

COMPLIANCE CERTIFICATE FOR UNDERGRADUATE 2.0 POLICY

Program Name: BS Economics with Data Science Fall 2025

Program Scheme of Studies

Structure of the Scheme		
Program Structure	Revised BS Economics	BS Economics with Data Science
Total Courses (Program duration)	48(4 Years)	52 (4 Years)
A. General Education Courses	16(35)	16 (35)
B. General Allied Courses	6 (12+1+1)	6 (12+1+1)
C. Foundation Courses	8(24)	8(24)
D. Subject Specific Courses	12(36)	12(36)
E. Specialization Courses	4(12) Specialization I, II III & IV Or I, II + BS Thesis/COOP	4(12) Specialization I, II III & IV Or I, II + BS Thesis/COOP
F. Internship & Capstone Project	Internship (3 Cr.) Capstone (3 Cr.)	Internship (3 Cr.) Capstone (3 Cr.)
G. Data Science Courses		4(13)
Total Credit Hours	A+B+C+D+E+F=127	A+B+C+D+E+F=140

From Barakat
3/16/2025

Received
OP
6/16/25

Program Road Map

Applicable to Batch No. Fall2025 Session Fall 2025-29

Year I							
Fall Semester (I)				Spring Semester (II)			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs	Prerequisite
EC111	Principles of Microeconomics	3		EC121	Principles of Macroeconomics	3	-
IS135	Computer Applications	3		POL121	Pakistan: Ideology, Constitution and Society	2	-
QM110	Business Mathematics (QR I)	3		MG120	Principles of Management	3	MG111
EN110	English Grammar & Comprehension (English I)	3		SD221	Life and Learning	2	-
MG111	Introduction to Business	3		QM120/EC140	Basic Statistics for Economists (QR II)	3	-
ISL112	Islamic Thought & Perspectives	2		EN123	Composition and Communication (English II)	3	-
SD100	English Immersion I (0 CR HR)	0		SD102	21 st Century Skills (0 CR HR)	0	SD100
Semester Credit Hours		18		Semester Credit Hours		17	

Year II							
Fall Semester (III)				Spring Semester (IV)			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs.	Prerequisite
CH211	Everyday Science	2		EC180	Applied Statistics for Economists /Stats II	3	EC140
EC201	Intermediate Microeconomics	3	EC111	EC211	Intermediate Macroeconomics	3	EC121
EC170	Intermediate Mathematics	3	EC121	SD222	Foreign Language (ENGLISH IV)	3	-
CC102 1	DSI- Programming Fundamentals (3+1)	3+1		MG224	Innovation and Entrepreneurship	2	MG360
PSY110	Psychology of Mind and Behavior	2		SD103	English Immersion III	1	
SD210	Civic and Community Engagements	2		IS 230	Emerging Technologies (E-Commerce / E-Business)	3	MG120
							-
Semester Credit Hours		18		Semester Credit Hours		18	

= 35

National/International Tours = 1

35 + 35 + 36 + 30 + 11 = 140
+ 3 Credit HR Internship

35
37
36
30
138
139

Year III							
Fall Semester (V)				Spring Semester (VI)			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs	Prerequisite
EC312	Monetary Economics	3	EC 121	EC311	Macroeconomic Analysis	3	EC211
EC321	Principles of Econometrics	3	EC 111	EC390	Research Methods and Critical Thinking for Economists	3	EC110
EC313	Public Finance	3	EC201	CS-474	Data Warehousing & Business Intelligence (2+1)	3	EC201
EC341	Mathematical Economics	3	EC 110, EC 120	EC351	International Economics ✓	3	EC201
EC301	Microeconomic Analysis	3	EC201	EC361	Development Economics ✓	3	EC211
DS-2136	^{ex} Introduction to Data Science (2+1)	2+1			Capstone Project ✓	3	
Semester Credit Hours		18		Semester Credit Hours		18	

36
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Year IV							
Fall Semester (VII)				Spring Semester (VIII)			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs.	Prerequisite
EC473	Transport Economics	3	EC201	EC462	Issues of Pakistan Economy	3	EC211
EC421	Econometrics of Time series and Panel Data	3	EC321	EC465	Political Economy	3	EC311
CS-458	Data Mining OR Data Visualization OR Big Data Analytics (all 2+1).	2+1 <i>Spec</i>		EC491	Islamic Economics	3	
ECXX X	Specialization Course I*	3	-	ECXX X	Specialization Course III*	Thesis /COOP **	-
ECXX X	Specialization Course II*	3		ECXX X	Specialization Course IV*		-
Semester Credit Hours		15		Semester Credit Hours		15	

3°

Total Credit Hours: 140

Data Science (SST courses for non-Tech)

Core Courses	Course Code
DS I: Programming Fundamentals (3+1)	(CC1021)
DS II: Introduction to Data Science (2+1)	(DS- 2136)
Elective Courses (at Least two courses)	Course Code
DS III: Data Warehousing and Business Intelligence (2+1)	(CS-474)
DS IV : Data Mining	(CS-458)
Big Data Analytics	(DS-3136)
Data Visualization	(DS-3139)
Machine Learning	(CS-446)

Eligibility Criteria & Program Fee structure:

- 12 years formal education with a minimum of 45% Marks (equivalence certificates are required from A-Levels and American High School Diploma Students.
- 50% marks in NTS /UMT entry Test.
- No Third Division in Metric Exam
- Total Investment: PKR 1,320,000/-

