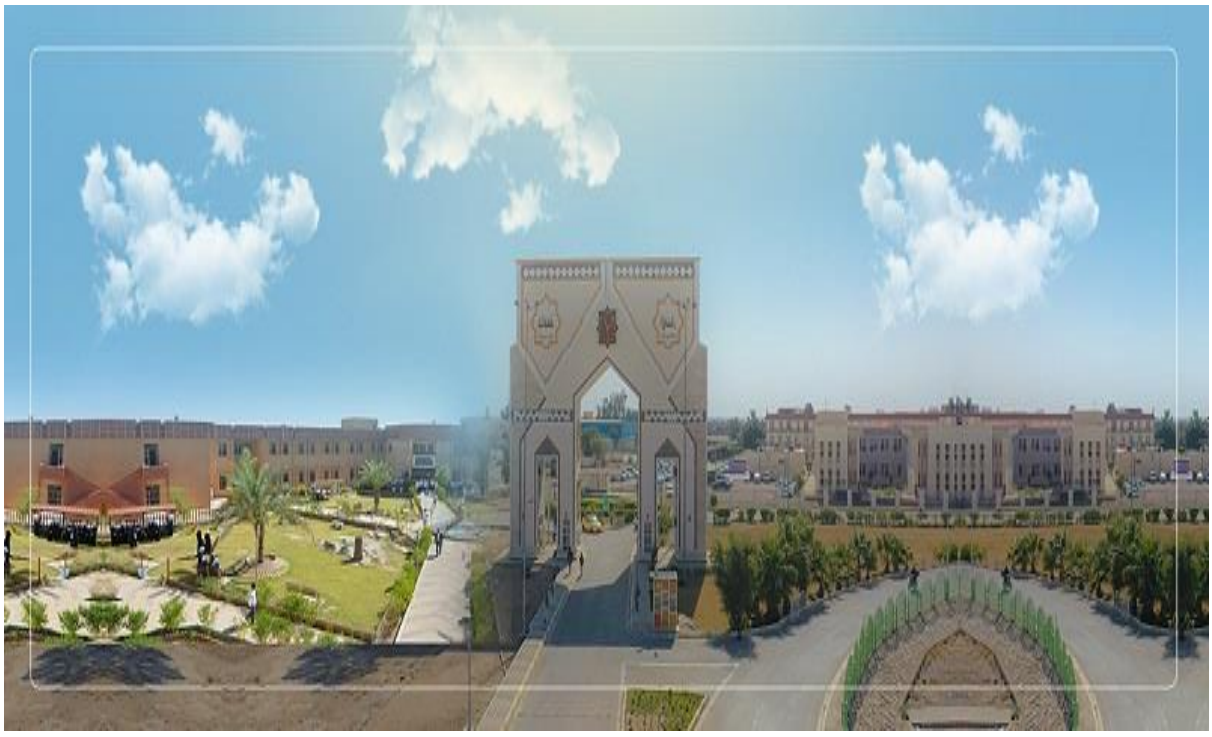
University of Anbar

جامعة الانبار

First Cycle – Bachelor's degree (B.Sc.) – Mathematical

بكالوريوس علوم - علم الرياضيات



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1. Mission & Vision Statement

Vision Statement

The department aspires to be a pioneer in the field of pure and applied mathematics His interest is focused on developing his capabilities in various fields that serve the scientific process In order to enrich the knowledge society, as its vision is to develop the incoming human energies To keep pace with modern cognitive developments in our time through teaching thinking Scientific methodology behavior and application

Mission Statement

The mission of the Department of Mathematics is a reflection of the mission of the university and the college. It consists His mission is to prepare qualified people in the field of specialization and provide them with the principles of knowledge and thinking Scientific, logical and scientific research skills in mathematical sciences are the necessary skills For future communication with the community in various fields of work, both theoretical and applied. The department also seeks to actively contribute to raising the country to the ranks of developed countries During his graduation, qualified and distinguished cadres in the fields of pure and applied mathematics and in various fields Primary and higher certificates.

Program Specification .2

Programme code:	BSc-MITH	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

Mathematical science is a broad field that encompasses the study of mathematics and its applications to other fields, such as physics, engineering, and computer science. Mathematicians use their knowledge of logic, reasoning, and problem-solving to develop new theories and techniques, and to apply existing knowledge to real-world problems.

