Ministry of Higher Education
and
Scientific Research
Al Muthanna University
College of Science

وزارة التعليم العالي والبحث العلمي
جامعـــة المثنـــى
كلية العلـــوم
قسم الرياضيات وتطبيقات الحاسوب

First Cycle – Bachelor's Degree (B.Sc.) – Mathematics and Computer Applications

بكالوريوس – علوم الرياضيات وتطبيقات الحاسوب

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1. Mission & Vision Statement

Vision Statement

The mathematics and computer applications academic staff of the Natural and Behavioral Sciences Division at Al- Muthanna University believe that students come to understand the discipline of Mathematics through a combination of course work, laboratory experiences, research, and fieldwork. The combination of instructional methods leads students to a balanced understanding of the scientific methods used by mathematics to make observations, Small class sizes within the mathematics program foster a close working relationship between academic staff and students in an informal and nurturing atmosphere.

Mission Statement

The mathematics academic staff pursues a multifaceted charge at AL- muthanna University. The Program seeks to provide all mathematics students with fundamental knowledge of mathematics, as well as a deeper understanding of a selected focus area within the mathematical sciences. The curriculum and advising have been designed to prepare graduates for their professional future.

2. Program Specification

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

Mathematics is a wonderfully wide-ranging subject. Level 1 exposes students to the fundamentals of mathematics and computer applications, suitable for progression to all programmes within the mathematics programme group. Programme-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4. A Leeds mathematics graduate is therefore trained to appreciate how research informs teaching, according to the University and School Mission statements.

At Levels 2, 3 and 4 students are free to choose more than half of their module credits with the proviso a range of modules are selected that reflect the complexity of life forms from molecules.

The research ethos is developed and fostered from the start via practicals, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. There is a compulsory field course in Level 1, which students must pass in order to progress into Level 2, and optional field courses in Levels 2, 3 and 4. At Level 4 all students carry out an independent research project, which may be a xx credit library or data analysis project, or a xx credit field or laboratory based project.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills, followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context.

International years and Industrial placements are also offered and individual needs are discussed with the appropriate tutor and accommodated wherever possible.

3. Program Goals

1. To provide a comprehensive education in mathematics that stresses scientific reasoning and problem solving across the spectrum of disciplines within mathematics
2. To prepare students for a wide variety of post-baccalaureate paths, including graduate school, professional training programs, or entry level jobs in any area of mathematics
3. To provide extensive hands-on training in electronic technology, statistical analysis, laboratory skills, and field techniques
4. To provide thorough training in written and oral communication of scientific information
5. To enrich students with opportunities for alternative education in the area of mathematics through undergraduate research, internships, and study-abroad

4. Student Learning Outcomes

Outcome 1

Oral and Written Communication

Graduates will be able to formally communicate the results of mathematics investigations using both oral and written communication skills.

Outcome 2

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 3

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 4

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 5

Critical Thinking

Graduates will be able to use critical-thinking and problem-solving skills to develop a research project and/or paper.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

AL- Muthanna 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

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math1101	Calculus I	78	97	7.00	C	
Math1102	Foundations of Mathematics I	78	72	6.00	C	
Math1103	Finite Mathematics	63	62	5.00	C	
COS1105	General Mechanic	63	62	5.00	B	
UOM1101	Human Rights and Democracy	48	27	3.00	B	
UOM1102	Computer I	63	37	4.00	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math1214	Calculus II	78	72	6.00	C	Math1101
Math1215	Foundations of Mathematics II	78	47	5.00	C	Math1102
Math1206	Pascal Programming	63	62	5.00	B	
UOM1203	English Language I	63	37	4.00	B	
COS1203	Electrical Physics	63	62	5.00	B	
COM1201	Logic Design for Computer	63	62	5.00	B	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math2318	Advance Calculus I	78	72	6.00	C	Math1214
Math 2319	Ordinary Differential Equations I	63	87	6.00	C	Math1214
Math 23010	Group Theory	63	87	6.00	C	
Math 23111	Linear Algebra	48	52	4.00	C	Math 1215
COS2302	Programming C++	63	37	4.00	B	
UOM2314	Computer II	63	37	4.00	B	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math24113	Advance Calculus II	78	97	7.00	C	Math2318
Math 24114	Ordinary Differential Equations II	63	87	6.00	C	Math 2319
UOM2405	Arabic Language	48	27	3.00	C	
Math 24016	Probability and statistics	63	87	6.00	C	
Math24017	Matlab	63	62	5.00	B	
UOM2406	Research Methodology	48	27	3.00	B	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math35118	Mathematical Analysis I	63	87	6.00	C	Math24015
Math35119	Numerical Analysis I	63	87	6.00	C	Math24113
Math34120	Ring Theory I	63	62	5.00	C	Math24015
Math35121	Partial Differential Equations	63	87	6.00	C	Math24113
Math35122	Mathematical Statistics I	63	37	4.00	C	Math24016
COM3513	Visual Basic	48	27	3.00	E	

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math36123	Mathematical Analysis II	63	87	6.00	C	Math35118
Math36124	Numerical Analysis II	63	87	6.00	C	Math35119
Math36125	Ring Theory II	63	87	6.00	C	Math35120
Math36126	Mathematical Statistics II	63	87	6.00	C	Math35122
COS3604	Algorithms	48	27	3.00	E	
UOM3616	English Language II	48	27	3.00	B	UOM1203

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math 47127	Topology I	78	97	7.00	C	Math 36123
Math 47128	Complex Analysis I	78	97	7.00	C	Math 36123
Math 47129	Functional Analysis	63	87	6.00	C	Math 36123
Math47030	Dynamical Systems I	48	52	4.00	E	
Math47131	Applied Mathematics	48	52	4.00	E	Math24113
UOM4807	Professional Ethics	33	17	2.00	B	UOM3616

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Math 48132	Topology II	78	97	7.00	C	Math 47127
Math 48133	Complex Analysis II	78	97	7.00	C	Math 47128
Math48134	Dynamical Systems II	48	52	4.00	E	Math47030
Math48035	Operations Research	63	62	5.00	c	
Math48136	Approximation Theory	33	67	4.00	E	Math46123
Math48037	Graduation Project	48	27	3.00	B	

8. Contact

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