



Department of Microbiology

KOHSAR UNIVERSITY MURREE



BS Microbiology

Framework For BS Microbiology (4 Years Programme)

- Total numbers of Credit hours 130-136
- Duration 4 Years
- Semester duration 16-18 Weeks
- Semesters 08
- Course Load per Semester 9-21 Cr. hours
- Number of courses per semester 5-7

Proposed Study Plan for BS (Microbiology) Semester Wise

Course Codes have been assigned considering codes generated by Kohsar University, Murree.

1 st Year, 1 st Semester				
Sr.	Course code	Categories	Course Title	Credit hours
1	ENG-101	Compulsory-I	English-I	3(3,0)
2	GEN-101	Compulsory-II	Pakistan Studies	2(2,0)
3	MTH-106	Compulsory-III	Mathematics-I	3(3,0)
4	MLT-202	General-I	Basic Biochemistry	3(2,1)
5	BBT-102	General-II	Cell Biology	3(2,1)
6	MIC-101	Foundation-I	Introduction to Microbiology	3(2,1)
			Total Credits	17

1 st Years, 2 nd Semester				
Sr.	Course code	Categories	Course Title	Credit hours
1	ENG-102	Compulsory-IV	English II	3(3,0)
2	IST-101	Compulsory-V	Islamic Studies / Ethics (For Non-Muslim only)	2(2,0)



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3	MIC-102	General-III	Fundamentals of Chemistry	3(2,1)
4	MIC-103	General-IV	Animal Diversity	3(3,0)
5	MIC-104	Foundation-II	Fundamentals of Microbiology	3 (2,1)
6	MIC-105	General-V	Fundamentals of Microscopy	3(3,0)
			Total Credits	17

2 nd Year, 3 rd Semester				
Sr.	Course code	Course Category	Course Title	Credit hours
1	MIC-201	General V	Ecology and Ecosystem	3(3,0)
2	CSC-101	Compulsory-VI	Introduction to Information and Communication Technologies	3(3,0)
3	SOC-101	General VI	Sociology	3(3,0)
4	BBT-201	Foundation V	Introduction to Molecular Biology	4(3,1)
5	BOT-101	General IX	Diversity of plants	3(2,1)
6	MIC-202	Foundation III	Microbial Diversity	3(3,0)
			Total Credits	19

2 nd Year, 4 th Semester				
Sr.	Course code	Course Category	Name of Subject	Credit hours
1	STA-202	Compulsory-VII	Biostatistics	3(3,0)
2	MLT-103	General VII	Human Physiology	3(2,1)
3	MIC-203	Foundation IV	Biosafety and Risk Management	3(3,0)
4	MIC-204	Foundation X	Microbial Metabolism	3(3,0)
5	MIC-205	Foundation XI	General Virology	3(3,0)
			Total Credits	15

3 rd Year, 5 th Semester				
Sr.	Course code	Course Category	Course Title	Credit hours
1	MIC-301	Foundation VII	Microbial Enzyme Technology	3(3,0)
2	MIC-302	Foundation VIII	Mycology	3(3,0)
3	MIC-303	Foundation IX	Microbial Genetics	3(3,0)
4	MIC-304	Foundation X	Lab-1	3(3,0)



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5	MIC-XXX	Elective I	Elective-I	3(3,0)
			Total Credits	15

3 rd Year, 6 th Semester				
Sr.	Course code	Course Category	Course code	Credit hours
1	MIC-305	Major VII	Molecular Microbiology	3(3,0)
2	MIC-306	Major I	Immunology	3(3,0)
3	MIC-307	Major II	Soil Microbiology	3(3,0)
4	MIC-308	Foundation XI	Microbial Physiology	3(3,0)
5	MIC-309	Major III	Lab 2	3(3,0)
6	MIC-XXX	Elective II	Elective-II	3(3,0)
			Total Credits	18

4 th Year, 7 th Semester				
Sr.	Course code	Course Category	Course title	Credit hours
1	BIF-102	Major IV	Bioinformatics-I	3(2,1)
2	MLT-308	Major I	Clinical Parasitology	3(2,1)
	MIC-401	Major II	Food Microbiology	3(3,0)
4	MIC-402	Major VI	Medical Microbiology	3(3,0)
5	MIC-403	Major VIII	Lab 3	3(3,0)
6	MIC-XXX	Elective-III	Elective-III/Project	3(3,0)
			Total Credits	18

4 th Year, 8 th Semester				
Sr.	Course code	Course Category	Name of Subject	Credit hours
1	MIC-404	Major IX	Environmental Microbiology	3(3,0)
2	MIC-405	Major X	Cell & Tissue Culture Technology	3(3,0)



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3	MIC-406	Major XII	Lab 4	3(3,0)
4	MIC-406	Major V	Industrial Microbiology	3(3,0)
5	MIC-XXX	Elective IV	Elective IV/Project	3(3,0)
			Total Credits	15

Electives courses:

