

Course Structure for M.A. Program
Physiology, 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	9.0	15.0	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, 9.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
BIM0124	1 Modern Physiology	3.0	3.0	0.0	
BIC8021	2 Experimental Physiology	2.0	2.0	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: 15.0 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					
BIC0001	1-1 Neurobiology	3.0	3.0	0.0	
BIC9022	1-2 Endocrinology	3.0	3.0	0.0	
BIC7015	1-3 Comparative Animal Physiology	3.0	3.0	0.0	
BIC0119	1-4 Learning and memory	3.0	3.0	0.0	
BIC8012	1-5 Oxidative Stress Physiology	3.0	3.0	0.0	
BIC8018	1-6 Topics on Animal Physiology (I)	2.0	2.0	0.0	
BIC0017	1-7 Topics in Fish Physiology	3.0	3.0	0.0	
BIC8023	1-8 Application of Optoelectronic Technology in Biomedical	2.0	2.0	0.0	
BIC0006	2 Biological Geography	3.0	3.0	0.0	
BIC0084	3 Animal Behaviour	3.0	3.0	0.0	
BIC0085	4 Marine Biology	2.0	2.0	0.0	
BIC0086	5 Ornithology	3.0	3.0	0.0	
BIC0087	6 Herpetology	2.0	2.0	0.0	
BIC0088	7 Recreation Ecology	3.0	3.0	0.0	
BIC0108	8 Marine Ecology	2.0	2.0	0.0	
BIC0111	9 Respiratory and Circulatory Physiology	2.0	2.0	0.0	
BIC0170	10 E Forest Ecology	3.0	3.0	0.0	
BIC0175	11 Biological Invasions	3.0	3.0	0.0	
BIC9008	12 E Landscape Ecology	3.0	3.0	0.0	
BIC9009	13 Plant Genetic Engineering	3.0	3.0	0.0	
BIC9011	14 Bioindustry	2.0	2.0	0.0	
BIC9013	15 Program Language in Bioinformatics	3.0	3.0	0.0	
BIC9014	16 Algorithms in Bioinformatics	3.0	3.0	0.0	
BIC9015	17 Biological Microtechnique (including Lab.)	3.0	2.0	2.0	
BIC9021	18 E Wildlife Biology	3.0	3.0	0.0	
BIC9024	19 Principles of Systematic Biology	3.0	3.0	0.0	
BIC9025	20 Island Biogeography	3.0	3.0	0.0	
BIC9027	21 Concept and Experimental Learning of Plant Factory	2.0	1.0	2.0	
BIC9028	22 Translational Application of Stem Cell	1.0	1.0	0.0	
BIC9029	23 Translational Application of Stem Cell Experiment	1.0	0.0	3.0	
BIC9030	24 Biodiesel Biotechnology	1.0	1.0	0.0	
BIC9031	25 Biodiesel Biotechnology Experiment	1.0	0.0	3.0	
BIC9032	26 Cancer Biology	2.0	2.0	0.0	
BIC9033	27 Reactive Oxygen Species and Biological Medicine	1.0	1.0	0.0	
BIC9034	28 Methods for Reactive Oxygen Species Measurement	1.0	0.0	3.0	
BIC9035	29 Data Analysis for Ecology and Evolution in R Programming Language	3.0	3.0	0.0	
BIC9036	30 Ecological Plant Physiology	3.0	3.0	0.0	
BIC9062	31 E Plant Cell and Tissue Culture	3.0	3.0	0.0	
BIC0016	32 E Topics in Plant Molecular Biology	2.0	2.0	0.0	

