

**BIOL 3016 Environmental Health and Toxicology (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing  
The course provides the general knowledge on the various routes of human exposure to toxic chemicals. Main emphasis will be placed on the biological responses to toxicants, methods for evaluating potential toxicity and applications of toxicological data to assess potential health risk.

**BIOL 3017 Molecular Biology (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing  
This course aims to provide a solid foundation in describing the molecular and cellular mechanisms in the maintenance and the regulation of the expression of the genome. Special attention will be given to the organization of eukaryotic genes, the flow of genetic information and the control of gene expression.

**BIOL 3025 Plant Physiology (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing  
This course deals with plant physiological processes such as plant-water relations, plant-environment interactions, mineral nutrition, carbon and nitrogen metabolism, and plant growth and development. Students are expected to use physiological principles to explain how plants control their growth and development under natural and agricultural environments.

**BIOL 3026 Plant Physiology Laboratory (1,0,3)**

Prerequisite: Biology major Year III/IV standing  
This laboratory session is designed to provide students with laboratory experience related to the materials covered in the lectures. Students will be exposed to basic techniques in investigating plant functions and data interpretation. Computer-based statistical analysis and graphical interpretation will be introduced.

**BIOL 3027 Waste Treatment and Recycling (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing  
(1) Understand the origins of waste and the social, political and economic issues involved with waste disposal; (2) review the waste generation problem and to examine various physical, chemical and biological waste treatment methods; (3) introduce various technologies in reducing and reutilizing the various types of wastes; and (4) acquire a comprehensive knowledge of current and anticipated legislation regarding waste and their potential implications.

**BIOL 3035 Immunology (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing  
This course is to provide basic concepts in the rapidly advancing field of Immunology, and to expose students to modern and current applications of Immunology in Cell Biology, Molecular Biology and Medical Sciences.

**BIOL 3036 Neurobiology (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing  
The course studies neurobiology with main emphasis on how neuronal information is integrated in the CNS to control bodily functions such as visual recognition, sleep, memory and movement. The course also studies the autonomic nervous system with an emphasis on its control of body functions. Lastly, the relationship between the nervous system and the hormonal system will also be stressed.

**BIOL 3045 Developmental Biology (3,3,0)**

Prerequisite: Biology major Year III/IV standing  
This course aims to equip students with a solid foundation in principles of animal and plant development, including embryogenesis, tissue formation and organogenesis, stem cell biology and tissue regeneration, plant and animal reproduction, and growth, cancer and aging. The course also challenges students to apply basic knowledge in cell biology, genetics, and molecular biology in understanding developmental processes.

**BIOL 3046 Foundation of Bioanalysis (3,3,0) (E)**

Prerequisites: BIOL 1005 Introduction to Biology  
The course provides very strong foundation in the fundamental principles and theories for analysis of biological samples. Main emphasis will be focused on different biological aspects including cell biology, microbiology, biochemistry, molecular biology, physiology and immunology.

**BIOL 3047 Foundation of Bioanalysis Laboratory (1,0,3)**

Prerequisite: SCIE 1005 Integrated Science Laboratory  
Co-requisite: BIOL 3046 Foundation of Bioanalysis  
The laboratory exercise provides a wide spectrum of bioanalytical techniques commonly used for the study of cell biology, microbiology, molecular biology, immunology and physiology. This course is designed to enhance, augment and reinforce the specific topics introduced during the lecture.

**BIOL 3140 Environmental Health and Toxicology (3,3,0) (E)**

Prerequisite: BIOL 1160 Biological Chemistry and BIOL 2210 Animal Physiology  
This course provides general knowledge concerning the various routes of human exposure to toxic chemicals. Main emphasis will be placed on the biological responses to toxicants, methods for evaluating potential toxicity and applications of toxicological data to assess potential health risk.

**BIOL 3150 Principles of Environmental Management (3,3,0) (E)**

Prerequisite: BIOL 2110 Ecology or Geography major Year III standing  
This course discusses the anthropogenic causes of environmental degradation and the way sustainable growth can be brought about by environmental management. This course also examines the framework of environmental planning and management and the techniques for tackling environmental management. This course then applies principles of environmental science to help manage some of the diverse array of environmental problems, in different physical, biological and social environment.

**BIOL 3160 Molecular Biology (3,3,0) (E)**

Prerequisite: BIOL 1160 Biological Chemistry, BIOL 1210 Cell Biology, BIOL 1310 Microbiology and BIOL 2160 Genetics and Evolution  
This course aims to provide a fundamental principle and current techniques in molecular biology with particular regard to topics related to application in biotechnology. Special attention will be given to the organization of eukaryotic genes, the flow of genetic information and the control of gene expression. The recombinant DNA technology in protein engineering will be emphasized.

**BIOL 3170 Environmental Biotechnology (3,3,0) (E)**

Prerequisite: BIOL 1160 Biological Chemistry and BIOL 1310 Microbiology  
This course provides a general understanding of the principles and applications of biotechnology in environmental monitoring, pollution control and contaminants removal. Special emphasis will be placed in biological wastewater treatment, bioremediation and ecological engineering.

**BIOL 3180 Fermentation and Enzyme Technology (3,3,0) (E)**

Prerequisite: BIOL 1160 Biological Chemistry, BIOL 1210 Cell Biology, BIOL 1310 Microbiology and BIOL 2160 Genetics and Evolution  
This course introduces basic principles and current techniques in industrial microbiology and enzyme technology.

**BIOL 3260 Biological Resources and Management (3,3,0) (E)**

Prerequisite: BIOL 2110 Ecology  
This course is designed to promote an awareness of man's interaction with his abiotic and biotic environment through