Tikrit University
جامعة تكريت

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

بكالوريوس – علوم رياضيات

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1. Overview

This catalogue is about the courses (modules) given by the program of Mathematics Sciences to gain the Bachelor of Sciences degree. The program delivers ( ) 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 علوم الرياضيات للحصول على درجة بكالوريوس العلوم. يقدم البرنامج ( ) مادة دراسية، على سبيل المثال، 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
-	Human Rights	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	32	18
Description			
القدرة على ادراك المفهوم الاساسي لحقوق الانسان والطفل . القدرة على فهم الاصول التاريخية للمفهومين .ومعرفة ايجابيات وسلبيات حقوق الانسان. الاطلاع على حقوق الانسان والطفل في الاسلام. التعرف على مصادر حقوق الانسان والطفل وخصائصها وسماتها . معرفة اثر التطور التكنولوجي على حقوق الانسان والطفل . التطرق لمفاهيم ذات صلة بالمصطلحين مثل (العولمة، مؤسسات المجتمع المدني .الانتخابات والاستفتاء ، الحكم الرشيد ، الجرائم الانسانية، الدستور). الاطلاع على الضمانات التي تكفل حقوق الانسان والطفل.			

Module 2

Code	Course/Module Title	ECTS	Semester
-	Arabic Language	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	32	18
Description			
تقييح القدرج اللغيح لدي الطلاب. اكتساب الطالة الوعرفح الكاهلح لأسس اللغح العرتيح وإكساتهن هعارج التعثير الصحيح. توضيح اهمية الشعر العربي في بيان القواعد النحوية للغة. تقوية ملكة الطلاب الأدبية لتذوق أساليب اللغة وإدراك مواطن الجمال فيها .هعرفح القناعد الأساسيح القدرج عل استخداهها وتطثيقها.			

Module 3

Code	Course/Module Title	ECTS	Semester
-	General Physics	4	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	1	63	37
Description			
القدرة على ادراك المفهوم الكميات العددية والمتجهة. القدرة على فهم مفهوم القوة وانواعها . يعرف مفهوم القصور الذاتي في الحركة .التعرف على قوانين الحركة لنيوتن .معرفة مفهوم الاحتكاك وانواعه.			

Module 4

Code	Course/Module Title	ECTS	Semester
MATH101	Topic in Mathematics	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
4	1	78	72
Description			
Acquisition of the student to the concept of phrases and mathematical logic and ways to deal with them algebraically. Clarifying the concept of groups, relationships, functions and the links between them and the theories related to them. Giving the student experience in dealing with matrices of all kinds and performing various operations on them.			

Module 5

Code	Course/Module Title	ECTS	Semester
MATH102	Foundation of Mathematics I	8	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
5	1	93	107
Description			
It is highly beneficial that students master previous mathematics concepts, applications, and skills, prior to learning algebra and other higher level mathematical courses such as: The student's acquisition of the concept of statements, mathematical logic,and methods of dealing with them algebraically. Clarifying the concept of groups, relationships, applications, types and theories related to them. Giving the student experience in dealing with basic numbers. Knowledge of the origin of natural numbers.			

Module 6

Code	Course/Module Title	ECTS	Semester
MATH103	CalculusI	8	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
5	1	93	107
Description			
The goal of studying differential calculus at university is to enable students to gain a deep understanding of this fundamental element of mathematics and its applications in different fields. By studying differential calculus, students learn how to calculate derivatives and understand the			

concept of a derivative as the instantaneous rate of change of a function. Students can apply the concepts of calculus to solve practical problems, analyze the behavior of functions, determine critical points, least and largest values of functions, and estimate changes of variable quantities. In addition, the study of differential calculus provides a foundation for the study of other topics in mathematics, science, and engineering, such as integration, calculus in multiple variables, and the solution of differential equations. Learning differential calculus aims to develop students' analytical thinking and mathematical reasoning capabilities and provide them with powerful mathematical tools to deal with complex technical and scientific problems.

