

CURRICULUM FOR THE BACHELOR DEGREE OF Science in Ecology Short Description

FIRST STAGE

E 101 / GENERAL BIOLOGY

This course aims to introduce the student to the types of living things, their classification, distribution, how they live, their relationship to humans and other living organisms, and the study of the plant and animal kingdom.

E 102 / FUNDAMENTAL ECOLOGY

This course works on fundamental ecology and focusing on the interaction between organisms and the environment. Students investigate the relationship between abiotic and biotic components of an ecosystem. Students examine the interplay between these components at the organismal, population, community, and ecosystem levels.

E 110 / MOLECULAR BIOLOGY

This course aware the students about the differentiation of living things into prokaryotic and eukaryotic organisms. Illustrate with details the main differences between them. Moreover, show the main cellular component in both of them. Also explain the main cellular components of the eukaryotic cells with their importance to the body. Explain the content of Macromolecules including (carbohydrates, proteins, fats, and nucleic acids) and their role in the human body. Also explain with details the cell division including in prokaryotic and eukaryotic organisms and the mechanisms of transport materials in and out the cell. Introducing the mechanism of DNA replication of the cells and the steps for protein synthesis beginning from the DNA synthesis to the transcription of mRNA, and translation the mRNA codes into protein.

SECOND STAGE

202 / PLANT TAXONOMY

Introducing the most important taxonomic terms for plant, classification systems, naming rules, the most important diagnostic characteristics of plant families, and identifying the diagnostic characteristics of monocotyledonous and dicotyledonous families.

203 / PLANT TAXONOMY

A study of the most important factors affecting plant growth, soil properties and components, types of soils in Iraq, important characteristics of plant communities, as well as characteristics of plant families.

E 207 / PLANKTON AND PRODUCTIVITY

This course aims at teaching students how to identify plant and animal plankton, their types, classification, environmental and economic importance, their distribution in the environment, and the environmental factors affecting them. Topics covered will include the methods for measuring the productivity of plankton.

E 208 / BIODIVERSITY AND SUSTAINABLE DEVELOPMENT

The course works on studying the ecosystem's components and the importance of the biodiversity and its levels in the stability of ecosystems, according to the variety of species. The course emphasizes the use of essential common indices in calculating biodiversity. Also, identify the primary and secondary succession and its types.

E 209 / MICROBIAL ECOLOGY

This course aims to increase the knowledge of the students in basic groups of microorganisms in the environment, and Identifying how microorganisms affect the different parts of the environment and how they are affected by it, also identify the role of the microorganism in different environments and knowing the effect of various environmental factors on the presence of microorganisms in the environment, finally knowing the harms and benefits of microorganisms in different environments and how to harness them for the benefit of humans

E 210 / ENVIRONMENTAL CHEMISTRY

The student can identify the sources of chemicals in the air, water, soil, images, and forms in which these materials are present in these environments and their interactions, transformations and effects on the living and the ultimate destiny of these materials in the environment. And cycles of some essential elements of biology and the environment.

THIRD STAGE

E 303 / SEPARATION METHODS AND INSTRUMENTAL ANALYSIS

The course aims to learn student's different types of chemical analysis and show the importance of different methods of compounds identification. Understand the principles of work of instrument used to identification of chemical compounds. Recognize the ability of each instrument to identify a specific group of different chemical compounds. Knowledge of the important modern instrument used in the identification of compounds, elements and environmental toxins.

E 304 / WETLAND ECOLOGY

The course works on identify the types and classification of wetlands in the world and study their characteristics and factors affecting the existence of living organisms and the environmental stress to which the revival of wetlands and their adaptations to resist change in environmental factors and identify the importance of wetland functions and biodiversity in them.

E 314 / NATURAL RESOURCES AND ENERGY RESOURCES

The student's ability to identify the importance of natural resources and ways to sustain them, as well as identify the types of renewable and non-renewable energy sources and how to obtain new sources of energy.

E 333 / METEOROLOGY

This course of meteorological give the student general knowledge of the components and characteristics of the atmosphere surrounding the Earth and knowledge of how weather phenomena arise in the atmosphere and what are the causes of climate changes and various weather phenomena. Also, identify the components and characteristics of the atmosphere. Identify the changes in weather and climate elements as a function of time and place.

E 347 / MICROBIAL POLLUTION

This course aims to increase the knowledge of the students in basic aggregates of microorganisms that pollute the environment, and understand how microorganisms affect the different parts of the environment. Also identify the role of the microorganism which polluting the different environments. Studying the effect of various factors on microbial contamination in the environment, and how to identify the pollution produced by microorganisms in different environments, and the damage produce from this microbial contamination and how we can prevent or decrease these damages.

E 351 / WATER TREATMENT TECHNOLOGY

This course aims to give knowledge on how to obtain clean water in a clean environment and identify the methods of treatment in the environment of water and how to benefit from it in our daily life. Also, identify the devices used in purification in different environments.

E 356 / AQUATIC MACROPHYTE

The course works on the basic groups of aquatic plants in fresh and marine aquatic ecosystems The student's ability to identify the groups of aquatic plants in the environment, their environmental role, and how to benefit from them in treating the environment. Identifier, description and classification of aquatic plants prevalent in Iraq.

FORTH STAGE

E401 / WASTE TREATMENT AND RECYCLING

The course aims to teach the student's how to manage solid waste and reuse or recycle it using scientific methods in the environment and how to benefit from it in our daily life. Understand how waste affects the different environment and how it is affected by it. Give the knowledge on the environmental role that waste plays in different environments and its effects on humans and health.

E 410 / ECOPHYSIOLOGY

The course aims to teach students the most important environmental factors such as temperature, humidity, gases, osmotic pressure, ion exchange, intensity of lighting, and how they affect the performance of the various functions of an organism. As well as the most important behavioral and functional adaptations that these organisms make to acclimate to those environmental conditions. The course also aims to teach students how to make various measurements of environmental factors and conduct practical experiments to apply the effect of these factors on the functional performance of some living organisms.

E 421 / ECOTOXICOLOGY

The course aims to teach the student the totals of toxic compounds in the environment, their environmental role, how they affect living organisms and humans, and how to reduce their toxic effects and get rid of their toxicity. It also aims to mention the most important environmental problems and phenomena of knowing the harms of toxic compounds to humans and their various body systems.

E 450 / PARASITIC PLANTS

The course aims to teach the student the groups of parasitic plants and how to identify the role of parasitic plants in ecosystems. Moreover, focusing on the role of parasitic plants in the environment, their environmental role, how to benefit from them in treating the environment, what are their harms, and how to get rid of them. Knowing the economic importance of parasitic plants in terms of benefits and harms.

E 456 / PHYTOTECHNOLOGY

The course aims to teach the student's ability to identify the plant methods or techniques used in the environment for biological treatment and how to benefit from them in our daily life. Studying the environmental role of plants in reducing pollution and the effect of various environmental factors on the presence of microorganisms in the environment and their participation with plants for treatment.



E 465 / REMOTE SENSING

The course aims to teach the student's remote sensing and gives the student general knowledge of the characteristics and advantages of remote sensing and what are the benefits and scientific applications of this applied science. As well as identifying the types of these systems, the electromagnetic spectra used in these systems, air windows, types of targets, and methods of data analysis