List of Elective Courses BS		
Course Code	Name of Course	Credits
MIC-XXX	Systemic Virology	3(3,0)
MIC-XXX	Molecular Immunology	3(3,0)
MIC-XXX	Genetic Engineering	3(2,1)
MIC-XXX	Clinical Biochemistry	3(3,0)
MIC-XXX	Epigenetics	3(3,0)
MIC-XXX	Cell Signaling	3(3,0)
MIC-XXX	Biomaterials	3(3,0)
MIC-XXX	Metagenomics	3(3,0)
MIC-XXX	Biodegradation and Bioremediation	3(3,0)
MIC-XXX	Clinical Bacteriology	3(3,0)
MIC-XXX	Zoonotic diseases	3(2,1)
MIC-XXX	Fermentation technology	3(2,1)
MIC-XXX	Geomicrobiology	3(3,0)
MIC-XXX	Vaccinology	3(3,0)
MIC-XXX	Epidemiology	3(3,0)
MIC-XXX	Marine Microbiology	3(3,0)
MIC-XXX	Waste management	3(3,0)
MIC-XXX	Plant Microbial Interaction	3(3,0)
MIC-XXX	Nanotechnology	3(3,0)
MIC-XXX	Probiotics	3(3,0)



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Lateral BS Microbiology

Framework For Lateral BS Microbiology (2.5 Years Programme)

- Total numbers of Credit hours 82
- Duration 2.5 Years
- Semester duration 16-18 Weeks
- Semesters 05
- Course Load per Semester 9-21 Cr. hours
- Number of courses per semester 5-7

Proposed Study Plan for Lateral BS (Microbiology) Semester Wise

Course Codes have been assigned considering codes generated by Kohsar University, Murree.

1 st Semester (Bridging Semester)				
Sr.	Course code	Course Category	Name of Subject	Credit hours
1	MIC-104	Foundation-II	Fundamentals of Microbiology	3(2,1)
2	BBT-201	Foundation V	Introduction to Molecular Biology	4(3,1)
3	MIC-203	Foundation IV	Biosafety and Risk Management	3(3,0)
4	MIC-204	Foundation X	Microbial Metabolism	3(3,0)
5	MLT-202	General-I	Basic Biochemistry	3(3,0)
			Total Credits	16

2 nd Semester				
Sr.	Course code	Course Category	Course Title	Credit hours
1	MIC-301	Foundation VII	Microbial Enzyme Technology	3(3,0)
2	MIC-302	Foundation VIII	Mycology	3(3,0)
3	MIC-303	Foundation IX	Microbial Genetics	3(3,0)
4	MIC-304	Foundation X	Lab-1	3(3,0)
5	MIC-XXX	Elective I	Elective-I	3(3,0)
			Total Credits	15



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3 rd Semester				
Sr.	Course code	Course Category	Course code	Credit hours
1	MIC-305	Major VII	Molecular Microbiology	3(3,0)
2	MIC-306	Major I	Immunology	3(3,0)
3	MIC-307	Major II	Soil Microbiology	3(3,0)
4	MIC-308	Foundation XI	Microbial Physiology	3(3,0)
5	MIC-309	Major III	Lab 2	3(3,0)
6	MIC-XXX	Elective II	Elective-II	3(3,0)
			Total Credits	18

4 th Semester				
Sr.	Course code	Course Category	Course title	Credit hours
1	BIF-102	Major IV	Bioinformatics-I	3(2,1)
2	MLT-308	Major I	Clinical Parasitology	3(2,1)
	MIC-401	Major II	Food Microbiology	3(3,0)
4	MIC-402	Major VI	Medical Microbiology	3(3,0)
5	MIC-403	Major VIII	Lab 3	3(3,0)
6	MIC-XXX	Elective-III	Elective-III/Project	3(3,0)
			Total Credits	18

5 th Semester				
Sr.	Course code	Course Category	Name of Subject	Credit hours
1	MIC-404	Major IX	Environmental Microbiology	3(3,0)
2	MIC-405	Major X	Cell & Tissue Culture Technology	3(3,0)



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3	MIC-406	Major XII	Lab 4	3(3,0)
4	MIC-406	Major V	Industrial Microbiology	3(3,0)
5	MIC-XXX	Elective IV	Elective IV/Project	3(3,0)
			Total Credits	15

Electives courses:

List of Elective Courses for Lateral BS		
Course Code	Name of Course	Credits
MIC-XXX	Systemic Virology	3(3,0)
MIC-XXX	Molecular Immunology	3(3,0)
MIC-XXX	Genetic Engineering	3(2,1)
MIC-XXX	Clinical Biochemistry	3(3,0)
MIC-XXX	Epigenetics	3(3,0)
MIC-XXX	Cell Signaling	3(3,0)
MIC-XXX	Biomaterials	3(3,0)
MIC-XXX	Metagenomics	3(3,0)
MIC-XXX	Biodegradation and Bioremediation	3(3,0)
MIC-XXX	Clinical Bacteriology	3(3,0)
MIC-XXX	Zoonotic diseases	3(2,1)
MIC-XXX	Fermentation technology	3(2,1)
MIC-XXX	Geomicrobiology	3(3,0)
MIC-XXX	Vaccinology	3(3,0)
MIC-XXX	Epidemiology	3(3,0)
MIC-XXX	Marine Microbiology	3(3,0)
MIC-XXX	Waste management	3(3,0)
MIC-XXX	Plant Microbial Interaction	3(3,0)
MIC-XXX	Nanotechnology	3(3,0)

* The scheme of study will be considered open, and the university has the right to offer any course in any semester keeping in view the requirements of the pre-requisites.

**The facility for teaching any of the optional courses will be arranged only if a reasonable number of students opt for it.