Other Courses details

List of General and interdisciplinary/Allied Courses as per HEC Policy

As per HEC undergraduate education Policy (V. 1.1), there should be minimum 12 General Courses (minimum of 30 Cr. H.) and interdisciplinary/Allied Courses (minimum 12 credit hours) in a BS degree program with single minor. So, for BS Economics with minor, we are offering 10 (30 Cr. H.) as compulsory courses and 5 (15 Credit hours) interdisciplinary courses as follows:

A. List of General Courses in BS Economics Offered at UMT

A. General Courses		Credit Hours = 30	
1	Everyday Science (Natural Science) ✓	3	(2)
2	English I (Functional English) ✓	3	(3)
3	English II (Expository Writing) ✓	3	(3)
4	Business Mathematics (Quantitative Reasoning I) ✓	3	(3)
5	Basic Statistics for Economists (Quantitative Reasoning II) ✓	3	(3)
6	Islamic Thought & Perspectives ✓	3	(2)
7	Pakistan: Ideology, Constitution and Society ✓	3	(2)
8	Computer Application ✓	3	(3)
9	Innovation and Entrepreneurship ✓	3	(2)
10	Life and Learning (Arts & Humanities) ✓	3	(2)
11	Psychology of Mind and Behavior (Social Sciences) ✓	3	(2)
12	Civic and Community Engagements ✓	2	(2)
13	Fehm-Quran I ✓	1	(1)
14	Fehm-Quran II ✓	1	(1)
15	Pak Studies ✓	2	
16	Think AI ✓	2	(2)

Pak. Studies. (2)

B. List of Interdisciplinary/Allied Courses

Interdisciplinary/Allied Courses		Credit Hours =13
1	Introduction to Business	3
2	Principles of Management	3

3	Emerging Technologies (E-Business or E-Commerce)	3
4	Foreign Language (English IV)	3
5	English Emersion	1
6	International/National tour	1

List of Subject Specific Courses as per HEC Policy

There should be 08 Foundation Courses, 11-15 Major Courses and 4-8 Elective Courses taught into BS Economics program as suggested by HEC into BS Economics Curriculum.

Subject Specific Courses in BS Economics Offered at UMT

Foundation Courses		Credit Hours = 24
1	Principles of Microeconomics	3
2	Principles of Macroeconomics	3
3	Mathematical Economics	3
4	Intermediate Mathematics	3
5	Principles of Econometrics	3
6	Intermediate Microeconomics	3
7	Intermediate Macroeconomics	3
8	Applied Statistics for Economics/Statistics II	3
Major Courses		Credit Hours = 36
1	Microeconomic Analysis	3
2	Macroeconomic Analysis	3
3	International Economics	3
4	Islamic Economics	3

8+1
9

5	Development Economics	3
6	Issues of Pakistan Economy	3
7	Monetary Economics	3
8	Public Finance	3
9	Econometrics of Time series and Panel Data	3
10	Political Economy	3
11	Transport Economics <i>X</i>	3
12	Research Methods and Critical Thinking for Economists	3
Elective Courses (4 Courses)		Credit Hours = 6
1	Specialization I	3
2	Specialization II	3
Thesis or Two Elective Courses		Credit Hours = 6
1	Specialization III	3
2	Specialization IV	3
Total Credit Hours for Subject Specific Courses		72

72-1

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List of Elective/Specialization Courses	
	Pre-Req.
EC499 Thesis <i>Compulsory</i>	EC150, EC160, EC240
EC 403 Industrial Organization	EC 201
EC 472 Urban Economics	EC 361

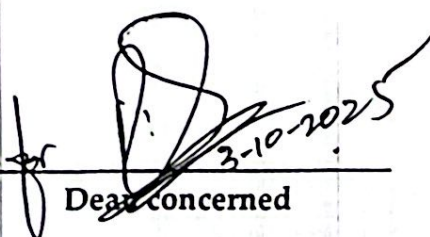
EC 477 Economics of Terrorism, War and Conflict	EC 465
EC 492 Islamic Banking: Theory and Practice	
EC 411 Monetary Policy	EC 312
EC 412 Fiscal Policy	EC 313
EC 466 History of Economic Thought	EC 211
EC 467 World Economic History	EC 361
EC 452 International Finance	EC 351
EC 461 Economic Growth	EC 211
EC 493 Islamic Finance	EC250, EC325
EC486 Energy Economics	
EC485 Environmental Economics	
EC482 Labor Economics	
EC 401 General Equilibrium & Welfare Economics	EC 201
EC476 Real Estate Economics	EC 111
EC 231 Issues in World Economy	
EC487 Economics of Climate Change	
EC474 Health Economics	

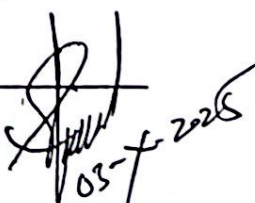
Note: Department of Economics and Statistics has followed the standard course codes and course titles of HEC BS Economics Program to avoid any discrepancies in course contents as per the passed-out students' feedback. Besides, we have aligned the "List of Elective/Specialization Courses" as per the HEC BS Economics Program along with their course outlines.

It is hereby certified that curriculum of BS Economics with Data Science program, Session Fall 2025 is compliant to Undergraduate 2.0 Policy. All the courses of UG 2.0 are incorporated in the roadmap accordingly.


Chairperson
Department of Economics & Statistics
Dr. Hashim Malik School of Management
University of Management and Technology


Director AAQIC


Dean concerned


Registrar