

**DEPARTMENT OF LIFE SCIENCES**

**Program Structures of M.Sc. Computational Biology and  
Bioinformatics - 2 Yr Program**

**Summary of Credits**

<b>Course Category</b>	<b>Credits</b>
University Core Courses	2
Program Core Courses	60
Electives	3
Industrial/Academic Internship	2
Dissertation	14
<b>Total Credits</b>	<b>81</b>

## Curriculum Structure

### M.Sc. Computational Biology and Bioinformatics (2-Years)

Total Credit = 81

SEMESTER I						
S. No.	Course Code	Course Name	L	T	P	Credits
1.		Cellular and Molecular Biology	4	0	1	5
2.		Principles of Biochemistry	4	0	0	4
3.		Introduction to Bioinformatics	3	0	1	4
4.		Fundamentals of Computers and Programming	2	0	1	3
5.		Statistical Methods in Bioinformatics	3	0	0	3
6.		Professional Communication	1	0	1	2
		<b>TOTAL</b>	<b>17</b>	<b>0</b>	<b>4</b>	<b>21</b>
SEMESTER II						
S. No.	Course Code	Course Name	L	T	P	Credits
1.		Data Structure & Algorithms	3	0	1	4
2.		Biological Databases & DBMS	3	0	2	5
3.		Programming in R and Python	2	0	1	3
4.		Principles of Genetics	3	0	0	3
5.		Systems Biology	3	0	0	3
6.		Research Methodology	3	0	0	3
		<b>TOTAL</b>	<b>17</b>	<b>0</b>	<b>4</b>	<b>21</b>
SEMESTER III						
S. No.	Course Code	Course Name	L	T	P	Credits
1.		NGS Data Analysis	3	0	1	4
2.		Structural Bioinformatics & Computer Aided Drug Design	3	0	2	5
3.		Artificial Intelligence and Machine Learning	3	0	0	3
4.		Network Biology	3	0	0	3
5.		Genomics, Proteomics and Metabolomics	3	0	0	3

6.		<b>Elective</b>	3	0	0	3
		<b>TOTAL</b>	<b>18</b>	<b>0</b>	<b>3</b>	<b>21</b>
<b>SEMESTER IV</b>						
<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
1.		Dissertation	0	0	14	14
2.		IPR and Ethics in Biosciences	2	0	0	2
3.		Industrial/ Academic Internship (Minor Project)	0	0	2	2
		<b>TOTAL</b>	<b>2</b>	<b>0</b>	<b>16</b>	<b>18</b>

Total Credit = 81

### List of Electives

<b>S.No.</b>	<b>Course Code</b>	<b>Course name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
1.		Cheminformatics and Drug design	2	0	1	3
2.		Biophysics	2	0	1	3
3.		Bioentrepreneurship	2	0	1	3
4.		Evolutionary and population genomics	2	0	1	3
5.		Pharmaceutical Modelling	2	0	1	3
6.		Microbial Informatics	2	0	1	3
7.		Industrial Practices in Life Science	2	0	1	3
8.		Big Data Analytics	2	0	1	3
9.		Molecular Modelling	2	0	1	3
10.		Advances in Computational Biology	2	0	1	3