Diyala University
جامعة ديالى

First Cycle – Bachelor's Degree (B.Sc.) – Biology
بكالوريوس – علوم الحياة

September, 2024

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1. Overview

This catalogue is about the courses (modules) given by the program of Biology to gain the Bachelor of Science degree. The program delivers (12) Modules with total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظره عامة

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج علوم الحياة للحصول على درجة بكالوريوس في العلوم ويقدم البرنامج (12) مادة دراسية مع إجمالي ساعات حمل الطالب و 240 إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

2. Undergraduate Courses 2024-2025

Module 1

Code	Course/Module Title	ECTS	Semester
Bio-2311	Entomology I	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	50
Description			
The course is an introduction to the study of insects. Topics include insect classification, evolutionary diversity, biology, ecology, behaviour, and various applied aspects. Through this survey of the insects, students will gain an appreciation of insect biodiversity as well as their economic and ecological importance.			

Module 2

Code	Course/Module Title	ECTS	Semester
Bio-2312	Plant Anatomy	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	50
Description			
The course begins with plant anatomy start different plant cells and plant tissues will be studied. After that the anatomy of different plant organs will be studied. Also, to provide students with skills necessary to section and stain fresh plant material in preparation for study of plant anatomy. To train students in the proper use of the compound light microscope and to give them experience in interpreting images that they see through the microscope in terms of how plant structure is related to function. In the beginning of the course the students also start long term experiments, which is continue for several weeks. These long term experiments demonstrate some of the plant physiology aspects regarding photosynthesis, transport and growth regulation. Additionally, this course lead to instill in students an appreciation for the complexity of tissue organization that exists within plant bodies that allow plants to develop and live as integrated organisms in diverse environments.			

Module 3

Code	Course/Module Title	ECTS	Semester
Bio-2313	Invertebrates	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	42
Description			
Invertebrate Zoology is a course designed to Comparative study of invertebrates: taxonomy, structure, physiology, reproduction, evolution, and behavior of the animals which lack a backbone Describe common and distinctive features of invertebrate phyla, including poriferans, cnidarians, platyhelminthes, nematodes, molluscs, annelids, arthropods, and echinoderms. Discuss distinctive features of taxonomic classes within the phyla covered. Explain phylogenetic relationships between the phyla covered. Describe important concepts in invertebrate body structure and organization, including body symmetry, cephalization, body cavity, gut formation, segmentation. Describe important biological processes in invertebrates, including locomotion, body support, reproduction, development, feeding, digestion, excretion, osmoregulation, circulation, respiration, sensory perception, behavior. The laboratory section is series of showing and describing some models and hands-on dissections of the larger invertebrates, microscopic work on the smaller invertebrates, and observations of form, function, and behavior of live representatives. Group learning is stressed in the lab, with groups usually being composed of 3-4 students. This eases the amount of work for each individual student, and leads to a more interactive group in general.			

Module 4

Code	Course/Module Title	ECTS	Semester
Bio-2314	Plant Groups	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	46
Description			
An overview of the diversity and biology of organisms traditionally included in the Plant Kingdom: algae, fungi, lichens, mosses, ferns, gymnosperms and flowering plants. These groups will be presented in a “tree of life” evolutionary perspective. The relationship between structural and functional adaptations in plants and how these have influenced their survival and evolution in various ecosystems. Symbioses and co-evolutionary relationships among different kinds of plants, and with other groups of organisms, are also considered. The importance of different plant groups to humans and the environment is discussed throughout the course.			

Module 5

Code	Course/Module Title	ECTS	Semester
Bio-2315	Biochemistry I	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	50
Description			
This course is designed to introduce students to the basic concept of Biochemistry as a discipline. Foundational topics such as the definition and scope of Biochemistry, cell, acidity and alkalinity and the properties and biological functions of the major biomolecules (carbohydrates, proteins, lipids and nucleic acids) will be covered.			

Module 6

Code	Course/Module Title	ECTS	Semester
Bio-2316	Microbiology I	5	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	50
Description			
This course offers a comprehensive study of the field of microbiology to science majors. The course will give detailed insights into five major themes: Structure and function of microbes (cellular structures, metabolism, and growth); microbial genetics, microbial ecology, microbial diversity (prokaryotes, eukaryotes, viruses) and clinical microbiology (immunity, pathogenicity, epidemiology, control of microbes, and diseases). Students are expected to participate in active learning activities and participate in class discussion to deepen their understanding of the microbial world and apply their knowledge to various concepts.			

Module 7

Code	Course/Module Title	ECTS	Semester
Bio-2411	Entomology II	5	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	65
Description			
The course is an introduction to the study of insects. Topics include insect classification, evolutionary diversity, biology, ecology, behaviour, and various applied aspects. Through this survey of the insects, students will gain an appreciation of insect biodiversity as well as their economic and ecological importance.			

Module 8

Code	Course/Module Title	ECTS	Semester
Bio-2412	Plant Taxonomy	5	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	60
Description			
This course will introduce the student to plant classification using a Systematics (evolutionary origin and relation of plant groups) and Taxonomic (naming plants based hierarchical and categorical criteria) approach. The course mainly focuses on vascular and more specifically flowering plants, an important group that dominates most of Earth's terrestrial ecosystems and has provided many services to humans and many other life forms throughout our planet's history. During the course, students will be introduced to concepts and the construction of plant phylogenies, the diversification and evolution of plant species, and will be provided with an overview of important features used to identify and differentiate vascular plants. Students will develop an understanding of the phylogenetic arrangement of plant groups from around the world, and the main structural and biochemical characteristics, evolution, economic value, and ecological value for each group.			

Module 9

Code	Course/Module Title	ECTS	Semester
Bio-2413	Parasitology	5	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	77	60
Description			
This course introduces students to the field of parasitology. Topics covered include parasite diversity, life cycles, host defense mechanisms, parasite evasion, host pathology, ecology, evolution, and control. The laboratory component of the course will examine parasites of medical and veterinary importance.			

Module 10

Code	Course/Module Title	ECTS	Semester
UD24	Extinct Baath Party Crimes	2	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
1		17	17
Description			
تسليط الضوء على الجرائم التي ارتكبها حزب البعث في العرق والمنطقة الاقليمية والعالم.			

Module 11

Code	Course/Module Title	ECTS	Semester
Bio-2414	Biochemistry II	6	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	65	65
Description			
Topics include biological molecules, protein structure and enzyme action, energy transfer, central metabolic pathways and their regulation. This course discusses the biochemical methods for the diagnosis of different metabolic disorders of human body that occur from different diseases. Topics include the role of plasma enzymes, plasma proteins, carbohydrates, lipids, and hormones in diagnosis, monitoring, and prognosis. Kidney function tests, liver function test and tumor markers are also covered in this course.			

Module 12

Code	Course/Module Title	ECTS	Semester
Bio-2415	Microbiology II	7	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	65	65
Description			
This course offers a comprehensive study of the field of microbiology to science majors. The course will give detailed insights into five major themes: Structure and function of microbes (cellular structures, metabolism, and growth); microbial genetics, microbial ecology, microbial diversity (prokaryotes, eukaryotes, viruses) and clinical microbiology (e.g. pathogenicity, control of diseases). Students are expected to participate in active learning activities and participate in class discussion to deepen their understanding of the microbial world and apply their knowledge to various concepts.			

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