

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 |
|----------------------|--------------------|--------------------|-------------------------|--------------------------------------|
| 112 | 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 | |
| BIC9037 | 31 Conservation Biology | 3.0 | 3.0 | 0.0 | |
| BIC9038 | 32 Disease Ecology | 3.0 | 3.0 | 0.0 | |

| Course Code | Course Name | Credit(s) | Credit Unit | | Note |
|-------------|---|-----------|--------------|-------------------|------|
| | | | Lecture Hour | Lab/Practice Hour | |
| BIC9062 | 33 E Plant Cell and Tissue Culture | 3.0 | 3.0 | 0.0 | |
| BIC0016 | 34 E Topics in Plant Molecular Biology | 2.0 | 2.0 | 0.0 | |
| BIC0021 | 35 Topics in Molecular Genetics | 3.0 | 3.0 | 0.0 | |
| BIC0038 | 36 Studies in Adaptation and Natural Selection | 2.0 | 2.0 | 0.0 | |
| BIC0052 | 37 Neuropharmacology | 3.0 | 3.0 | 0.0 | |
| BIC0059 | 38 Architecture of Brain | 3.0 | 3.0 | 0.0 | |
| BIC0061 | 39 Principles and Methods of Plant Taxonomy | 3.0 | 3.0 | 0.0 | |
| BIC9054 | 40 Ecophysiology | 3.0 | 3.0 | 0.0 | |
| BIC0101 | 41 Paper Writing and Presentation in Biological Science | 2.0 | 2.0 | 0.0 | |
| BIC0138 | 42 Cellular and Molecular Biology | 3.0 | 3.0 | 0.0 | |
| BIC0153 | 43 Regression Analysis | 3.0 | 3.0 | 0.0 | |
| BIC0185 | 44 Adaptation and Natural Selection | 3.0 | 3.0 | 0.0 | |
| BIC0186 | 45 Protein Engineering | 3.0 | 3.0 | 0.0 | |
| BIC8003 | 46 Ecology and Evolution of Amphibians and Reptiles | 2.0 | 2.0 | 0.0 | |
| BIC8006 | 47 Topics on Animal Physiology (II) | 2.0 | 2.0 | 0.0 | |
| BIC8016 | 48 Writing Scientific Papers in English | 3.0 | 3.0 | 0.0 | |
| BIC8020 | 49 Biotechnology for the Drug Development | 2.0 | 2.0 | 0.0 | |
| BIC7001 | 50 Special Topics on Intellectual Property | 2.0 | 2.0 | 0.0 | |
| BIC7002 | 51 Industrial Practice | 3.0 | 3.0 | 0.0 | |
| BIC7003 | 52 Molecular Evolution | 3.0 | 3.0 | 0.0 | |
| BIC7004 | 53 Translational Medicine — Novel Compounds and Chinese Herbal Medicines | 2.0 | 2.0 | 0.0 | |
| BIC7005 | 54 E Drug Development and Translational Medicine | 2.0 | 2.0 | 0.0 | |
| BIC7009 | 55 Immunochemistry | 3.0 | 3.0 | 0.0 | |
| BIC7010 | 56 Neuroethology | 3.0 | 3.0 | 0.0 | |
| BIC0173 | 57 Evolutionary Biology | 3.0 | 3.0 | 0.0 | |
| BIC0174 | 58 E Advanced Ecology | 3.0 | 3.0 | 0.0 | |
| BIC7007 | 59 Population Genetics and Evolution | 3.0 | 3.0 | 0.0 | |
| BIC8010 | 60 Research Methods in Ecology and Evolution | 1.0 | 1.0 | 0.0 | |
| BIC0011 | 61 Experimental Design and Data Analysis | 3.0 | 3.0 | 0.0 | |
| BIC7012 | 62 Principles of Phylogenetics | 3.0 | 3.0 | 0.0 | |
| BIC0133 | 63 Topics in Molecular Biology | 2.0 | 2.0 | 0.0 | |
| BIC8007 | 64 Research Methods of Experimental Biology | 2.0 | 2.0 | 0.0 | |
| BIC0123 | 65 Developmental Biology | 3.0 | 3.0 | 0.0 | |
