Program Catalogue | 2023-2024 | دليل البرنامج الدراسي

University of Al Mosul

Bachelor of Computer Science and Mathematics / Department of Mathematics

بكالوريوس علوم الحاسوب والرياضيات/ قسم الرياضيات

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1. Mission & Vision Statement

Vision Statement

The faculty members of the Department of Mathematics at the University of Mosul believe that students are introduced to the specialization of Mathematics through training courses and practical practice, and develop ideas about Mathematics.

Mission Statement

The faculty members in the Department of Mathematics are pursuing a multi-faceted mission at the University of Mosul. The program seeks to provide all students of Mathematics with a fundamental knowledge of Mathematics, as well as a deeper understanding of the chosen focus area in Mathematics or other fields. The Science in Mathematics program also provides the necessary basic knowledge of life sciences to support companies and others in using this science in all areas of life. In addition, Mathematics courses provide essential science experience for students seeking to complete general education requirements

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

The field of mathematics and science is incredibly expansive. At the end of the year, all students will have the opportunity to learn the fundamentals of statistics, mathematics, and computers. The program's focus is on significant and specialized mathematical and computer subjects, as well as the programs associated with them, in order to facilitate some problems in public life, whether they be economic, agricultural, or medical, and solve them according to advanced scientific principles. the initial. Level 1 introduces students to the fundamentals of mathematics and is appropriate for advancement in any of the department's degree offerings. In order to get ready for the research-led specialty modules at Levels 3 and 4, program-specific fundamental subjects are presented at Level 2. Through practical techniques, which are either taught in dedicated practical units, research seminars, and tutorials or integrated into lecture units, the spirit of research is created and nurtured from the outset. To advance to the next level, students must pass assessments at each level and submit reports for items that have been authorized. In order to provide consistency and progressive assistance, the same instructor, who also serves as the personal tutor, conducts academic tutorials at Levels 1 and 2. A variety of workshops are included in Level 1 and Level 2 tutorials to teach skills like library use and presentation abilities. These are followed by evaluated assignments like essays and speeches to give students a chance to practice the skills in a subject-specific setting.

3.Program Objectives

1. To offer an all-encompassing mathematics education with an emphasis on problem-solving and scientific reasoning

2. Equipping students with the necessary skills to succeed in the workforce by training them and enhancing their interpersonal and communication skills.

3. Offering grad projects and field training that imparts scientific and useful skills.

4. The aim is to offer comprehensive instruction in both oral and written forms of scientific communication.

5. Qualifying students for postgraduate studies. training scientists with a focus on postgraduate study and collaboration with other scientific disciplines.

4. Student Learning Outcomes

One of the current applied sciences with successful applications in many areas of life is mathematics. As it offers a variety of solutions, including analytical, approximatively, and accurate ones, to numerous problems and models that are frequently used in the fields of physics, engineering, and other sciences, this science is regarded as one of the fundamental sciences in many applied and academic fields. The development of mathematical models for numerous natural and scientific processes is also aided by this field of study. From the aforementioned, we can see that mathematics focuses on the following fundamental ideas:

- The scientific method is used as a basis and method for research and study.
- The essence is how to choose the appropriate mathematical methods to find possible solutions to the presented scientific problems.

The department aspires to uphold a prestigious academic reputation and guarantee that its graduates have the expertise, aptitude, and capacity to make the best choices in scientific life. Utilizing scientific approaches to resolve challenging issues in a variety of living domains is the definition of mathematics. The Department of Mathematics is a well-known hub for scientific research and teaching, and it helps the community by producing cadres of highly skilled scientists.

Outcome 1 :-

It is important role in the field of future plans, decision-making, and the development of strategies, according to the results and solutions to each issue

Outcome 2 :-

It is used financially as a small budget and is suitable for various purposes

Outcome 3 :-

It is used in industry, so laboratories in the public and private sectors need this science to reduce costs and achieve the greatest profit within the limits of available capabilities

Outcome 4 :-

In the field of construction, to build bridges and mega projects, to assess the time spent on each project and reduce the time.

Outcome 5 :-

In financial markets, stocks, and forecasting economic conditions

Outcome 6 :-

In managing hospitals and controlling the processes of feeding and medicine within the limits of capabilities

Outcome 7 :-

in agriculture and agricultural marketing.

Outcome 8 :-

Outcome 7 :-

In military and defense plans

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6. Grading and GPA

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)

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

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 101	Mathematical Foundation(1)	78	72	6	C	
MS 102	Calculus(1)	93	107	8	C	
MS 103	Miscellaneous Mathematical Methods	63	87	6	C	
MS 104	Programming	63	37	4	B	
MS 105	Human Rights	33	17	2	S	
MS 106	General physics	63	37	4	S	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 107	Mathematical Foundation(2)	78	72	6	C	Mathematical Foundation(1)
MS 108	Calculus(2)	93	107	8	C	Calculus(1)
MS 109	Linear Algebra	63	87	6	C	

MS 110	Computer Applications	63	37	4	B	
MS 111	Principles of Statistics	48	52	4	B	
MS 112	English Language(1)	33	17	2	S	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 201	Advanced Calculus(1)	93	107	8	C	
MS 202	Ordinary Differential Equations	63	87	6	C	
MS 203	Group Algebra	78	72	6	C	
MS 204	Probability	63	62	5	B	
MS 205	Mathematical physics	48	27	3	B	
MS 206	English Language(2)	33	17	2	S	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 207	Advanced Calculus(2)	93	57	6	C	
MS 208	Partial Differential Equations	78	72	6	C	

MS 209	Numerical Analysis(1)	63	87	6	C	
MS 210	Ring Algebra	78	72	6	C	
MS 211	Arabic Language	33	17	2	S	
MS 212	Mathematical Transformation	48	52	4	S	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 301	Mathematical Analysis(1)	78	72	6	C	
MS 302	Operation Research	63	37	4	C	
MS 303	Mathematical Modeling	63	87	6	C	
MS 304	English Language(3)	33	17	2	S	
MS 305	Mathematical Statistics(1)	63	87	6	B	Probability
MS 306	Numerical Analysis(2)	78	72	6	C	Numerical Analysis (1)

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 307	Mathematical Analysis(2)	78	72	6	C	Mathematical Analysis(1)

MS 308	Number Theory	63	87	6	C	
MS 309	Computer Mathematics	63	37	4	B	Calculus (1)
MS 310	Theory Differential Equations	48	52	4	C	
MS 311	Mathematical Statistics(2)	63	87	6	B	Mathematical Statistics(1)
MS 312	Fuzzy Mathematics	63	37	4	B	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 401	Complex Analysis(1)	93	107	8	C	
MS 402	Topology(1)	63	87	6	C	Mathematical Analysis(1) Mathematical Analysis(2)
MS 403	Functional Analysis(1)	78	72	6	C	
MS 404	Graph Theory	63	37	4	C	
MS 405	Dynamical Systems	48	52	4	B	Linear Algebra+ Calculus
MS 406	Methodology Of Scientifics Research	33	17	2	B	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MS 407	Complex Analysis(2)	93	107	8	C	Complex analysis I
MS 408	Topology(2)	63	87	6	C	Topology(1)
MS 409	Functional Analysis(2)	78	72	6	C	Functional Analysis(1)
MS 410	Research Project	33	17	2	C	
MS 411	English Language(4)	33	17	2	S	
MS 412	Optimization	63	87	6	B	