MS in Biotechnology

Program Overview:

We are committed to providing quality education with a focus on research and to equip students with the art of living as productive members of society, contributing to the socio-economic uplift of Pakistan in general, and Balochistan in particular. Since Biotechnology has transformed almost all disciplines, many of our graduates use their scientific skills (and the analytical skills it instils) to prepare them for a career in other disciplines such as medicine, bioethics, education, physical and life sciences. Demand for graduates well-versed in Biotechnology is high and is expected to continue to grow as the science tech age is accelerating.

Main Areas of Research:

- Genomic complexity of organisms including Human beings
- Omics including Genomics and Proteomics
- Application of DNA Barcoding in species identification
- Epigenetics
- Recombinant DNA/RNA Technology and allied RNA Sciences
- Gene editing and expression profiling
- Biochemistry and molecular mechanisms
- Fungal Biotechnology
- Oncology with applied aspects of Biotechnology
- Industrial Biotechnology
- Plant Molecular Genetics
- Role of Entomology in Biotechnology
- Stress Physiology and cultivar screening
- Tissue culture and organogenesis
- Applied Biotechnology on everyday science

For more information, please refer to the list of faculty members for their research field on the Department website.

Admission Requirement:

16 years of education or equivalent e.g. BS - 4 years in the relevant field from HEC recognized university with at least 60% Marks (Annual System) or CGPA ≥ 2.5 out of 4.00 (Semester System).

GAT general with at least 50% marks or GAT subject with at least 60% marks or HAT for the admission /scholarship in the specific program of study.

For more information on application deadlines, tests and other admission requirements, please visit the admissions section of the Graduate Studies Office.

Program Requirement:

The minimum and maximum duration of the MS program is 1.5 to 4 years. Students must meet the following requirements for graduation:

- A minimum of 24 credit hours course work with a minimum CGPA of 2.5
- Successful defense of synopsis/ research proposal and its approval from Advanced Studies and Research Board (AS&RB).
- A minimum of 6 credit hours research work/ thesis.
- Thesis defense and viva.

#	Course Codes	Course Title	Credit Hours
FIRST SEMESTER			
1	BIOTECH- 602	Modern Biotechnology: Principles & Applications	3 + 0
2	BIOTECH- 617	Developments in rDNA Technology	3 + 0
3	MOLBIOL- 601	Advance Molecular Biology	3 + 0
4		Elective I	3 + 0
SECOND SEMESTER			

1	BIOCHEM-604	Advance Biochemistry	
2	BIOCHEM-639	Research Methods in Biotechnology	3 + 0
3	STAT-601	Biostatistics	3 + 0
		Elective II	3 + 0
THIRD SEMESTER			
1	THESIS-601	Thesis	6 + 0
		TOTAL	**6**
		Total Courses	**24**
		Total Credit Hours	**30**

Program Structure:

List of Elective Courses

Serial #	Course Code	Course Titles	Credit Hours
1	BIOTECH- 602	Modern Biotechnology: Principles & Applications	3+0
2	STAT-501	Biostatistics & Laboratory Mathematics	3+0
3	BIOTECH-504)	Bioethics, Biosecurity, Biosafety	3+0
4	BIOTECH-506	Bioprocess Technology	3+0
5	MOLBIOL-607	Advances in Cell and Molecular Biology	3+0
6	MOLBIOL-608	Recent trends in Molecular Diagnostics	3+0
7	BIOCHEM - 639	Research methods in Biotechnology	3+0
8	BIOTECH-631	Advances in Environmental Biotechnology	3+0
9	BIOTECH-508)	Biotechnology Law & Regulation	3+0
10	MOLBIOL-609	Molecular Basis of Plant Development	3+0
11	GENOMICS-602	Advances in Pharmacogenomics	3+0
12	GENET-601	Advances in Molecular Genetics	3+0
13	BIOCHEM-503	Advances in Protein Chemistry	3+0
14	BIOINFO-602	Advances in Bioinformatics	3+0
15	PHY-503	Biophysics	3+0
16	BIOTECH-632	Advances in Fermentation Technology	3+0
17	IMMUNOL-601	Advances in Immunology	3+0
18	BIOCHEM-504	Metabolic Pathways in Plants	3+0

19	MOLBIOL-605	Regulation of Gene Expression	3+0
20	BIOL-504	Molecular Evolution	3+0
21	BIOTECH-513	Molecular Basis of Plant Breeding	3+0
22	BIOTECH-633	Advances in Fungal Biotechnology	3+0
23	MICRBIOL-501	Advances in Microbiology	3+0
24	GENET-501	Advances in Microbial Genetics	3+0
25		Recent trend in Biochemical Engineering	3+0
26	BIOTECH-515	Protein Engineering and Enzyme Technology	3+0
27	BIOTECH-507	Bioremediation and biodegradation	3+0
28	BIOTECH-509	Biotechnology of Nonrenewable Resources)	3+0
29	BIOTECH-636	Advances in Plant Biotechnology	3+0
30	BIOTECH-511)	Metabolic Engineering and Biofuels	3+0
31	BIOTECH-628	Advances in Agriculture Biotechnology	3+0
32	BIOTECH-503	Applications of Nanobiotechnology	3+0
33	BIOTECH-635	Advances in Industrial Biotechnology	3+0
34	BIOTECH-629	Advances in Animal Biotechnology	3+0
35	BIOL-501	Advances in Biosensor Technologies	3+0
36	MOLBIOL-604	Forensic Sciences	3+0
37	BIOTECH-637	Advances in Plant Tissue Culture	3+0
38	BIOTECH-630	Advances in animal cell Culture	3+0
39	BIOTECH-510	Medicinal Plant Biotechnology	3+0
40	BIOTECH - 617	Recombinant DNA Technology	3+0
41	BIOTECH-505	Biopharming in Plants, Principles and Techniques	3+0
42	BIOTECH-638	Advances in Proteomics	3+0
43	GENOMICS-601	Advances in Genomics	3+0
44	BIOTECH-512	Microbial Enzyme Technology	3+0
45	BIOL-502	Biological Safety and Risk Management	3+0
46	BIOCHEM-604	Advances Biochemistry	3+0
47	BIOL-503	Cellular Signaling	3+0
48	BIOTECH-634	Advances in Health Biotechnology	3+0
49	BIOTECH-502	Advances in Vaccine Research	3+0

50	BIOTECH-514	Molecular Systematics	3+0
51	MOLBIOL- 601	Advances in Molecular Biology	3+0
52		Stem cell Biology	3+0
53		Genetic Disorders	3+0
54		Cancer Biology	3+0
55		Antisense RNA technology	3+0
56		Epigenetics	3+0
57		Computational Biology	3+0
58		Pathology	3+0
59		Animal Physiology	3+0
60		Plant Physiology	3+0
61		Animal Pathology	3+0
62		Plant Pathology	3+0
63		Plant Microb Interaction	3+0
64		Drug Development	3+0

Contact Information

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