

Department: Bioinformatics Centre, Savitribai Phule Pune University

Course: M. Sc. Bioinformatics

Duration: 2 years

Total Number of Credits: 88

Semester I		
Mandatory Courses		
Subject Code	Subject Title	Number of Credits
BIN 101 (T+P)	Biological Data & Databases	2T + 2P
BIN 102 (T+P)	Biological Sequence Analysis	2T + 2P
BIN 103 (T+P)	Biomolecular Structure & Organization	2T + 2P
BIN 104 (P)	Python Programming	2P
Total Mandatory Credits		6T + 8P =14 credits
BIN 105 (T)	Research Methodology	4T
Elective Courses		
<i>Courses worth of 4 credits from among the following:</i>		
Subject Code	Subject Title	Number of Credits
BIE 106 (T)*	Mathematics & Statistics	2T
BIE 107 (T)*	Basic Biology	2T
BIE 108 (T)	Molecular Biology	2T
BIE 109 (T)	Biochemistry and Cell Biology	2T
Total Elective credits		4 credits
Semester Total		22 credits

* Depending upon the UG training background, the students coming from Biology, Chemistry and all streams other than Mathematics and Statistics may opt for the course BIE 106 Mathematics & Statistics and the students coming from Mathematics and Statistics streams may opt for BIE 107 Basic Biology.

Semester II		
Mandatory Courses		
Subject Code	Subject Title	Number of Credits
BIN 201 (T+P)	Structural Bioinformatics	2T + 2P
BIN 202 (T+P)	Chemoinformatics	2T + 2P
BIN 203 (T+P)	Genomics	2T + 2P
BIN 204 (P)	Introduction to Database Systems	2P
Total Mandatory Credits		6T + 8P = 14 credits
BIN 205 (P)	On Job Training/ Field Project	4P
Elective Courses <i>Courses worth of 4 credits from among the following:</i>		
Subject Code	Subject Title	Number of Credits
BIE 206 (P)	Biological Data Curation and Analysis	2P
BIE 207 (P)	Advanced Techniques in Experimental Biology	4P
BIE 208 (T+P)	Molecular Phylogenetics	1T + 1P
BIE 209 (T+P)	Programming in Java	2T + 2P
BIE 210 (P)	Linux Operating System	2P
BIE 211 (T+P)	Software Testing	1T + 1P
Total Elective credits		4 credits
Semester Total		22 credits

Semester III		
Core Courses		
Subject Code	Subject Title	Number of Credits
BIN 301 (T+P)	Immunology and Immunoinformatics	1T + 1P
BIN 302 (T+P)	Comparative Genomics	2T + 2P
BIN 303 (T+P)	Molecular Modeling & Simulations	2T + 2P
BIN 304 (T+P)	Scientific Data Mining and Visualization	2T + 2P
Total Core credits		7T + 7P = 14 credits
BIN 305 (P)	Project	4P
Elective Courses		
<i>One course worth 4 credits from among the following::</i>		
Subject Code	Subject Title	Number of Credits
Group A		
BIE 306 (T)	Biology of Diseases	2T
BIE 307 (T+P)	Pathways & Networks	1T + 1P
BIE 308 (P)	Laboratory Course in Experimental Immunology	2P
BIE 309 (P)	Web Design	2P
Total Elective credits		4 credits
Semester Total		22 credits

Semester IV		
Core Courses		
Subject Code	Subject Title	Number of Credits
BIN 401 (P)	Project	6P
BIN 402 (P)	Seminar	2P
BIN 403 (T+P)	Transcriptomics and Proteomics	2T + 2P
BIN 404 (T+P)	Metabolic Engineering & Systems Biology	2T + 2P
BIN 405 (T+P)	Modern Drug Design	1T + 1P
Total Core credits		5T + 13P = 18 credits
Elective Courses		
<i>Courses worth of 4 credits from among the following::</i>		
Subject Code	Subject Title	Number of Credits
BIE 406 (T+P)	Translational Bioinformatics	1T + 1P
BIE 407 (T+P)	Advanced Genomics	1T + 1P
BIE 408 (T+P)	Advanced Molecular Phylogenetics	1T + 1P
BIE 409 (T+P)	Advanced Algorithms in Machine Learning	1T + 1P
Total Elective credits		4 credits
Semester Total		22 credits

UGC recommended courses(Additional 10 credits)		
Subject Code	Subject Title	Number of Credits
	Cyber security/Information security	4C
	Skill based credits	4C
	Human rights education	2C