

### BS Biotechnology (BS BTH)

SEMESTER I			
S.N.	COURSE	CREDIT HOURS	CATEGORY
ARB-500	Arabic Languages	2	General Education
SOC-500	Introduction to Sociology	2	General Education
ENG-501	Functional English	3	General Education
BIO-501	Principles of Biology	2	General Education
BIO-501-L	Principles of Biology Lab	1	General Education
ISL-501	Islamic Studies	2	General Education
BTH-501	Introduction to Biotechnology	3	Major
BTH-502	Cell Biology	2	Major
BTH-502-L	Cell Biology Lab	1	Major
<b>Total Credit Hours = 18</b>			

SEMESTER II			
S.N.	COURSE	CREDIT HOURS	CATEGORY
QRE-501	Quantitative Reasoning-I	3	General Education
ENG-502	Expository Writing	3	General Education
ICT-501	Applications of Information & Communication Technologies (ICT)	2	General Education
ICT-501-L	Applications of Information & Communication Technologies (ICT) Lab	1	General Education
BIO-502	Principles of Genetics	3	Major
TMO-501	Time Management & Organizing Skills	2	General Education
BTH-503	Biochemistry-I	2	Major
BTH-503-L	Biochemistry-I Lab	1	Major
UHQ-501	Understanding of Holy Quran-I	1	General Education
<b>Total Credit Hours = 18</b>			

SEMESTER III			
S.N.	COURSE	CREDIT HOURS	CATEGORY
BTH-503	Biochemistry-II	2	Major
BTH-503-L	Biochemistry-II Lab	1	Major

L			
QRE-502	Quantitative Reasoning II	3	General Education
CCE-501	Civics & Community Engagement	2	General Education
BIP-501	Biophysics	3	Interdisciplinary
BTH-504	Microbiology	2	Major
BTH-504-L	Microbiology Lab	1	Major
CHEM-501	Organic Chemistry	2	Interdisciplinary
CHEM-501-L	Organic Chemistry Lab	1	Interdisciplinary
UHQ-502	Understanding of Holy Quran-II	1	General Education
<b>Total Credit Hours = 18</b>			

SEMESTER IV			
S.N.	COURSE	CREDIT HOURS	CATEGORY
CHEM-502	Physical Chemistry	3	Interdisciplinary
BTH-505	Immunology	3	Major
BTH-506	Analytical Chemistry & Instrumentation	2	Major
BTH-506-L	Analytical Chemistry & Instrumentation Lab	1	Major
PKS-501	Pakistan Studies	2	General Education
ENT-501	Entrepreneurship	2	General Education
ICP-501	Ideology & Constitution of Pakistan	2	General Education
<b>Total Credit Hours = 15</b>			

SEMESTER V			
S.N.	COURSE	CREDIT HOURS	CATEGORY
BTH-601	Microbial Biotechnology	2	Major
BTH-601-L	Microbial Biotechnology Lab	1	Major
BTH-602	Recombinant DNA Technology	2	Major
BTH-602-L	Recombinant DNA Technology Lab	1	Major
BTH-603	Molecular Biology	2	Major
BTH-603-L	Molecular Biology Lab	1	Major
XXX	Elective-I	3	Major

BCH-604	Clinical Biochemistry	2	Interdisciplinary
BCH-604-L	Clinical Biochemistry Lab	1	Interdisciplinary
BTH-604	Agriculture Biotechnology	3	Major
<b>Total Credit Hours = 18</b>			

<b>SEMESTER VI</b>			
S.N.	COURSE	CREDIT HOURS	CATEGORY
BTH-606	Genomics & Proteomics	3	Major
BTH-607	Food Biotechnology	2	Major
BTH-607-L	Food Biotechnology Lab	1	Major
BST-601	Biostatistics	2	Major
BST-601-L	Biostatistics Lab	1	
BTH-608	Principles of Biochemical Engineering	3	Major
BTH-609	Methods in Molecular Biology	2	Major
BTH-609-L	Methods in Molecular Biology Lab	1	Major
BTH-610	Environmental Biotechnology	2	Major
BTH-610-L	Environmental Biotechnology Lab	1	Major
<b>Total Credit Hours = 18</b>			

<b>SEMESTER VII</b>			
S.N.	COURSE	CREDIT HOURS	CATEGORY
BTH-611	Industrial Biotechnology	2	Major
BTH-611-L	Industrial Biotechnology Lab	1	Major
BTH-612	Health Biotechnology	3	Major
BTH-613	Bioinformatics	2	Major
BTH-613-L	Bioinformatics Lab	1	Major
BTH-614	Biosafety, Biosecurity & Bioethics	2	Major
XXX	Elective-II	3	Major
BTH-615	Internship	3	Major
<b>Total Credit Hours = 17</b>			

<b>SEMESTER VIII</b>			
S.N.	COURSE	CREDIT HOURS	CATEGORY
BTH-617	Nanobiotechnology	3	Major
XXX	Elective-III	3	Major
BTH-618	Artificial Intelligence in Biotechnology	2	Major
BTH-618-	Artificial Intelligence in	1	Major

L	Biotechnology Lab		
BTH-619	Capstone	3	Capstone
BTH-620	Scientific Inquiry & Research Methods	3	Major
XXX	Elective-IV	3	Major
<b>Total Credit Hours = 18</b>			