


BS 4-Year Program					
Semester I			Semester II		
C. Code	Title	CH	C. Code	Title	CH
Biotech-111	English-I	3-0	Biotech-121	English-II	3-0
Biotech-112	Pakistan Studies	2-0	Biotech-122	Islamic Studies/Ethics	2-0
Biotech-113	Mathematics-I	3-0	Biotech-123	Mathematics-II	3-0
Biotech-114	Physical Chemistry (G)	2-1	Biotech-124	Inorganic Chemistry (G)	2-1
Biotech-115	Plant Diversity (G)	2-1	Biotech-125	Animal Diversity (G)	2-1
Biotech-116	Cell Biology (F)	2-1	Biotech-126	Genetics (F)	2-1
<b>Total Credit Hours</b>		<b>17</b>	<b>Total Credit Hours</b>		<b>17</b>

Semester III			Semester IV		
C. Code	Title	CH	C. Code	Title	CH
Biotech-231	English-III	3-0	Biotech-241	English-IV/International Language*	3-0
Biotech-232	Introduction to Computer	3-0	Biotech-232	Ecosystem & Environment (G)	2-1
Biotech-233	Organic Chemistry (G)	2-1	Biotech-233	Any subject from social sciences (G)	3-0
Biotech-234	Any subject from social sciences (G)	3-0	Biotech-234	Analytical Chemistry & Instrumentation (F)	2-1
Biotech-235	Biochemistry I (F)	2-1	Biotech-235	Biochemistry II (F)	2-1
Biotech-236	Microbiology (F)	2-1	Biotech-236	Mol. Biology I (F)	2-1
<b>Total Credit Hours</b>		<b>18</b>	<b>Total Credit Hours</b>		<b>18</b>



### Semester V

C. Code	Title	CH
Bot-351	Bacteriology and Virology	3-0
Bot-352	Diversity of Vascular Plants	3-0
Bot-353	Phycology & Bryology	3-0
Bot-354	Mycology and Plant Pathology	3-0
Bot-355	Plant Systematics	3-0
Bot-356	Plant Anatomy	3-0
<b>Total Credit Hours</b>		<b>18</b>

### Semester VI

C. Code	Title	CH
Bot-361	Plant Ecology-I	3-0
Bot-362	Genetics-I	3-0
Bot-363	Plant Biochemistry-I	3-0
Bot-364	Plant Physiology-I	3-0
Bot-365	Molecular Biology	3-0
<b>Total Credit Hours</b>		<b>15</b>

### Semester VII

C. Code	Title	CH
Bot-471	Plant Biochemistry-II	3-0
Bot-472	Plant Ecology-II	3-0
Bot-473	Elective-I, Research project / Internship/Optional Paper	0-0
Bot-474	Elective-II	3-0
Bot-475	Plant Physiology-II	3-0
<b>Total Credit Hours</b>		<b>15</b>

### Semester VIII

C. Code	Title	CH
Bot-481	Genetics-II	3-0
Bot-482	Environmental Biology	3-0
Bot-483	Research Project / Internship / Optional Paper	0-0
Bot-484	Elective-IV	3-0
<b>Total Credit Hours</b>		<b>15</b>

\*Special or optional papers/project will be according to the expertise available in the university.

### M.Sc 2-Year Program

#### Previous

Paper	Title
Paper I	Virology, Bacteriology & Phycology
Paper II	Mycology and Plant Pathology
Paper III	Comparative Morphology of Archegoniate, and Palynology
Paper IV	Anatomy, Embryology & Taxonomy of Angiosperms
Paper V	Plant Biochemistry
Paper VI	Plant Ecology

#### Final

Paper	Title
Paper VII	Cell Biology and Biometry
Paper VIII	Plant Physiology
Paper IX	Genetics
Paper X	Environmental Biology
Paper XI	Medicinal Plants & Economic Botany
Paper XII	Research Project OR Special Paper

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Semester V			Semester VI		
C. Code	Title	CH	C. Code	Title	CH
Biotech-351	Statistics (F)	3-0	Biotech-361	Genetic resources & Conservation (F)	2-1
Biotech-352	Immunology (F)	2-1	Biotech-362	Microbial Biotechnology	2-1
Biotech-353	Mol. Biology II (F)	2-1	Biotech-363	Agriculture Biotechnology (M)	2-1
Biotech-354	Principles of Biochemical Engineering (M)	2-1	Biotech-364	Food Biotechnology (M)	2-1
Biotech-355	Cell and Tissue Culture (M)	2-1	Biotech-365	Bioinformatics (M)	0-2
Biotech-356	Elements of Biotechnology (M)	2-0			
<b>Total Credit Hours</b>		<b>17</b>	<b>Total Credit Hours</b>		<b>14</b>

Semester VII			Semester VIII		
C. Code	Title	CH	C. Code	Title	CH
Biotech-471	Health Biotechnology (M)	3-0	Biotech-481	Elective-III	2-1
Biotech-472	Recombinant DNA Technology (M)	2-1	Biotech-482	Environment Biotechnology (M)	2-1
Biotech-473	Skill Enhancement (M)	0-1	Biotech-483	Down Stream Technology (M)	1-0
Biotech-474	Metabolomics, Proteomics and Genomics (M)	2-1	Biotech-484	Bio-safety & Bioethics (M)	1-0
Biotech-475	Elective-I	2-1	Biotech-485	Elective-IV	2-1
Biotech-476	Elective-II	2-1	Biotech-486	Research Dissertation, Research Project, Internship, Special Paper*	3-0
Biotech-477	Research Dissertation, Research Project, Internship, Special Paper	3-0			
<b>Total Credit Hours</b>		<b>18</b>	<b>Total Credit Hours</b>		<b>14</b>

\*Special papers/project will be according to the expertise available in the university.


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Semester I			Semester II		
C. Code	Title	CH	C. Code	Title	CH
Bot-111	English-I	3-0	Bot-121	English-II	3-0
Bot-112	Pakistan Studies	0-2	Bot-122	Islamic Studies /Ethics	0-2
Bot-113	Mathematics-I	3-0	Bot-123	Environmental Science	3-0
Bot-114	Principles in Animal Life-I	3-0	Bot-124	Inorganic Chemistry	2-1
Bot-115	Physical Chemistry	3-0	Bot-125	Principles in Animal Life-II	2-1
Bot-116	Diversity of Plants	3-1	Bot-126	Plant Systematics, Anatomy and Development	2-1
Total Credit Hours		18	Total Credit Hours		17

Semester III			Semester IV		
C. Code	Title	CH	C. Code	Title	CH
Bot-231	English-III	3-0	Bot-241	Biostatistics	3-0
Bot-232	Introduction to Computer	3-0	Bot-242	General-VI	3-0
Bot-233	General-V	3-1	Bot-243	General-VII	3-0
Bot-234	General-VI	3-0	Bot-244	Plant Physiology and Ecology	3-1
Bot-235	Cell Biology, Genetics and Evolution	3-1	Bot-245	Biodiversity and Conservation	3-1
Total Credit Hours		17	Total Credit Hours		17

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Example of Courses/Subjects Related to Sustainability in ecosystems(University of Malakand, Pakistan)

## Description:

The University of Malakand has designed various courses approved by Higher Education Commission which aims to embed sustainability into all course and module content offered by the University.