Module 7

Code	Course/Module Title	ECTS	Semester
-	Democracy and Freedom	2	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	32	18
Description			
القدرة على ادراك المفهوم الاساسي لديمقراطية. القدرة على فهم الاصول التاريخية للمفهومين .ومعرفة ايجابيات وسلبيات الديمقراطية. الاطلاع على الديمقراطية في الاسلام .التعرف على مصادر وخصائص وسمات الديمقراطية. معرفة اثر التطور التكنولوجي على الديمقراطية .التطرق لمفاهيم ذات صلة بالمصطلح مثل (العولمة، مؤسسات المجتمع المدني ، الانتخابات والاستفتاء ، الحكم الرشيد ، الجرائم الانسانية، الدستور) . الاطلاع على الضمانات التي تكفل النظام الديمقراطي والحقوق والحريات العامة.			

Module 8

Code	Course/Module Title	ECTS	Semester
-	English Language 1	2	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	32	18
Description			
The module aims at: improving written skills through practice of writing descriptions, reports and other subject specific texts. Improving spoken interaction and production through the practice and production of presentations of science-related topics. Getting some specific terminology needed to study Mathematics. Developing grammatical and lexical range and accuracy so that communication has a degree of fluency.			

Module 9

Code	Course/Module Title	ECTS	Semester
-	Computer Applications	4	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	1	63	37
Description			
Develop a deep understanding of the fundamental concepts and principles of computer applications. Enable students to use computers effectively in their study. Instill a sense of ethical responsibility in conducting research and reporting results accurately by using the computer. Equip students with the knowledge and skills to make informed decisions in their jobs in the future. Prepare students for advanced studies in other fields, as well as for careers that require a strong foundation.			

Module 10

Code	Course/Module Title	ECTS	Semester
MATH104	Linear Algebra	6	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
5	1	93	57
Description			
To develop students' understanding of vector spaces and their properties. To provide students with the tools and skills necessary for solving systems of linear equations. To enhance students' ability to manipulate and perform operations on vectors and matrices. To introduce students to the concept of linear transformations and their applications. To develop students' understanding of eigenvalues and eigenvectors and their role in various applications. To provide students with the knowledge and skills to perform matrix computations, such as matrix factorizations. To develop students' ability to apply linear algebra in real-world problems and applications, such as data analysis, computer graphics, and optimization. To enhance students' mathematical reasoning, logical thinking, and problem-solving skills. To prepare students for advanced courses in mathematics, physics, engineering, computer science, and other disciplines where linear algebra plays a significant role.			

Module 11

Code	Course/Module Title	ECTS	Semester
MATH105	Foundation of Mathematics II	8	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
5	1	93	107

Description
It is highly beneficial that students master previous mathematics concepts, applications, and skills, prior to learning algebra and other higher level mathematical courses such as: That the student be acquainted with the most important basics of mathematics, such as its mathematical systems, how to build them, and the relationship between them. The student will be familiar with the establishment of the integral numbers. The student will be familiar with the construction of rational, real and complex number fields. The student realizes the basis of the operations he performs on numbers, especially the integral numbers, through studying his introduction to the theory of numbers

Module 12

Code	Course/Module Title	ECTS	Semester
MATH106	Calculus	8	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
5	1	93	107
Description			
Understanding the basic concepts: The study of differential and integral calculus aims to enhance students' understanding of the basic concepts in this mathematical field. Students learn about derivatives, integrals, and mathematical functions and how to interpret and use them to solve mathematical problems. Developing arithmetic skills: Studying differential and integral arithmetic works to develop students' arithmetic skills. Students learn how to calculate derivatives and integrals and solve problems related to calculus. Practical Applications: Studying differential and integral calculus helps in introducing students to the practical applications of this course in different fields. Students learn how to use calculus to solve problems in physics, engineering, economics, and other fields. Developing mathematical thinking: Studying differential and integral calculus develops students' abilities in mathematical thinking and analysis. Students learn how to apply mathematical concepts in solving complex problems and understand the relationships between variables.			

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