

SCHEME OF STUDIES BS BIOINFORMATICS

w.e.f. WINTER SEMESTER 2024-2025			
Course No.	Title of Course	Credit Hours	Type
FIRST SEMESTER			
SSH-303	IDEOLOGY AND CONSTITUTION OF PAKISTAN	2(2-0)	General Education
CS-305	APPLICATIONS OF INFORMATION AND COMMUNICATION TECHNOLOGIES	3(2-1)	General Education
PY-305	BASIC ELECTRONICS	3(2-1)	General Education
FA-310	INTRODUCTION TO ARTS AND HUMANITIES	2(2-0)	General Education
SOC-311	INTRODUCTION TO SOCIOLOGY	2(2-0)	General Education
ENG-313	FUNCTIONAL ENGLISH	3(3-0)	General Education
MATH-408	QUANTITATIVE REASONING (I)	3(3-0)	General Education
BIO-303	FUNDAMENTAL CELLULAR BIOLOGY	3(2-1)	Allied
TGM-301	TUTORIAL GROUP MEETING FOR SOFT SKILLS	Non-Credit	Compulsory
TOTAL CREDIT HOURS		21	
SECOND SEMESTER			
CS-306	DIGITAL LOGIC DESIGN	3(2-1)	Major
BIOCHEM-301	ELEMENTARY BIOCHEMISTRY	3(2-1)	Allied
CS-308	PROGRAMMING FUNDAMENTALS	3(2-1)	Major
ENG-314	EXPOSITORY WRITING	3(3-0)	General Education
IS-401/SSH-306	ISLAMIC STUDIES / ETHICS	2(2-0)	General Education
MATH-404	LINEAR ALGEBRA	3(3-0)	General Education
STAT-408	QUANTITATIVE REASONING (II)	3(3-0)	General Education
TGM-302	TUTORIAL GROUP MEETING FOR SOFT SKILLS	Non-Credit	Compulsory
TOTAL CREDIT HOURS		20	
THIRD SEMESTER			
BINFO-403	INTRODUCTION TO BIOINFORMATICS	3(2-1)	Major
EDU-306	CIVICS AND COMMUNITY ENGAGEMENT	2(2-0)	General Education
ECON-305	INTRODUCTION TO ECONOMICS	2(2-0)	General Education
IS-403	روحانیت	No-Credit	Compulsory
CS-407	OPERATING SYSTEMS	3(2-1)	Major
MATH-407	MULTIVARIABLE CALCULUS	3(3-0)	Allied

CS-409	OBJECT ORIENTED PROGRAMMING	3(2-1)	Major
BBA-412	FINANCIAL MANAGEMENT-I	3(3-0)	Allied
TGM-401	TUTORIAL GROUP MEETING FOR SOFT SKILLS	Non-Credit	Compulsory
TOTAL CREDIT HOURS		19	
FOURTH SEMESTER			
BMS-402	ENTREPRENEURSHIP	2(2-0)	General Education
IS-402	ترجمہ قرآن	No-Credit	Compulsory
STAT-402	STATISTICS AND PROBABILITY	3(2-1)	Allied
CS-406	DATA COMMUNICATIONS AND NETWORKS	3(2-1)	Major
CS-408	DATABASE SYSTEMS	3(2-1)	Major
CS-410	DATA STRUCTURES AND ALGORITHMS	3(2-1)	Major
BINFO-404	BIOINFORMATICS METHODS	3(2-1)	Major
TGM-402	TUTORIAL GROUP MEETING FOR SOFT SKILLS	Non-Credit	Compulsory
TOTAL CREDIT HOURS		17	
FIFTH SEMESTER			
CS-503	DESIGN AND ANALYSIS OF ALGORITHM	3(2-1)	Major
CS-507	COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE	3(2-1)	Major
PBG-301	BASIC CONCEPTS OF GENETICS	2(1-1)	Allied
SE-401	SOFTWARE ENGINEERING	3(2-1)	Major
CS-511	ARTIFICIAL INTELLIGENCE	3(2-1)	Major
	DOMAIN ELECTIVE I	3(2-1)	Major
	DOMAIN ELECTIVE II	3(2-1)	Major
TGM-501	TUTORIAL GROUP MEETING FOR SOFT SKILLS	Non-Credit	Compulsory
TOTAL CREDIT HOURS		20	
SIXTH SEMESTER			
BINFO-502	COMPUTATIONAL BIOLOGY	3(2-1)	Major
CS-502	DATA ENCRYPTION AND SECURITY	3(2-1)	Major
BINFO-508	COMPUTATIONAL MOLECULAR EVOLUTION	3(2-1)	Major
	DOMAIN ELECTIVE III	3(2-1)	Major
	DOMAIN ELECTIVE IV	3(2-1)	Major
	DOMAIN ELECTIVE V	3(2-1)	Major
TGM-502	TUTORIAL GROUP MEETING FOR SOFT SKILLS	Non-Credit	Compulsory
TOTAL CREDIT HOURS		18	

SEVENTH SEMESTER			
BINFO-607	SCIENTIFIC WRITING	3(0-3)	Major
CS-611	PARALLEL AND DISTRIBUTED COMPUTING	3(2-1)	Major
CS-621	FINAL YEAR PROJECT-I	2(0-2)	Major
	DOMAIN ELECTIVE VI	3(2-1)	Major
	DOMAIN ELECTIVE VII	3(2-1)	Major
	DOMAIN ELECTIVE VIII	3(2-1)	Major
TGM-601	TUTORIAL GROUP MEETING FOR SOFT SKILLS	Non-Credit	Compulsory
TOTAL CREDIT HOURS		17	
EIGHTH SEMESTER			
CS-618	INTERNSHIP	2(0-2)	Major
CS-620	SEMINAR	1(1-0)	Major
CS-622	FINAL YEAR PROJECT-II	4(0-4)	Major
TOTAL CREDIT HOURS		7	

Domain Elective Courses		
COURSE CODE	COURSE TITLE	CREDIT HOURS
ABG-401	INTRODUCTORY POPULATION GENETICS	3(2-1)
BIOCHEM-402	MOLECULAR BIOLOGY	3(3-0)
BIO-503	POPULATION BIOLOGY	3(2-1)
BIOCHEM-503	PROTEOMICS	3(2-1)
STAT-503	APPLIED PROBABILITY DISTRIBUTIONS	3(2-1)
BINFO-504	ETHICAL AND LEGAL ISSUES IN BIOINFORMATICS	2(2-0)
CHEM-504	PHARMACEUTICAL CHEMISTRY -IVA (MEDICINAL CHEMISTRY)	4(3-1)
BINFO-506	MACHINE LEARNING FOR BIOINFORMATICS	3(2-1)
BIOTECH-507	TECHNIQUES IN BIOCHEMISTRY AND BIOTECHNOLOGY	3(0-3)
BIOTECH-509	GENOMICS	3(2-1)
CS-513	WEB PROGRAMMING	3(2-1)
CS-517	NEURAL NETWORKS	3(2-1)
CS-515	MODELING AND SIMULATION	3(2-1)
BINFO-601	BIOINFORMATICS SOFTWARE DEVELOPMENT	3(2-1)
IT-601	HUMAN COMPUTER INTERACTION	3(2-1)
BINFO-603	MICROARRAY DATA ANALYSIS	3(2-1)

BINFO-605	STRUCTURAL BIOINFORMATICS	3(2-1)
BIOTECH-605	NANOBIOTECHNOLOGY	3(3-0)
BINFO-609	BIOINFORMATICS BIG DATA	3(3-0)
BINFO-610	SPECIAL TOPICS IN BIOINFORMATICS	3(3-0)