Meddle East University College
كلية الشرق الاوسط الجامعة

First Cycle – Bachelor's Degree (B.Sc.) - Biology

بكالوريوس – علوم حياة

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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 (46) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظره عامه

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج قسم علوم الحياة للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (٤٦) مادة دراسية مع (٦٠٠٠) إجمالي ساعات حمل الطالب و ٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

2. Undergraduate Courses 2023-2024

Module 1

Code	Course/Module Title	ECTS	Semester
BIO-111	General Zoology	8	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/2/0/1	94	106
Description			
Zoology course covers three main themes: Comparative physiology - the functional characteristics of animals ; Evolutionary biology - how animals adapt to their environment, and their genetics, Behaviour, ecology and conservation - how animals interact with their environment and each other to support biodiversity on the planet. Alongside your specialist zoology modules, you'll have the flexibility to study topics across the breadth of biology to complement your knowledge. These modules are available from your first year. Topics range from ecology and molecular genetics that underpin conservation, to pharmacology, neuroscience and even human physiology. This flexibility allows you to study zoology in greater depth, broaden your interests or even switch to another biosciences degree program.			

Module 2

Code	Course/Module Title	ECTS	Semester
BIO-112	Analytical Chemistry	7	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/2/0/1	94	81
Description			
The chemical separation methods course is determined according to the study plan prepared in the Applied Chemistry Department. The course aims to introduce students to the general concepts of chemical separation methods used in chemical measurements. It also aims to study in detail the types of separation methods that depend on physical or chemical properties, as well as extraction processes, purification of drinking water, fractional distillation of crude oil products, and purification of medical and chemical extracts used in daily life. It helps the student to know the composition of these materials, including medicines and extracts, separating components from their raw materials, how reactions occur, and the measurement mechanism.			

Module 3

Code	Course/Module Title	ECTS	Semester
BIO-113	General Mathematics	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/0/0/2	63	62
Description			
Mathematics is a very active and fast growing interdisciplinary area in which mathematical concepts, techniques, and models are applied to a variety of problems in developmental biology and biomedical sciences. Many biological processes can be quantitatively characterized by differential equations. This course introduces you to a variety of models mainly based on ordinary differential equations and techniques for analyzing these models. Mathematical concepts on nonlinear dynamics and chaos will be introduced. Use and interpret different types of data in biology. Apply knowledge of sampling to test hypotheses about problems. Interpret the results of analysis and communicate them in a clear, concise and appropriate manner. Discuss the principles of biology aspects and relate these to the decision-making and studies and the interpretation of results.			

Module 4

Code	Course/Module Title	ECTS	Semester
BIO-114	Biophysics	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/2/1/0	64	86
Description			
Biophysics is Identify the foundations and systems of physics and link them to daily life activities and human activities. Knowledge of vector and scalar quantities and the basic units of physics. Study and transform vectors, and addition, subtraction and multiplication of vectors. Study of movement in one dimension and calculate the acting forces and their resultant. Study of simple harmonic motion, heat, heat quantity, friction, electricity, energy, and work, and their relationship to living organisms.			

Module 5

Code	Course/Module Title	ECTS	Semester
UNI-111	Human Rights and Democracy	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/0/0/0	33	17
Description			
زيادة معرفة الطالب بالجانب المفاهيمي النظري والتطور التاريخي لمادة حقوق الانسان والديمقراطية. تنمية مهارات الطالب التحليلية والنقدية فيما يتعلق بواقع ومستقبل حقوق الانسان والديمقراطية، تدريب الطالب على اهمية المشاركة الفاعلة في جوانب الحياة العامة كتعزيز احترام مبادى حقوق الانسان العامة والمشاركة الفاعلة في الحياة السياسية والثقافية. تمكين الطلاب من فهم اهمية التعليم ودوره في نشر ثقافة حقوق الإنسان والديمقراطية في بناء مجتمع حضاري يقوم على أساس الحكم الصالح الذي من اهم مقوماته الإيمان بحقوق الإنسان والتربية عليها والمشاركة الفاعلة في الحكم عبر الانتخابات الحرة والعادلة.			

Module 6

Code	Course/Module Title	ECTS	Semester
UNI-101	English language	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/0/0/0	32	18
Description			
The course aims to develop communicative competence in English for intercultural contexts by teaching language items and communicative strategies essential for such scenarios, while at the same time giving students ample chances to output such items. The aims of this course are reflected in the content, which contains several themes, such as cultural awareness, intercultural awareness and English as a global language. Indicative content includes understanding the uniqueness of your own culture and other cultures, as well as being aware of the role culture plays in communication in English as a global language. In addition, this course allows for discussions about what it means for English to be a global language of communication and how misunderstandings and miscommunications when using English occurs. The course also includes practice in the pronunciation features that help improve intelligibility in intercultural contexts.			

