Diyala University
جامعة ديالى

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

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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-1101	General Zoology	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	79	71
Description			
A survey of the animal kingdom and animal-like protists from an evolutionary perspective. Major lines of evolution will be traced as characteristics of each animal group are compared and contrasted. The taxonomy, diversity, anatomy, physiology, behavior and ecology of all major animal phyla will be studied along with several minor phyla with an emphasis on the functional anatomy of each group. Laboratory skills will include developing a facility with manipulation of wet mount and prepared slides and dissections under the microscope and dissecting microscope.			

Module 2

Code	Course/Module Title	ECTS	Semester
Bio-1102	Analytical Chemistry	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	79	71
Description			
Analytical chemistry considered one of the fundamental branches of chemistry, in the last decades analytical chemistry has experienced continuous growth in other scientific areas. Drifting away from its “standard” domain, it has found applications in other disciplines, with a particularly strong impact in the life sciences. Analytical chemistry involves the separation, identification, and quantification of analytes in a given sample under investigation. Information is obtained in different ways, often complementary: through qualitative analysis that identifies whether a substance is present or not, while its amount is determined through quantitative analysis.			

Module 3

Code	Course/Module Title	ECTS	Semester
Bio-1103	General Mathematics	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	62
Description			
After successfully completing this subject students should be able to: Have knowledge of content and understanding of mathematical concepts and relationships. Use mathematical algorithms and techniques (implemented electronically where appropriate) to find solutions to routine and complex questions. Apply knowledge and skills to answer questions in applied and theoretical contexts. Apply mathematical models to data in order to make predictions. Develop solutions to mathematical problems set in applied and theoretical contexts. The aim of the General Mathematics course is to prepare students for tertiary study in a variety of areas where an ability to critically analyse information and work with data is inherent. Students with tertiary pathways into areas such as Health, Science, would benefit from studying this course.			

Module 4

Code	Course/Module Title	ECTS	Semester
Bio-1104	Biophysics	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	37
Description			
Biophysics is a quantitative science at the intersection of the life and physical sciences. It requires a significant level of competence in physics, chemistry, biology and math as reflected in the concentration requirements. Explore the relationship between biological and physical principles by successfully completing foundational courses in biology, physics, math and chemistry Gain an in-depth knowledge of the interdisciplinary nature of life and physical sciences by selecting and successfully completing advanced courses in biology, physics, math, chemistry or related fields Develop skills to identify and analyze critical questions central to biophysics Apply quantitative methods to problems at the interface of life and physical sciences Complete a research project with a faculty advisor that focuses on a particular theme or problem in the field of biophysics where students apply knowledge gained throughout the curriculum.			

Module 5

Code	Course/Module Title	ECTS	Semester
Bio-1105	Human Rights and Democracy	3	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	1	48	27
Description			
The Human Rights and Democracy course explores the fundamental concepts, theories, and practices of human rights and democracy. It provides a comprehensive understanding of the principles and mechanisms that promote and protect human rights, as well as the significance of democracy in ensuring a just and inclusive society. The course covers topics such as the historical development of human rights, international human rights frameworks and institutions, the interplay between human rights and democracy, and contemporary challenges in the field. Students analyze case studies, engage in critical discussions, and examine real-world examples to gain a deeper			

appreciation of the importance of human rights and democracy in fostering social justice, equality, and dignity for all individuals.

Module 6

Code	Course/Module Title	ECTS	Semester
Bio-1106	Arabic Language	4	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	37
Description			
The Arabic Language course introduces students to the rich and diverse world of the Arabic language and culture. It covers the fundamental aspects of Arabic, including grammar, vocabulary, reading, writing, listening, and speaking skills. Students learn to read and write in Arabic script, understand basic grammar rules, and develop conversational skills. The course also explores the cultural aspects of the Arab world, including traditions, customs, and literature. Through engaging activities, interactive exercises, and language practice, students gradually develop proficiency in Arabic, enabling them to communicate effectively in both formal and informal settings. The Arabic Language course provides a foundation for further exploration of the Arabic language and deepening cross-cultural understanding.			

