

REVISED SCHEME OF BS BIOINFORMATICS

2016

*Implemented from Fall - 2016
onward*

DEPARTMENT OF BIOINFORMATICS & BIOTECHNOLOGY
INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD

SEMESTERWISE DISTRIBUTION OF COURSES

of General Courses:

General courses are divided in two categories:

Category A (27 credit hr)

Category B (24 credit hr)

CATEGORY A

(27 Cr. Hours)

1: Compulsory Requirement Courses (Student has no choice)

NO.	CODE	COURSE	CREDIT HRS.
	BI-101	Elementary Chemistry ✓	3+0
	BI-130	Basic Mathematics ✓	3+0
	GC-101	Islamic Studies ✓	3+0
	GC-102	Functional English I ✓	3+0
	GC-103	Understanding Quran ✓	3+0
	GC-110	Introduction to Computer ✓	2+1
	GC-201	Functional English III ✓	3+0
	GC-205	Functional English II ✓	3+0
	SOC-430	Pakistani Culture and Society ✓	3+0

CATEGORY B

(24 Cr. Hours)

2: General courses to be chosen from other departments

NO.	CODE	COURSE	CREDIT HRS.
	BI-232	Discrete Mathematics ✓	3+0
	BI-325	Database Management System ✓	2+1
	BI-328	Digital Image Processing ✓	3+0
	BI-335	Applied Differential Equation ✓	3+0
	CS-212	Data Structure & Algorithm ✓	2+1
	CS-361	Computer Graphics ✓	3+0
		Two Courses From Social Sciences	
	GC-204	a) Sociology	3+0
	GC-203	b) Introduction to Economics	3+0
	GC-151	c) Introduction to Finance	3+0
	GC-308	d) Globalization	3+0
	GC-121	e) Psychology ✓	3+0
		f) Public Administration	3+0
	GC-117	g) Social Work	3+0
	GC-113	h) Introduction to Management ✓	3+0
	GC-106	i) Mass Communication ✓	3+0

GC - 116	Introduction to Law	3+0
GC - 308	k) International Relations	3+0
GC - 309	l) Anthropology	3+0
GC - 115	m) Basic Academic Writing	3+0

(85 Cr. Hours)

List of Courses:

CORE COURSES: (73 Cr. Hr.)

Table 3: Core courses (Compulsory for student)

SR. NO.	CODE	COURSE	CREDIT HRS.
			2+1
1)	BI- 113	Basic Biology ✓	3+0
2)	BI-131	Biomathematics ✓	2+1
3)	BI-140	Introduction to Bioinformatics ✓	3+0
4)	BI-201	Biostatistics ✓	2+1
5)	BI- 250	Molecular Biology ✓	3+0
6)	BI-300	Ethical & legal Issues in Bioinformatics ✓	2+1
7)	BI-301	Bioinformatics Computing I ✓	3+0
8)	BI-302	Bioinformatics Computing II ✓	3+0
9)	BI-303	Genomics ✓	3+0
10)	BI-304	Proteomics ✓ <i>Genomics & proteomics</i>	2+1
11)	BI-306	Bioinformatics software Engineering ✓	2+1
12)	BI-307	Computer Aided Drug Designing ✓	2+1
13)	BI-308	Modern Languages in Bioinformatics ✓	2+1
14)	BI- 324	Object Oriented Programming ✓	3+0
15)	BI- 343	Phylogenetics ✓	2+1
16)	BI- 446	Computational Biology ✓	3+0
17)	BT-140	Introduction to Biotechnology ✓	2+1
18)	BT-200	Fundamentals of Genetics ✓	2+1
19)	BT-299	Biochemistry ✓	3+0
20)	BT-308	Research Methodology ✓	3+1
21)	CS-111	Programming Fundamentals ✓	3+0
22)	CS-451	Artificial Intelligence ✓	6
23)	BI-499	Project	

ELECTIVE COURSES: (12 Cr. Hr.)

Table 4: Elective courses

1)		Elective I	3+0
2)		Elective II	3+0
3)		Elective III	3+0
4)		Elective IV	3+0

Four elective courses can be selected from the following list of electives.

Total Credit Hours: 136

LIST OF ELECTIVE COURSES

Four Courses to be selected

	Course Code	Course	Credit Hrs.
1.	BT-112	Microbiology ✓	3(2+1)
2.	BT-302	Cellular Metabolism	3(2+1)
3.	BI-356	System Biology	3(3+0)
4.	BI-459	Biochemical Engineering	3(3+0)
5.	BI-234	Linear System Theory	3(3+0)
6.	BI-457	Bioinformatics: Algorithms & System	3(3+0)
7.	BI-455	Cancer Genetics	3(3+0)
8.	BT-304	Methods in Molecular Biology	3(1+2)
9.	BI-454	Molecular Mechanism of Antimicrobial drugs	3(3+0)
10.	CS-509	Theory of Automata	3(3+0)
11.	BI-455	Special Topics in Bioinformatics	3(3+0)
12.	BT-450	Pharmaceutical Chemistry	3(3+0)
13.	BT-451	Pharmaceutical Biotechnology	3(3+0)
14.	BT-457	Bioremediation	3(3+0)
15.	BI-102	Bioelectronics and Biosensor	3(3+0)
16.	BI-451	Radiobiology	3(2+1)
17.	BT-461	Nano biotechnology	3(3+0)
18.	BT-334	Enzymology	3(3+0)
19.	BI-452	Cell Signaling	3(3+0)
20.	BT-466	Bacterial Genetics	3(3+0)
21.	BI-456	Human Genetics	3(3+0)
22.	BT-473	Genetic Engineering	3(3+0)
23.	BI-457	Molecular Diagnostic	3(2+1)
24.	BT-475	Cell and Tissue Culture	3(3+0)
25.	BI-460	Molecular Evolution	

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			3(2+1)
			3(3+0)
26.	BT-300	Immunology	
27.	BI-453	Down Stream Technology	3(2+1)
28.	BI-436	Modelling & Simulation	3(2+1)
29.	BI-353	Techniques in Molecular Biology	3(2+1)
30.	BI-355	Statistical Programming in R	3(3+0)
		Computer Organization	

BE APPROVED: LIST OF COURSES TO BE ADDED IN UNIVERSITY
HEME:

R. NO.	CODE	COURSE	CREDIT HRS.	Category
1.	BI-300	Ethical & Legal Issues in Bioinformatics	3+0	CORE
2.	BI-301	Bioinformatics Computing I	2+1	CORE
3.	BI-302	Bioinformatics Computing II	3+0	CORE
4.	BI-303	Genomics	3+0	CORE
5.	BI-304	Proteomics	3+0	CORE
6.	BI-306	Bioinformatics Software Engineering	2+1	CORE
7.	BI-307	Computer Aided Drug Designing	2+1	CORE
8.	BI-308	Modern Languages in Bioinformatics	2+1	CORE
9.	BT-308	Research Methodology	3+0	CORE