

BIOL 2120 Ecology Laboratory (1,0,3)

Co-requisite: BIOL 2110 Ecology

This course aims to develop students' competence in modern methods of ecological research and environmental assessment, to utilize appropriate experimental techniques and to collect and interpret data. Ecological projects of local relevance will be emphasized.

BIOL 2160 Genetics and Evolution (3,3,0)

Prerequisite: BIOL 1160 Biological Chemistry and BIOL 1210 Cell Biology

This course provides a general understanding of the structure, expression, regulation and mutation of genes. Various patterns and processes involved in the transmission of inheritable characteristics are introduced. Contributions of population genetics to the study of evolution, concepts of evolutionary genetics, and the recent hypothesis of molecular evolution are compared and discussed.

BIOL 2170 Genetics and Evolution Laboratory (1,0,3)

Co-requisite: BIOL 2160 Genetics and Evolution

This laboratory exercise exposes students to basic tools and techniques used in the study of genetics. Various organisms are used in the laboratory to enhance the understanding of genetic theories and principles.

BIOL 2210 Animal Physiology (3,3,0)

Prerequisite: BIOL 1130 Biodiversity and BIOL 1210 Cell Biology

This course aims to provide a 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. Emphasis throughout is placed on the 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 2220 Animal Physiology Laboratory (1,0,3)

Co-requisite: BIOL 2210 Animal Physiology

This course (1) provides students with practical experience of applying important physiological concepts in animal physiology, (2) illustrates some basic but important physiological concepts by means of experiments, and (3) provides an opportunity to practise the methods and utilize the apparatus most frequently used in experimental physiology.

BIOL 2230 Plant Physiology (3,3,0)

Prerequisite: BIOL 1130 Biodiversity and BIOL 1210 Cell Biology

This course deals with the plant physiological processes such as plant water relations, plant nutrition, photosynthesis, translocation, plant hormones and their roles during plant growth and development, plant morphogenesis and the control of flowering. Students are expected to use physiological principles to explain many plant performances, which are required in the applied aspects of plant sciences, such as horticulture and agronomy.

BIOL 2240 Plant Physiology Laboratory (1,0,3)

Co-requisite: BIOL 2230 Plant Physiology

This laboratory exercise 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 3140 Environmental Health and Toxicology (3,3,0)

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)

Prerequisite: BIOL 2110 Ecology and SCI 3110 Environmental Chemistry and Pollution Control 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)

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)

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)

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)

Prerequisite: BIOL 2110 Ecology

This course is designed to promote an awareness of man's interaction with his abiotic and biotic environment through training in the principles of resource utilization and conservation as applied to biological systems. The course focuses on the management and rational exploitation of resources in terrestrial and aquatic ecosystems with particular emphasis on local and regional resources.

BIOL 3280 Waste Treatment and Recycling (3,3,0)

Prerequisite: BIOL 2110 Ecology

This course is designed to understand the origins of waste and the social, political and economic issues involved with waste disposal and to review the waste generation problem and to examine various physical, chemical and biological waste treatment methods. The course also introduces the various technologies in reducing and reutilizing the various types of wastes. Students will have a comprehensive knowledge of the current and projected legislation regarding waste and their potential implications.

BIOL 3320 Immunology (3,3,0)

Prerequisite: BIOL 1210 Cell Biology, BIOL 2160 Genetics and Evolution and BIOL 2210 Animal Physiology

This course provides basic concepts in the rapidly advancing field of immunology and exposes students to modern and current applications of immunology in cell biology, molecular biology and medical sciences.