Module7

Code	Course/Module Title	ECTS	Semester
Bio-121	General Botany	8	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/2/0/1	94	106
Description			
General Botany Giving the student a historical overview of botany and its branches and The relationship of botany to other sciences. And study the benefits of the plant for life and the environment, botany components, types and locations. we teaching the student the nature of plant growth and its diagnosis and Knowing the parts of a plant through its apparent appearance, the different parts of the plant from an anatomical perspective. The student will gain experience in the process of diagnosing plants according to different families, knowing the external appearance of each part of the plant, and introducing the student to the anatomical sections of the different parts of the plant and using the microscope.			

Module 8

Code	Course/Module Title	ECTS	Semester
BIO-122	Organic Chemistry	7	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/2/0/1	79	96
Description			
Organic Chemistry contains the types of bonds in organic compounds and the methods of preparation, properties and reactions of alkanes and alkynes and alkyl halides, alcohols, and carboxylic acids the types of hybridization and chemical bonds in organic compounds. Organic Chemistry take formations about how to write reaction equations and preparation methods for some of the studied compounds and the name the organic compounds studied in the course according to international rules and take a knowledge of methods for preparing the organic compounds studied theoretically and practically and methods for separating and purifying organic materials theoretically and practically.			

Module 9

Code	Course/Module Title	ECTS	Semester
BIO-123	Biostatistics	6	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	1/0/0/2	63	87
Description			
Biostatistics contain the types of distributions and focus on the normal distribution of data and determine the sufficient number of samples according to the data dispersion system. Biostatistics take the Knowledge of the most important statistical tests used in biological research and Enabling the student to choose the appropriate statistical analysis for the research problem and conduct factorial and non-factorial tests. The skill of applying what the student learns during the course in his future professional life and Skill in analyzing variation in biometrics			

Module 10

Code	Course/Module Title	ECTS	Semester
Bio-124	Safety and Biosecurity	4	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	1/0/0/0	48	52
Description			
Biosafety is the discipline that addresses the safe handling and containment of infectious microorganisms and hazardous biological materials. This includes how we handle animals, plants, cell culture, bacteria, viruses, fungi, parasites and public health crisis such as CoVID-19. Biosafety goal is to reduce or eliminate exposure of lab personnel, the community and the environment to potentially infectious or hazardous agents and this is achieved via the principles of containment and risk assessment. In addition, Biosecurity is defined as the strategic approach to analyzing and managing risks to human health, animal and plant life and the associated risks to the environment. It is based on recognition that hazards have the potential to be deliberately or accidentally misused resulting in harm. Specifically, laboratory biosecurity is a set of systems and practices employed in research facilities to protect microbial agents from loss, theft, diversion or intentional misuse.			

Module 11

Code	Course/Module Title	ECTS	Semester
UNI-103	Computer Science	3	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
1	1/2/1/0	49	26
Description			
Computer Science is the study of computers and computational systems, in which computer scientists deal mostly with software and software systems; this includes their theory, design, development, and application. Principal areas of study within Computer Science include Microsoft Word, Excel, PowerPoint, artificial intelligence, computer systems and networks, security, database systems, human computer interaction, vision and graphics, numerical analysis, bioinformatics and theory of computing			

Module 12

Code	Course/Module Title	ECTS	Semester
UNI-102	Arabic Language	2	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem.)**	**USWL (hr/w)**
2	2/0/0/0	32	18
Description			
تنمية معارف الطلبة للغة العربية، وأهميتها لهم. وأن يتعرف على شرح بعض سور القرآن الكريم، ويحفظها. تعرف الطالب على تاريخ الأدب، وأهم مراحل تطوره. الاطلاع على شعراء لم يسبق للطالب التعرف عليهم، أن يضبط الطلبة كتابة الأملاء وعلامات الترقيم. القدرة على الحفظ والاستذكار، الموازنة بين لغة ادب العصر المذكور والآداب الاخرى. المشاركة الجماعية للمحتويات الادبية للمادة القدرة على تقديم المقترحات وحل المشكلات. أن يجمع الطالب كم كبيرا من المفردات والمعاني وأن يتعلم طريقة البحث في المعاجم والقواميس العربية.			

Contact

Program Manager:
Saleh Abdul Kader Alessa | Ph.D in Freshwater biology | Prof.
Email: dr.salehalessa@gmail.com
Mobile no.: 07801443178

Program Coordinator:
Farid M. Mahdi | M.Sc. in Physics | Assistant Prof.
Email: Fareedm1969@gmail.com
Mobile no.: 07901728530