

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 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) (E)

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) (E)

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.

BIOL 3350 Neurobiology (3,3,0) (E)

Prerequisite: BIOL 2210 Animal Physiology

The course studies neurobiology with main emphasis on how neuronal information are integrated in the CNS to control functions such as visual recognition, sleep, memory and movement. The course also studies the autonomic nervous system with emphasis on its control of body functions. Lastly, the relationship between the nervous system and the hormonal system will also be stressed.

BIOL 3380 Environmental Science Laboratory I (2,0,6) (E)

Prerequisite: BIOL 2110 Ecology and Biology major Year III standing (Environmental Concentration); or BIOL 2110 Ecology and Geography major Year III standing

This course provides students with hands-on experience in the approach and techniques commonly used in environmental research. A local habitat will be selected and students will be trained the sampling and analytical techniques for various environmental matrices including water, soil and biological samples.

BIOL 3390 Environmental Science Laboratory II (2,0,6) (E)

Prerequisite: Biology major Year III standing (Environmental Concentration)

This laboratory exercise provides students with training in analytical techniques, including physical, chemical and biological techniques, for environmental investigations, and with the skills in management and evaluation of environmental data, and with hands-on experience in management techniques for conducting and evaluating an environmental project.

BIOL 3440 Plant Propagation and Breeding (3,3,0) (E)

Prerequisite: BIOL 1130 Biodiversity and BIOL 2230 Plant Physiology

This course is divided into two main sections, plant propagation and plant breeding. Students are expected to understand the principles involved in the practices of the two important aspects of applied plant sciences. Both conventional and modern methods, and technology are introduced with emphasis on the plant micropropagation and conventional hybridization breeding.

BIOL 3460 Biotechnology Studies Laboratory I (2,0,6) (E)

Prerequisite: Biology major Year III standing (Biotechnology Concentration)

This laboratory exercise introduces basic principles and current methods in biotechnology. The topics cover the basic technologies in molecular biology, enzymology and immunology.

BIOL 3470 Biotechnology Studies Laboratory II (2,0,6) (E)

Prerequisite: Biology major Year III standing (Biotechnology Concentration)

This laboratory exercise introduces basic principles and current methods in biotechnology. The topics cover various techniques currently being used in the area of immunology, plant science, production of microbial products, neurobiology and physiology.

BIOL 3591-2 Applied Biology Project I & II (3,0,9) (E)

Prerequisite: Biology major Year III standing

This course aims to guide students in the development of research methodology appropriate to the practice of biology. Opportunity will be given to students who work on problems of an applied or interdisciplinary nature that have real-world significance.

BIOL 4005 Biotechnology Studies Laboratory I (2,0,6) (E)

Prerequisite: Biology major Year IV standing (Biotechnology Concentration)

To introduce basic principles and current methods in biotechnology. The topics cover the basic technologies in molecular biology, enzymology and immunology.

BIOL 4006 Environmental Science Laboratory I (2,0,6) (E)

Prerequisite: Biology major Year IV standing (Environmental Concentration)

This course provides students with hands-on experience in the approaches and techniques commonly used in environmental research. A local habitat will be selected and students will be trained the sampling and analytical techniques of various environmental matrices including water, soil and biological samples.

BIOL 4007 Molecular Biotechnology I (3,3,0) (E)

Prerequisite: Biology major Year IV standing

This course aims to introduce to students fundamental principle and current techniques in molecular biology with particular emphasis on biotechnology applications. The recombinant DNA technology in protein engineering will be emphasized.