

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
115	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	This course must be retaken with a passing score for 2 times
BIC0174	2 E Advanced Ecology	3.0	3.0	0.0	
BIM0123	3 Seminar	2.0	2.0	0.0	

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	2.0	2.0	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	
BIC0170	1-10 E Forest Ecology	3.0	3.0	0.0	
BIC0175	1-11 Biological Invasions	3.0	3.0	0.0	
BIC9008	1-12 E Landscape Ecology	3.0	3.0	0.0	
BIC9024	1-13 Principles of Systematic Biology	3.0	3.0	0.0	
BIC0061	1-14 E Principles and Methods of Plant Taxonomy	3.0	3.0	0.0	
BIC8025	1-15 E Introduction to Statistical Analysis	3.0	3.0	0.0	
BIC8026	1-16 E Linear and Logistic Regression Models	3.0	3.0	0.0	
BIC9021	1-17 E Wildlife Biology	3.0	3.0	0.0	
BIC9071	1-18 Marine Ecosystem	2.0	2.0	0.0	
BIC8032	1-19 Regulatory and Verification Mechanism Analysis for Nature-Based Carbon Sinks	3.0	3.0	0.0	
BIC9073	1-20 E Introduction to Biostatistics	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 E 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	
BIC9032	13 Cancer Biology	2.0	2.0	0.0	
BIC9062	14 E Plant Cell and Tissue Culture	3.0	3.0	0.0	
BIC0016	15 E Topics in Plant Molecular Biology	2.0	2.0	0.0	
BIC0017	16 Topics in Fish Physiology	3.0	3.0	0.0	
BIC0021	17 Topics in Molecular Genetics	3.0	3.0	0.0	
BIC0038	18 Studies in Adaptation and Natural Selection	2.0	2.0	0.0	
BIC0052	19 Neuropharmacology	3.0	3.0	0.0	
BIC0059	20 Architecture of Brain	3.0	3.0	0.0	
BIC9054	21 Ecophysiology	3.0	3.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
BIC0101	22 Paper Writing and Presentation in Biological Science	2.0	2.0	0.0	
BIC0138	23 Cellular and Molecular Biology	3.0	3.0	0.0	
BIC0186	24 Protein Engineering	3.0	3.0	0.0	
BIC8003	25 Ecology and Evolution of Amphibians and Reptiles	2.0	2.0	0.0	
BIC8006	26 Topics on Animal Physiology (II)	2.0	2.0	0.0	
BIC8016	27 Writing Scientific Papers in English	3.0	3.0	0.0	
BIC8018	28 Topics on Animal Physiology (I)	2.0	2.0	0.0	
BIC7001	29 Special Topics on Intellectual Property	2.0	2.0	0.0	
BIC7002	30 Industrial Practice	3.0	3.0	0.0	
BIC7004	31 Translational Medicine — Novel Compounds and Chinese Herbal Medicines	2.0	2.0	0.0	
BIC7005	32 E Drug Development and Translational Medicine	2.0	2.0	0.0	
BIC7009	33 Immunochemistry	3.0	3.0	0.0	
BIC7010	34 Neuroethology	3.0	3.0	0.0	
BIC0133	35 Topics in Molecular Biology	2.0	2.0	0.0	
BIC8007	36 Research Methods of Experimental Biology	2.0	2.0	0.0	
BIC0123	37 Developmental Biology	3.0	3.0	0.0	
BIC9006	38 Stem Cell Biology	3.0	3.0	0.0	
BIC0139	39 Protein and Enzyme Chemistry	3.0	3.0	0.0	
BIC0177	40 Biotechnology	3.0	3.0	0.0	
BIC0001	41 Neurobiology	3.0	3.0	0.0	
BIM0124	42 Modern Physiology	3.0	3.0	0.0	
BIC9022	43 Endocrinology	3.0	3.0	0.0	
BIC7015	44 Comparative Animal Physiology	3.0	3.0	0.0	
BIC0119	45 Learning and memory	3.0	3.0	0.0	
BIC8012	46 Oxidative Stress Physiology	3.0	3.0	0.0	
BIC8021	47 Experimental Physiology	2.0	2.0	0.0	
BIC9040	48 Signal Transduction	3.0	3.0	0.0	
BIC9041	49 Environmental Physiology	3.0	3.0	0.0	
BIC9042	50 Transgenic	2.0	2.0	0.0	
BIC9045	51 Inquiry and Practice in Biology	2.0	2.0	0.0	
BPM0002	52 Studies in Biotech- Pharmaceutical Industry	2.0	2.0	0.0	
BPM0003	53 Biotech Product Development and Intellectual Property Management	3.0	3.0	0.0	
BPM0004	54 Research and Design Management in Bioindustry	3.0	3.0	0.0	
BPM0009	55 Translational Medicine	2.0	2.0	0.0	
BIC9044	56 Virology	2.0	2.0	0.0	
BIC9047	57 Cross-Domain Learning Chinese Medicine and Health	2.0	2.0	0.0	
BIC9046	58 Curriculum Design for Scientific Inquiry and Practices	2.0	2.0	0.0	
BIC9049	59 Overview of Biomedical Development and Commercialization	2.0	2.0	0.0	
BIC9048	60 The Application of Biotechnological Advances on Complement for Clinical Practice	2.0	2.0	0.0	
BIC9050	61 Plant Anatomy with Experiment	3.0	2.0	2.0	
BIC9051	62 Mammalogy	2.0	2.0	0.0	
BIC9053	63 Biomethology of Cancer Research	3.0	3.0	0.0	
BIC9052	64 The Latest Modern Issues in Biomedical Research and Technology	2.0	2.0	0.0	
BIC9055	65 Evolution of Insects	3.0	3.0	0.0	
BIC8023	66 Application of Optoelectronic Technology in Biomedical	2.0	2.0	0.0	
BIC9056	67 E Introduction in Virology	2.0	2.0	0.0	
BIC9057	68 E Histology	2.0	2.0	0.0	
BIC9058	69 Basic and Applied Bone Biology	2.0	2.0	0.0	
BIC9060	70 Pteridology	3.0	3.0	0.0	
BIC9059	71 Plant Pathology	3.0	3.0	0.0	
BIC8027	72 E Topics in Virology	2.0	2.0	0.0	
BIC8030	73 E Comprehensive Biotech Practice-From Micro Molecular Biology to Macro Physiology	3.0	3.0	0.0	
BIC8028	74 E Apply Sciences Lead to Biotechnology Industry	2.0	2.0	0.0	
BIM0125	75 E Ecoacoustics: Principle and Application	2.0	2.0	0.0	
BIM0126	76 E Knowledge Transformation and Dissemination for Life Science	2.0	2.0	0.0	
OEC8155	77 E Bio-Chips Manufacturing Technology	3.0	3.0	0.0	
BIC7012	78 Principles of Phylogenetics	3.0	3.0	0.0	
BIC9035	79 Data Analysis for Ecology and Evolution in R Programming Language	3.0	3.0	0.0	
BIC9061	80 E Oncology Journal Reading and Discussion	2.0	2.0	0.0	

