0	3.0	0.0	
BIC0139	52 Protein and Enzyme Chemistry	2.0	2.0	0.0	
BIC0177	53 Biotechnology	3.0	3.0	0.0	
BIC0001	54 Neurobiology	3.0	3.0	0.0	
BIM0124	55 Modern Physiology	3.0	3.0	0.0	
BIC9022	56 Endocrinology	3.0	3.0	0.0	
BIC7015	57 Comparative Animal Physiology	3.0	3.0	0.0	
BIC0119	58 Learning and memory	3.0	3.0	0.0	
BIC8012	59 Oxidative Stress Physiology	3.0	3.0	0.0	
BIC8021	60 Experimental Physiology	2.0	2.0	0.0	
BIC9040	61 Signal Transduction	3.0	3.0	0.0	
BIC9041	62 Environmental Physiology	3.0	3.0	0.0	
BIC9042	63 Transgenic	2.0	2.0	0.0	
BIC9045	64 Inquiry and Practice in Biology	2.0	2.0	0.0	
BPM0002	65 Studies in Biotech- Pharmaceutical Industry	2.0	2.0	0.0	
BPM0003	66 Biotech Product Development and Intellectual Property Management	3.0	3.0	0.0	
BPM0004	67 Research and Design Management in Bioindustry	3.0	3.0	0.0	
BPM0009	68 Translational Medicine	2.0	2.0	0.0	
BIC9044	69 Virology	2.0	2.0	0.0	
BIC9047	70 Cross-Domain Learning Chinese Medicine and Health	2.0	2.0	0.0	
BIC9046	71 Curriculum Design for Scientific Inquiry and Practices	2.0	2.0	0.0	
BIC9049	72 Overview of Biomedical Development and Commercialization	2.0	2.0	0.0	
BIC9048	73 The Application of Biotechnological Advances on Complement for Clinical Practice	2.0	2.0	0.0	
BIC9050	74 Plant Anatomy with Experiment	3.0	2.0	2.0	
BIC9051	75 Mammalogy	2.0	2.0	0.0	
BIC9053	76 Biomethology of Cancer Research	3.0	3.0	0.0	
BIC9052	77 The Latest Modern Issues in Biomedical Research and Technology	2.0	2.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
BIC9055	78 Evolution of Insects	3.0	3.0	0.0	
BIC8023	79 Application of Optoelectronic Technology in Biomedical	2.0	2.0	0.0	
BIC9056	80 E Introduction in Virology	2.0	2.0	0.0	
BIC9057	81 E Histology	2.0	2.0	0.0	
BIC9058	82 Basic and Applied Bone Biology	2.0	2.0	0.0	
BIC9060	83 Pteridology	3.0	3.0	0.0	
BIC9059	84 Plant Pathology	3.0	3.0	0.0	
BIC8027	85 E Topics in Virology	2.0	2.0	0.0	
BIC8029	86 E Laboratory Rotations in Cell and Molecular Biology	3.0	3.0	0.0	
BIC8028	87 E Apply Sciences Lead to Biotechnology Industry	2.0	2.0	0.0	
BIM0125	88 E Ecoacoustics: Principle and Application	2.0	2.0	0.0	
BIM0126	89 E Knowledge Transformation and Dissemination for Life Science	2.0	2.0	0.0	

IV. Free Elective Credits: 0.0 credit is required