

Scheme of Studies
BS Mathematics
Four Years Degree Program 2024

SEMESTER-I

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-104	Calculus I	4(4-0)
2.	ENG-100	Functional English	3(3-0)
3.	CSC-100	Applications of Information and Communication Technology (ICT)	3(2-1)
4.	PST-101	Ideology and Constitution of Pakistan	2(2-0)
5.	BPA-101	Civics and Community Engagement	2(2-0)
6.	PHY-100	Fundamentals of Natural Sciences	3(2-1)
7.	URD-100	Fables Wisdom Literature and Epic	2(2-0)
8.	SOC-101	A Science of Society	2(2-0)
		Total No. of Credit Hours	21(19-2)

SEMESTER-II

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-105	Calculus II	4(4-0)
2.	ISL-101A/ ETH-101A	Translation Study of Holy Quran/ Ethics	1(1-0) N/C
3.	ISL-100	Islamic Studies	2(2-0)
4.	ENG-101	Expository Writing	3(3-0)
5.	CSC-110	Programming with C++	3(2-1)
6.	MGT-102	Islamic Banking and Finance	1(1-0)
7.	ARB-102	Seerat of the Holy Prophet Muhammad (SAW)	2(2-0)
		Total No. of Credit Hours	15(14-1)

SEMESTER-III

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-206	Calculus III	4(4-0)
2.	MTH-211	Elements of Set Theory and Mathematical Logic	3(3-0)
3.	MTH-241	Ordinary Differential Equations	3(3-0)
4.	CSC-210	Programming with Python	3(2-1)
5.	STA-202	Exploring Quantitative Skills	3(3-0)
6.	PHC-101	Mechanics	4(4-0)
		Total No. of Credit Hours	20(19-1)

SEMESTER-IV

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-212	Discrete Mathematics	3(3-0)
2.	MTH-231	Linear Algebra	3(3-0)
3.	MTH-251	Topology	3(3-0)
4.	MTH-352	Differential Geometry	3(3-0)
5.	MTH-201	Tools for Quantitative Reasoning	3(3-0)
6.	CHM-200	Environmental Sciences	1(1-0)
7.	ENP-240	Principles of Entrepreneurship	2(2-0)
8.	ISL-101B / ETH-101B	Translation Study of the Holy Quran / Ethics	1(1-0) N/C
Total No. of Credit Hours			18(18-0)

SEMESTER-V

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-321	Real Analysis I	3(3-0)
2.	MTH-323	Complex Analysis I	3(3-0)
3.	MTH-332	Algebra I	3(3-0)
4.	MTH-381	Vector and Tensor Analysis	3(3-0)
5.	STA-100	Introduction to Statistical Theory	3(3-0)
Total No. of Credit Hours			15(15-0)

Optional Course		
Course Code	Title of the Course	Credit Hours
* CHIN-305	Learn Chinese Language	3(3-0) N/C

Note: *Optional Courses: Students with CGPA 3.5 in four semesters can opt 'Learn Chinese Language' course with 3(3,0) credit hours.

SEMESTER-VI

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-322	Real Analysis II	3(3-0)
2.	MTH-324	Complex Analysis II	3(3-0)
3.	MTH-333	Algebra II	3(3-0)
4.	MTH-382	Classical Mechanics	3(3-0)
5.	MTH-342	Partial Differential Equation	3(3-0)
6.	ISL-101C / ETH-101C	Translation Study of the Holy Quran / Ethics	1(1-0)
Total No. of Credit Hours			15(15-0)

SEMESTER-VII

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-453	Number Theory	3(3-0)
2.	MTH-461	Numerical Analysis I	3(3-0)
3.	MTH-465	Theory of Optimization	3(3-0)
4.	CSC-410	Programming with MATLAB	3(2-1)
5.	MTH-494	Seminar	1(0-1)
6.	MTH-497	Internship	3(0-3)
7.		Elective Course I	3(3 -0)
		Total No. of Credit Hours	19(14-5)

Elective Courses:

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-435	Advanced Group Theory	3(3-0)
2.	MTH-436	Continuous Groups	3(3-0)
3.	MTH-437	Rings and Modules	3(3-0)
4.	MTH-454	Advanced Topology	3(3-0)
5.	MTH-455	Algebraic Topology	3(3-0)
6.	MTH-463	Operations Research	3(3-0)
7.	MTH-471	Mathematical Statistics I	3(3-0)
8.	MTH-481	Methods of Mathematical Physics	3(3-0)
9.	MTH-482	Quantum Mechanics I	3(3-0)
10.	MTH-484	Fluid Mechanics I	3(3-0)
11.	MTH-486	Special Theory of Relativity	3(3-0)

SEMESTER-VIII

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-425	Functional Analysis	3(3-0)
2.	MTH-466	Cryptography	3(3-0)
3.	MTH-462	Numerical Analysis II	3(3-0)
4.	ISL-101D / ETH-101D	Translation Study of the Holy Quran / Ethics	1(1-0) N/C
5.	MTH-496	Entrepreneurier Skills Development	1(0-1)
6.	MTH-498	Capstone Project	3(0-3)
7.		1 Elective Course	3(3-0)
		Total No. of Credit Hours	16(12-4)

Elective Courses:

Sr. No.	Course Code	Course Title	Credit Hours
1.	MTH-413	Advanced Set Theory	3(3-0)
2.	MTH-414	Category Theory	3(3-0)
3.	MTH-426	Measure Theory	3(3-0)
4.	MTH-427	Integral Equations	3(3-0)
5.	MTH-438	Theory of Modules	3(3-0)
6.	MTH-439	Galois Theory	3(3-0)
7.	MTH-443	Graph Theory	3(3-0)
8.	MTH-472	Mathematical Statistics II	3(3-0)
9.	MTH-473	Probability Theory	3(3-0)
10.	MTH-474	Combinatorics	3(3-0)
11.	MTH-483	Quantum Mechanics II	3(3-0)
12.	MTH-485	Fluid Mechanics II	3(3-0)
13.	MTH-487	Theory of Elasticity	3(3-0)
14.	MTH-488	Electromagnetism	3(3-0)

		Total No. of Credit Hours	139(126-13)
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