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			Lecture Hour	Lab/Practice Hour	
BIC9063	81 E Plant Molecular Biology	2.0	2.0	0.0	This course can be retaken
BIC9065	82 E Introduction to Biomaterials	3.0	3.0	0.0	
BIC9064	83 Introduction to Biomedical Engineering	3.0	3.0	0.0	
BIC9067	84 Internship in Ecological Industry	3.0	0.0	6.0	
BIC9066	85 Field Ecology Survey Techniques	3.0	3.0	0.0	
BIC9068	86 Field ecology	3.0	3.0	0.0	
BIC8031	87 Special Topics in Brain Neurobehavioral Studies	3.0	3.0	0.0	
BIC9070	88 Forest Ecophysiology	3.0	3.0	0.0	
BIC9069	89 Natural Carbon Sink Analysis	3.0	3.0	0.0	
BIC8024	90 E Seminar on Ecology & Evolution	2.0	2.0	0.0	
BIC9074	91 E Wildlife Management	3.0	3.0	0.0	
BIC9072	92 E Remote Sensing in Vegetation Ecology	2.0	2.0	0.0	
BIC9075	93 Laboratory for Biological Inquiry and Practices	1.0	0.0	2.0	
BIC9076	94 Laboratory in Curriculum Design for Scientific Inquiry and Practices	1.0	0.0	2.0	

IV. Free Elective Credits: 0.0 credit is required