Mathematical science is a vital part of modern society. It is used in a wide variety of fields, including:

Physics: Mathematicians develop the equations that describe the behavior of physical systems, such as the motion of planets or the flow of fluids.

Engineering: Mathematicians design and analyze structures, such as bridges and buildings, and develop new materials and devices.

Computer science: Mathematicians develop the algorithms and data structures that are used in computers, and they also study the mathematical foundations of computing.

Finance: Mathematicians develop models that are used to price financial instruments, such as stocks and bonds.

Economics: Mathematicians develop models that are used to study economic behavior, such as the supply and demand of goods and services.

Mathematical science is a challenging and rewarding field. It requires a strong foundation in mathematics, as well as creativity and problem-solving skills. Mathematicians play a vital role in the development of new technologies and the understanding of the world around us.

Here are some of the most important branches of mathematical science:

Algebra: Algebra is the study of numbers, variables, and equations. It is used in many other branches of mathematics, as well as in physics, chemistry, and engineering.

Geometry: Geometry is the study of shapes and their properties. It is used in many areas of mathematics, as well as in architecture, engineering, and surveying.

Calculus: Calculus is the study of change. It is used in physics, engineering, economics, and many other fields.

Statistics: Statistics is the study of data and probability. It is used in many areas of science, as well as in business and government.

Mathematical science is a vast and ever-evolving field. New discoveries are being made all the time, and new applications for mathematics are being found in all areas of life. If you are interested in a challenging and rewarding career, mathematical science may be the perfect field for you.

Here are some of the most common career paths for mathematicians:

Mathematical researcher: Mathematical researchers develop new theories and techniques in mathematics. They work in universities, government agencies, and private research institutions.

Mathematical educator: Mathematical educators teach mathematics at all levels, from elementary school to graduate school. They work in schools, universities, and other educational institutions.

Mathematical consultant: Mathematical consultants use their knowledge of mathematics to solve problems in other fields, such as engineering, finance, and economics. They work for businesses, government agencies, and other organizations.

Software developer: Software developers use their knowledge of mathematics to develop software that uses mathematical algorithms and techniques. They work for software companies, as well as for businesses and government agencies.

Program Objectives .3

1. 1. Cultivating the love of mathematics among the students of the department by clarifying its importance and uses in the fields of mathematics
2. Preparing outstanding students as a first step towards completing their postgraduate studies inside or outside the country To obtain a master's or doctoral degree, in which the country suffers from a great shortage, or to work As a research assistant in the mathematics departments.
3. Preparing specialized cadres to work in various state institutions in the fields of modeling and research Operations, statistics and computers.
4. Access to a regional and international leadership role in education and scientific research.
5. Activating scientific cooperation between the university and other universities in the field of scientific research.
6. Contribute to providing academic consultations and developing services for Anbar Governorate.
7. The need remains for graduates of mathematics departments from science faculties to work in secondary education.

Student Learning Outcomes .4

Biology is the study of the organization and operation of life at the molecular, cellular, organism, and population levels. Graduates obtain information on the historical, technical and social aspects of biology and utilize basic knowledge toward realizing broader concepts. The Department offers a Bachelor of Science in Biology with a concentration in General Biology; Pre-medicine / Pre-dentistry; Biotechnology / Molecular Biology and a minor in Secondary Education that leads to a Public Instruction License. Additionally, the Department offers courses to a large number of students from other departments and supports pre-professional programs. The biology curriculum and experiences

are designed to prepare students, in part, for entry into professional health programs, graduate studies, technical careers and education

Outcome 1

Understand and apply basic mathematical concepts and principles. This includes being able to perform basic arithmetic operations, solve equations and inequalities, and graph functions.

Outcome 2

Use mathematical reasoning and problem-solving skills to solve real-world problems. This includes being able to identify and formulate mathematical problems, develop and apply mathematical models, and interpret the results of mathematical analyses.

Outcome 3

Communicate effectively about mathematical ideas. This includes being able to explain mathematical concepts in clear and concise language, and to use mathematical notation and symbols correctly.

