

**BIOL 2035 Introduction to Environmental Sciences (3,3,0) (E)**

Prerequisite: BIOL 1005 Introduction to Biology

This course aims to introduce to students the scientific principles and issues in environmental sciences. It is a combination of scientific evidence and technical appraisals of processes and problems in relation to environmental quality. The topics selected will demonstrate how environmental issues are related to our everyday life. By showing how environmental and resource problems are interrelated, students should be able to understand the concepts and apply the principles to solve environmental and resource problems.

**BIOL 3005 Animal Physiology (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing

This course aims to provide students with the fundamental knowledge on the basic principles and the interrelation between the anatomical and functional organization of animal body. Regulatory mechanisms that cause the functional systems to operate in homeostasis are discussed. Throughout the course, emphasis is placed on human physiology. Comparative physiology of lower animals is also introduced. Students will come to understand the major physiological systems involved in the maintenance of body functions.

**BIOL 3006 Animal Physiology Laboratory (1,0,3)**

Prerequisite: Biology major Year III/IV standing

This course provides students with practical experience of applying important physiological concepts in Animal Physiology. Some basic but important physiological concepts are illustrated by means of experiments. It also provides an opportunity for students to practise the methods and utilize the apparatus most frequently used in experimental physiology.

**BIOL 3007 Ecology (3,3,0) (E)**

Prerequisite: Biology major Year III/IV standing

This course places emphasis on biological functioning at the levels of population, community, and ecosystem, and is organized around the principles of energy flow and nutrient cycles. Human interventions such as urbanization, harvesting renewable and non-renewable resources, and pollution generation are considered in relation to natural limits, natural regulations and regeneration mechanisms, and long-term ecosystem stability.

**BIOL 3015 Ecology Laboratory (1,0,3)**

Prerequisite: Biology major Year III/IV standing

This course aims to use local ecological topics to facilitate the students' learning of modern methods of ecological research and environmental assessment, utilization of appropriate experimental techniques, collecting and interpreting data, and writing of ecological reports.

**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 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.