

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
113	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	
BIC0006	1-5 Biological Geography	3.0	3.0	0.0	
BIC9025	1-6 Island Biogeography	3.0	3.0	0.0	
BIC0153	1-7 Regression Analysis	3.0	3.0	0.0	
BIC0185	1-8 Adaptation and Natural Selection	3.0	3.0	0.0	
BIC0085	1-9 Marine Biology	2.0	2.0	0.0	
BIC0108	1-10 Marine Ecology	2.0	2.0	0.0	
BIC0170	1-11 E Forest Ecology	3.0	3.0	0.0	
BIC0175	1-12 Biological Invasions	3.0	3.0	0.0	
BIC9008	1-13 E Landscape Ecology	3.0	3.0	0.0	
BIC9024	1-14 Principles of Systematic Biology	3.0	3.0	0.0	
BIC0061	1-15 E Principles and Methods of Plant Taxonomy	3.0	3.0	0.0	
BIC8025	1-16 E Introduction to Statistical Analysis	3.0	3.0	0.0	
BIC8026	1-17 E Linear and Logistic Regression Models	3.0	3.0	0.0	
BIC9021	1-18 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	
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 E 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	

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BIC0038	25 Studies in Adaptation and Natural Selection	2.0	2.0	0.0	
BIC0052	26 Neuropharmacology	3.0	3.0	0.0	
BIC0059	27 Architecture of Brain	3.0	3.0	0.0	
BIC9054	28 Ecophysiology	3.0	3.0	0.0	
BIC0101	29 Paper Writing and Presentation in Biological Science	2.0	2.0	0.0	
BIC0138	30 Cellular and Molecular Biology	3.0	3.0	0.0	
BIC0186	31 Protein Engineering	3.0	3.0	0.0	
BIC8003	32 Ecology and Evolution of Amphibians and Reptiles	2.0	2.0	0.0	
BIC8006	33 Topics on Animal Physiology (II)	2.0	2.0	0.0	
BIC8016	34 Writing Scientific Papers in English	3.0	3.0	0.0	
BIC8018	35 Topics on Animal Physiology (I)	2.0	2.0	0.0	
BIC8020	36 Biotechnology for the Drug Development	2.0	2.0	0.0	
BIC7001	37 Special Topics on Intellectual Property	2.0	2.0	0.0	
BIC7002	38 Industrial Practice	3.0	3.0	0.0	
BIC7004	39 Translational Medicine — Novel Compounds and Chinese Herbal Medicines	2.0	2.0	0.0	
BIC7005	40 E Drug Development and Translational Medicine	2.0	2.0	0.0	
BIC7009	41 Immunochemistry	3.0	3.0	0.0	
BIC7010	42 Neuroethology	3.0	3.0	0.0	
BIC0133	43 Topics in Molecular Biology	2.0	2.0	0.0	
BIC8007	44 Research Methods of Experimental Biology	2.0	2.0	0.0	
BIC0123	45 Developmental Biology	3.0	3.0	0.0	
BIC9006	46 Stem Cell Biology	3.0	3.0	0.0	
BIC0139	47 Protein and Enzyme Chemistry	3.0	3.0	0.0	
BIC0177	48 Biotechnology	3.0	3.0	0.0	
BIC0001	49 Neurobiology	3.0	3.0	0.0	
BIM0124	50 Modern Physiology	3.0	3.0	0.0	
BIC9022	51 Endocrinology	3.0	3.0	0.0	
BIC7015	52 Comparative Animal Physiology	3.0	3.0	0.0	
BIC0119	53 Learning and memory	3.0	3.0	0.0	
BIC8012	54 Oxidative Stress Physiology	3.0	3.0	0.0	
BIC8021	55 Experimental Physiology	2.0	2.0	0.0	
BIC9040	56 Signal Transduction	3.0	3.0	0.0	
BIC9041	57 Environmental Physiology	3.0	3.0	0.0	
BIC9042	58 Transgenic	2.0	2.0	0.0	
BIC9045	59 Inquiry and Practice in Biology	2.0	2.0	0.0	
BPM0002	60 Studies in Biotech- Pharmaceutical Industry	2.0	2.0	0.0	
BPM0003	61 Biotech Product Development and Intellectual Property Management	3.0	3.0	0.0	
BPM0004	62 Research and Design Management in Bioindustry	3.0	3.0	0.0	
BPM0009	63 Translational Medicine	2.0	2.0	0.0	
BIC9044	64 Virology	2.0	2.0	0.0	
BIC9047	65 Cross-Domain Learning Chinese Medicine and Health	2.0	2.0	0.0	
BIC9046	66 Curriculum Design for Scientific Inquiry and Practices	2.0	2.0	0.0	
BIC9049	67 Overview of Biomedical Development and Commercialization	2.0	2.0	0.0	
BIC9048	68 The Application of Biotechnological Advances on Complement for Clinical Practice	2.0	2.0	0.0	
BIC9050	69 Plant Anatomy with Experiment	3.0	2.0	2.0	
BIC9051	70 Mammalogy	2.0	2.0	0.0	
BIC9053	71 Biomethology of Cancer Research	3.0	3.0	0.0	
BIC9052	72 The Latest Modern Issues in Biomedical Research and Technology	2.0	2.0	0.0	
BIC9055	73 Evolution of Insects	3.0	3.0	0.0	
BIC8023	74 Application of Optoelectronic Technology in Biomedical	2.0	2.0	0.0	
BIC9056	75 E Introduction in Virology	2.0	2.0	0.0	
BIC9057	76 E Histology	2.0	2.0	0.0	
BIC9058	77 Basic and Applied Bone Biology	2.0	2.0	0.0	
BIC9060	78 Pteridology	3.0	3.0	0.0	
BIC9059	79 Plant Pathology	3.0	3.0	0.0	
BIC8027	80 E Topics in Virology	2.0	2.0	0.0	
BIC8030	81 E Comprehensive Biotech Practice-From Micro Molecular Biology to Macro Physiology	3.0	3.0	0.0	
BIC8028	82 E Apply Sciences Lead to Biotechnology Industry	2.0	2.0	0.0	
BIM0125	83 E Ecoacoustics: Principle and Application	2.0	2.0	0.0	
BIM0126	84 E Knowledge Transformation and Dissemination for Life Science	2.0	2.0	0.0	

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OEC8155	85 E Bio-Chips Manufacturing Technology	3.0	3.0	0.0	
BIC7012	86 Principles of Phylogenetics	3.0	3.0	0.0	
BIC9035	87 Data Analysis for Ecology and Evolution in R Programming Language	3.0	3.0	0.0	
BIC9061	88 Oncology Journal Reading and Discussion	2.0	2.0	0.0	
BIC9063	89 E Plant Molecular Biology	2.0	2.0	0.0	
BIC9065	90 E Introduction to Biomaterials	3.0	3.0	0.0	
BIC9064	91 Introduction to Biomedical Engineering	3.0	3.0	0.0	
BIC9067	92 Internship in Ecological Industry	3.0	0.0	6.0	
BIC9066	93 Field Ecology Survey Techniques	3.0	3.0	0.0	
BIC9068	94 Field ecology	3.0	3.0	0.0	

IV. Free Elective Credits: 0.0 credit is required