

Testamur Title of Degree:	BSc in Mathematics	Home Faculty:	Faculty of Sciences
Abbreviation:	MATH	Duration:	4 years full-time

Overview	Entry Requirements
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Mathematics is the basis for successful decision making and problem solving independent of industry. Mathematical models help us analyze information and forecast results in different sector such as economics, finance, engineering, and medicine. This analysis helps GOV and businesses understand the factors behind important decisions. The Department of Mathematics in King Abdulaziz University (KAU) offers undergraduate program leading to the degrees of Bachelor. This program is designed to expand and consolidate existing mathematics knowledge and to develop skills in mathematics. The diversity of undergraduate courses offered in the department of mathematics gives the student an opportunity to specialize in one of the several fields of pure and applied mathematics. Graduates of KAU's Bachelor of Mathematics will gain highly transferable skills in problem solving, data analysis, logistics and logic, probability and variability and mathematical modelling.

To become eligible for admission to BSc in Mathematics, candidates have to fulfill the following conditions:

- Student should hold the secondary school certificate.
- Student should have passed all courses in the foundation year.
- Student should have obtained at least grade (C) in Math 110.

Program Learning Outcomes

Students graduating from the BSc of Mathematics will be able to:

- Work individually or within a team and learn the initiative spirit and bear responsibility for different circumstances;
- Exploit reasonable and creative thinking, linking introductions to results and problem explaining which require mathematical methods;
- Apply integrated and advanced understanding of a complex body of knowledge in either pure or applied mathematics;
- Explain and transmit mathematical skills, knowledge and ideas to academic and non-academic audiences; and
- Pursue advanced studies in the field of mathematics which align with the 2030 Vision of the Kingdom of Saudi Arabia and the National Transition Program orientations and aspirations.

Program Structure

Every student registered for B.Sc. degree in mathematics shall have to follow the following plan of studies:

- 1. University Compulsory Courses:**
26 credit hours, student should choose from the following courses: ELI 101, ELI 102, ELI 103, ELI 104, CPIT 100, COMM 101, ARAB 101, ARAB 201, ISLS 101, ISLS 201, ISLS 301, ISLS 401.
- 2. Faculty Compulsory Courses:**
15 credit hours, Student should choose from the following courses: MATH 110, PHYS 110, STAT 110, CHEM 110, and BIO 110.
- 3. Faculty Elective Courses:**
9 credit hours, student should choose from the following courses: MATH 202, CHEM 281, PHYS 281, CHEM 200, PHYS 200 and MATH 390.
- 4. Department Compulsory Courses:**
48 credit hours, student should choose from the following courses: MATH 203, MATH 204, MATH 205, MATH 241, MATH 261, MATH 305, MATH 311, MATH 312, MATH 331, MATH 342, MATH 343, MATH 413, MATH 421, MATH 463, MATH 464, and MATH 482.
- 5. Department Elective Courses:**
16 credit hours, student should choose from the following courses: MATH 261, MATH 332, MATH 333, MATH 406, MATH 414, MATH 423, MATH 444, MATH 405, MATH 462, MATH 471 and MATH 481.
- 6. Statics & Computers Depart. Compulsory Courses:**
8 credit hours, student should choose from the following courses: CS 201 and STAT 211.
- 7. Free Activities:**
6 credit hours elective courses that can be taught by any department in the university.

Study Plan for Department of Mathematics

Foundation year							
Level I (Credit 14)				Level II (Credit 13)			
Course Code	Course Title	Units	Pre-requisites	Course Code	Course Title	Units	Pre-requisites
MATH 110	Calculus I	3	-	STAT 110	Basics Statistics	3	-
PHYS 110	Basics Physics	3	-	CHEM 110	Basics Chemistry	3	-
ELI 101	English Language I	0	-	BIO 110	Basics Biology	3	-
ELI 102	English Language II	2	-	ELI 102	English Language III	2	ELI 101 ELI 102
CPIT 100	Computers	3	-	ELI 103	English Language IV	2	ELI 101 ELI 102
COMM 101	Communication Skills	3	-				
Total Number of Credits		14		Total Number of Credits		13	
Year 2							
Level III (Credit 17)				Level IV (Credit 17)			
Course Code	Course Title	Units	Pre-requisites	Course Code	Course Title	Units	Pre-requisites
MATH 203	Calculus III	3	MATH 110	MATH 204	Ordinary Differential Equations I	3	MATH 202
MATH 251	Foundations of Mathematics	3	MATH 110	MATH 205	Calculus IV	3	MATH 202 MATH 203
CS 201	Introduction to Programming	4	CPIT 100	MATH 241	Linear Algebra I	3	MATH 202 MATH 203
ARAB 101	Language Skills	3	-	STAT 211	Probability Theory	4	MATH 202 STAT 110
CHEM 281	Chemistry Lab.	1	CHEM 110	ISLS 101	Islamic Culture I	2	-
MATH 202	Calculus II	3	MATH 110	PHYS 281	Physics Lab.	1	PHYS 110
				CHEM 200	Security & Safety of Lab.	4	-
Total Number of Credits		17		Total Number of Credits		17	
Year 3							
Level V (Credit 16)				Level VI (Credit 17)			
Course Code	Course Title	Units	Pre-requisites	Course Code	Course Title	Units	Pre-requisites
MATH 305	Ordinary Differential Equations II	3	MATH 204 MATH 205 MATH 241	MATH 312	Real Analysis II	3	MATH 311 MATH 241
MATH 311	Real Analysis I	3	MATH 205 MATH 251	MATH 343	Abstract Algebra II	3	MATH 342
MATH 331	Mathematical Software and Programming	3	MATH 204 MATH 205 MATH 241	MATH +++	Elective Course	3	
MATH 342	Abstract Algebra I	3	MATH 251 MATH 241	MATH +++	Elective Course	3	
ARAB 201	Language Skills	3	ARAB 101	ISLS 201	Islamic Culture II	2	ISLS 101
PHYS 200	Security & Safety of Lab.	1	-	XXXX +++	Free Activities	3	
Total Number of Credits		16		Total Number of Credits		17	
Year 4							
Level VII (Credit 18)				Level VIII (Credit 16)			
Course Code	Course Title	Units	Pre-requisites	Course Code	Course Title	Units	Pre-requisites
MATH 482	Senior Project	3	MATH 312 MATH 343	MATH 463	Differential Geometry	3	MATH 312
MATH 413	Complex Analysis	3	MATH 311	MATH 464	General Topology	3	MATH 311
MATH 421	Numerical Analysis	3	MATH 331	MATH +++	Elective Course	3	
MATH +++	Elective Course	2		MATH +++	Elective Course	2	
MATH +++	Elective Course	3		ISLS 401	Islamic Culture IV	2	ISLS 301
ISLS 301	Islamic Culture III	2	ISLS 201	XXXX +++	Free Activities	3	
MATH 390	Training	2	MATH 343				
Total Number of Credits		18		Total Number of Credits		16	