Outcome 4

Work effectively with others in mathematical contexts. This includes being able to collaborate with others to solve mathematical problems, and to communicate mathematical ideas to others in a clear and concise way.

Outcome 5

Demonstrate creativity and innovation in mathematical thinking. This includes being able to come up with new and creative ways to solve mathematical problems, and to use mathematics to solve problems in other disciplines.

Outcome 6

Approach mathematical problems with a positive attitude and willingness to persevere. This includes being able to stay focused and motivated when working on mathematical problems, and to be willing to ask for help when needed.

Academic Staff .5

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Credits, Grading and GPA

Credits

Anbar University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

Curriculum/Modules .6

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3101	Calculus1	94	106	8.00	C	
ScMath 3102	Linear Algebra1	94	106	8.00	C	
ScMath 3103	Foundations of Mathematics1	94	81	7.00	C	
UoA 111	Computer Science	62	13	3.00	B	
UoA 112	Human Rights and Democracy	32	18	2.00	S	
UoA 113	Arabic Language	32	18	2.00	S	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3104	Calculus2	94	106	8.00	C	ScMath 3101
ScMath 3105	Linear Algebra2	94	106	8.00	C	ScMath 3102
ScMath 3106	Foundations of Mathematics2	94	56	6.00	C	ScMath 3103
UoA 121	Programming Basic	62	13	3.00	B	
CoS 121	General Mechanic	62	13	3.00	B	
UoA 122	English Language1	32	18	2.00	C	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3201	Advanced Calculus1	79	71	6.00	C	ScMath 3104
ScMath 3202	Group Theory1	79	71	6.00	C	
ScMath 3203	Ordinary Differential Equations1	64	86	6.00	C	
ScMath 3204	Numerical Analysis1	62	63	5.00	C	
ScMath 3205	Vector Analysis	48	52	4.00	C	
ScMath 2201	Advanced Computer1	47	28	3.00	B	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3206	Advanced Calculus2	79	71	6.00	C	ScMath 3201
ScMath 3207	Group Theory2	79	71	6.00	C	ScMath 3202
ScMath 3208	Ordinary Differential Equations2	64	86	6.00	C	ScMath 3203
ScMath 3209	Numerical Analysis2	62	63	5.00	C	ScMath 3204
ScMath 2202	Advanced Computer2	48	52	4.00	C	ScMath 2201
ScMath 1201	English Language2	32	18	2.00	S	ScMath 1106

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3301	Mathematical Analysis1	79	71	6.00	C	
ScMath 3302	Partial Differential Equation1	64	86	6.00	C	
ScMath 3303	Ring Theory1	64	86	6.00	C	
ScMath 3304	The Probability1	64	61	5.00	C	
ScMath 3305	Graph Theory1	64	61	5.00	C	
ScMath 1301	English Language3	32	18	2.00	S	ScMath 1202

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3306	Mathematical Analysis2	79	71	6.00	C	ScMath 3301
ScMath 3307	Partial Differential Equation2	64	86	6.00	C	ScMath 3302
ScMath 3308	Ring Theory2	64	86	6.00	C	ScMath 3303
ScMath 3309	The Probability2	64	61	5.00	C	ScMath 3304
ScMath 3310	Graph Theory2	64	61	5.00	C	ScMath 3305
ScMath 1302	Research methodology	32	18	2.00	S	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3401	Topology1	64	111	7.00	C	
ScMath 3402	Complex Analysis1	64	111	7.00	C	
ScMath 3403	Mathematical Statistics1	64	111	7.00	C	
ScMath 3404	Functional Analysis1	64	111	7.00	C	ScMath 3306
ScMath 1401	English Language4	32	18	2.00	S	ScMath 1301

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ScMath 3305	Topology2	64	86	7.00	C	ScMath 3401
ScMath 3306	Complex Analysis2	64	86	7.00	C	ScMath 3402
ScMath 3307	Mathematical Statistics2	64	86	7.00	C	ScMath 3403
ScMath 3308	Functional Analysis2	64	61	7.00	C	ScMath 3404
ScMath 3309	Operations Research	64	61	5.00	C	
ScMath 1402	Research Project	64	20	2.00	S	

Contact .7

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