Module 7

Code	Course/Module Title	ECTS	Semester
Bio-1201	General Botany	7	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	79	96
Description			
This course is designed for the biology major and is a comprehensive introduction to the plant kingdom including the following topics: life history, reproduction, structure, and physiology. A laboratory is included and involves self-paced microscopic and macroscopic analysis of living and preserved specimens.			

Module 8

Code	Course/Module Title	ECTS	Semester
Bio-1212	Organic Chemistry	7	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	3	79	96
Description			
Introduction to organic chemistry, with emphasis on the properties of organic compounds of biochemical importance. comprehensive course that introduces the students to the fundamental principles of organic chemistry including relationships between the molecular structure of organic compounds and their macroscopic properties. Some of the principles are illustrated with a variety of examples from nature and everyday life. The course covers the following topics: alkanes; alkenes, including polymers; alkynes; benzene and aromaticity; alcohols and phenols; ethers; aldehydes; ketones; carboxylic acids and their acyl derivatives; amines; alkyl halides; nomenclature; stereochemistry, including conformational analysis and chirality. Chemical reactions of the functional groups will be discussed along with the mechanistic details, including stereospecificity, of some of these processes.			

Module 9

Code	Course/Module Title	ECTS	Semester
Bio-1213	Biostatistics	5	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	2	63	62
Description			
The main objective of this biostatistics program is to give primer biostatical concepts and methodological key to comprehend public health data analysis of a public problem whatever the topics. More precisely, this course covers the basic tools for the analysis and presentation of data. Each concept will be presented during a short lecture and followed by an application including exercises, cases study, articles/report discussion and data analysis on computers. Those applications cover different public health topics. The data analysis is carried out using Excel, STATA or R.			

Module 10

Code	Course/Module Title	ECTS	Semester
Bio-1204	Safety and Biosecurity	3	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	1	48	27
Description			
This course including project risk assessment, exposure control and emergency procedures. A thorough understanding of the course material aids in the prevention of laboratory accidents and laboratory associated infections. Covered topics include: History of biosafety microbiology and molecular biology Risk assessment Biosafety levels Personal protective equipment Laboratory facilities and safety equipment Disinfection, decontamination, and sterilization Regulatory compliance Laboratory security and emergency response			

Module 11

Code	Course/Module Title	ECTS	Semester
Bio-1205	Computer Science	4	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	64	36
Description			
Through the development of new applications in science, engineering, and business, Computer Science is radically changing the way in which we experience our world. This programme equips students with the skills needed to contribute to this exciting and rapidly evolving field. Computer Science is our most flexible programme, allowing you to choose course units to reflect your developing and changing interests. Furthermore, a wide range of themes from across the discipline allow you to specialise in the second and third years. You will gain not only knowledge			

and practical experience of the latest technologies, but also a grounding in the underlying principles of the subject. It is this combination of skills that enable our graduates to keep pace with this fast moving subject, and secure rewarding careers that can be pursued almost anywhere in the world.

Module 12

Code	Course/Module Title	ECTS	Semester
Bio-1206	English Language	4	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	37
Description			
The English Language course is designed to enhance students' proficiency and fluency in the English language. It covers various aspects of English, including grammar, vocabulary, reading comprehension, writing, listening, and speaking skills. Through engaging activities, students develop a strong command of the language, enabling them to effectively communicate and express themselves in both academic and real-life situations. The course focuses on improving students' comprehension of written and spoken English, enhancing their writing skills, and fostering critical thinking and analytical abilities. Additionally, it may explore cultural aspects of the English-speaking world, helping students understand and appreciate different perspectives. The English Language course equips students with the tools and confidence to communicate fluently and successfully in English.			

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