| BIC9006 | 66 Stem Cell Biology | 3.0 | 3.0 | 0.0 | |
| BIC0139 | 67 Protein and Enzyme Chemistry | 3.0 | 3.0 | 0.0 | |
| BIC0177 | 68 Biotechnology | 3.0 | 3.0 | 0.0 | |
| BIC8022 | 69 E Behavioral Ecology | 3.0 | 3.0 | 0.0 | |
| BIC9040 | 70 Signal Transduction | 3.0 | 3.0 | 0.0 | |
| BIC9045 | 71 Inquiry and Practice in Biology | 2.0 | 2.0 | 0.0 | |
| BPM0002 | 72 Studies in Biotech- Pharmaceutical Industry | 2.0 | 2.0 | 0.0 | |
| BPM0004 | 73 Research and Design Management in Bioindustry | 3.0 | 3.0 | 0.0 | |
| BPM0003 | 74 Biotech Product Development and Intellectual Property Management | 3.0 | 3.0 | 0.0 | |
| BPM0009 | 75 Translational Medicine | 2.0 | 2.0 | 0.0 | |
| BIC9044 | 76 Virology | 2.0 | 2.0 | 0.0 | |
| BIC9047 | 77 Cross-Domain Learning Chinese Medicine and Health | 2.0 | 2.0 | 0.0 | |
| BIC9046 | 78 Curriculum Design for Scientific Inquiry and Practices | 2.0 | 2.0 | 0.0 | |
| BIC9049 | 79 Overview of Biomedical Development and Commercialization | 2.0 | 2.0 | 0.0 | |
| BIC9048 | 80 The Application of Biotechnological Advances on Complement for Clinical Practice | 2.0 | 2.0 | 0.0 | |
| BIC9050 | 81 Plant Anatomy with Experiment | 3.0 | 2.0 | 2.0 | |
| BIC9051 | 82 Mammalogy | 2.0 | 2.0 | 0.0 | |
| BIC9053 | 83 Biomethology of Cancer Research | 3.0 | 3.0 | 0.0 | |
| BIC9052 | 84 The Latest Modern Issues in Biomedical Research and Technology | 2.0 | 2.0 | 0.0 | |
| BIC9055 | 85 Evolution of Insects | 3.0 | 3.0 | 0.0 | |
| BIC9056 | 86 E Introduction in Virology | 2.0 | 2.0 | 0.0 | |
| BIC9057 | 87 E Histology | 2.0 | 2.0 | 0.0 | |
| BIC9058 | 88 Basic and Applied Bone Biology | 2.0 | 2.0 | 0.0 | |
| BIC9042 | 89 Transgenic | 2.0 | 2.0 | 0.0 | |
| BIC9041 | 90 Environmental Physiology | 3.0 | 3.0 | 0.0 | |
| BIC9060 | 91 Pteridology | 3.0 | 3.0 | 0.0 | |
| BIC9059 | 92 Plant Pathology | 3.0 | 3.0 | 0.0 | |
| BIC8027 | 93 E Topics in Virology | 2.0 | 2.0 | 0.0 | |
| BIC8025 | 94 E Introduction to Statistical Analysis | 3.0 | 3.0 | 0.0 | |

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|-------------|--|-----------|--------------|-------------------|------|
| | | | Lecture Hour | Lab/Practice Hour | |
| BIC8029 | 95 E Laboratory Rotations in Cell and Molecular Biology | 3.0 | 3.0 | 0.0 | |
| BIC8026 | 96 E Linear and Logistic Regression Models | 3.0 | 3.0 | 0.0 | |
| BIC8028 | 97 E Apply Sciences Lead to Biotechnology Industry | 2.0 | 2.0 | 0.0 | |
| BIM0125 | 98 E Ecoacoustics: Principle and Application | 2.0 | 2.0 | 0.0 | |
| BIM0126 | 99 E Knowledge Transformation and Dissemination for Life Science | 2.0 | 2.0 | 0.0 | |
| OEC8155 | 100 E Bio-Chips Manufacturing Technology | 3.0 | 3.0 | 0.0 | |
| BIC9063 | 101 E Plant Molecular Biology | 2.0 | 2.0 | 0.0 | |
| BIC9061 | 102 E Oncology Journal Reading and Discussion | 2.0 | 2.0 | 0.0 | |

IV. Free Elective Credits: 0.0 credit is required