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			Lecture Hour	Lab/Practice Hour	
BIC0021	33 Topics in Molecular Genetics	3.0	3.0	0.0	
BIC0038	34 Studies in Adaptation and Natural Selection	2.0	2.0	0.0	
BIC0052	35 Neuropharmacology	3.0	3.0	0.0	
BIC0059	36 Architecture of Brain	3.0	3.0	0.0	
BIC0061	37 E Principles and Methods of Plant Taxonomy	3.0	3.0	0.0	
BIC9054	38 Ecophysiology	3.0	3.0	0.0	
BIC0101	39 Paper Writing and Presentation in Biological Science	2.0	2.0	0.0	
BIC0138	40 Cellular and Molecular Biology	3.0	3.0	0.0	
BIC0153	41 Regression Analysis	3.0	3.0	0.0	
BIC0185	42 Adaptation and Natural Selection	3.0	3.0	0.0	
BIC0186	43 Protein Engineering	3.0	3.0	0.0	
BIC8003	44 Ecology and Evolution of Amphibians and Reptiles	2.0	2.0	0.0	
BIC8006	45 Topics on Animal Physiology (II)	2.0	2.0	0.0	
BIC8016	46 Writing Scientific Papers in English	3.0	3.0	0.0	
BIC8020	47 Biotechnology for the Drug Development	2.0	2.0	0.0	
BIC7001	48 Special Topics on Intellectual Property	2.0	2.0	0.0	
BIC7002	49 Industrial Practice	3.0	3.0	0.0	
BIC7004	50 Translational Medicine — Novel Compounds and Chinese Herbal Medicines	2.0	2.0	0.0	
BIC7005	51 E Drug Development and Translational Medicine	2.0	2.0	0.0	
BIC7009	52 Immunochemistry	3.0	3.0	0.0	
BIC7010	53 Neuroethology	3.0	3.0	0.0	
BIC0173	54 Evolutionary Biology	3.0	3.0	0.0	
BIC0174	55 E Advanced Ecology	3.0	3.0	0.0	
BIC7007	56 Population Genetics and Evolution	3.0	3.0	0.0	
BIC8010	57 Research Methods in Ecology and Evolution	1.0	1.0	0.0	
BIC0011	58 Experimental Design and Data Analysis	3.0	3.0	0.0	
BIC7012	59 Principles of Phylogenetics	3.0	3.0	0.0	
BIC0133	60 Topics in Molecular Biology	2.0	2.0	0.0	
BIC8007	61 Research Methods of Experimental Biology	2.0	2.0	0.0	
BIC0123	62 Developmental Biology	3.0	3.0	0.0	
BIC9006	63 Stem Cell Biology	3.0	3.0	0.0	
BIC0139	64 Protein and Enzyme Chemistry	3.0	3.0	0.0	
BIC0177	65 Biotechnology	3.0	3.0	0.0	
BIC8022	66 E Behavioral Ecology	3.0	3.0	0.0	
BIC9040	67 Signal Transduction	3.0	3.0	0.0	
BIC9045	68 Inquiry and Practice in Biology	2.0	2.0	0.0	
BPM0002	69 Studies in Biotech- Pharmaceutical Industry	2.0	2.0	0.0	
BPM0004	70 Research and Design Management in Bioindustry	3.0	3.0	0.0	
BPM0003	71 Biotech Product Development and Intellectual Property Management	3.0	3.0	0.0	
BPM0009	72 Translational Medicine	2.0	2.0	0.0	
BIC9044	73 Virology	2.0	2.0	0.0	
BIC9047	74 Cross-Domain Learning Chinese Medicine and Health	2.0	2.0	0.0	
BIC9046	75 Curriculum Design for Scientific Inquiry and Practices	2.0	2.0	0.0	
BIC9049	76 Overview of Biomedical Development and Commercialization	2.0	2.0	0.0	
BIC9048	77 The Application of Biotechnological Advances on Complement for Clinical Practice	2.0	2.0	0.0	
BIC9050	78 Plant Anatomy with Experiment	3.0	2.0	2.0	
BIC9051	79 Mammalogy	2.0	2.0	0.0	
BIC9053	80 Biomethology of Cancer Research	3.0	3.0	0.0	
BIC9052	81 The Latest Modern Issues in Biomedical Research and Technology	2.0	2.0	0.0	
BIC9055	82 Evolution of Insects	3.0	3.0	0.0	
BIC9056	83 E Introduction in Virology	2.0	2.0	0.0	
BIC9057	84 E Histology	2.0	2.0	0.0	
BIC9058	85 Basic and Applied Bone Biology	2.0	2.0	0.0	
BIC9042	86 Transgenic	2.0	2.0	0.0	
BIC9041	87 Environmental Physiology	3.0	3.0	0.0	
BIC9060	88 Pteridology	3.0	3.0	0.0	
BIC9059	89 Plant Pathology	3.0	3.0	0.0	
BIC8027	90 E Topics in Virology	2.0	2.0	0.0	
BIC8025	91 E Introduction to Statistical Analysis	3.0	3.0	0.0	
BIC8030	92 E Comprehensive Biotech Practice-From Micro Molecular Biology to Macro Physiology	3.0	3.0	0.0	
BIC8026	93 E Linear and Logistic Regression Models	3.0	3.0	0.0	

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			Lecture Hour	Lab/Practice Hour	
BIC8028	94 E Apply Sciences Lead to Biotechnology Industry	2.0	2.0	0.0	
BIM0125	95 E Ecoacoustics: Principle and Application	2.0	2.0	0.0	
BIM0126	96 E Knowledge Transformation and Dissemination for Life Science	2.0	2.0	0.0	
OEC8155	97 E Bio-Chips Manufacturing Technology	3.0	3.0	0.0	
BIC9063	98 E Plant Molecular Biology	2.0	2.0	0.0	
BIC9061	99 Oncology Journal Reading and Discussion	2.0	2.0	0.0	
BIC9065	100 E Introduction to Biomaterials	3.0	3.0	0.0	
BIC9064	101 Introduction to Biomedical Engineering	3.0	3.0	0.0	
BIC9067	102 Internship in Ecological Industry	3.0	0.0	6.0	
BIC9066	103 Field Ecology Survey Techniques	3.0	3.0	0.0	
BIC9068	104 Field ecology	3.0	3.0	0.0	

IV. Free Elective Credits: 0.0 credit is required