

**MS in Cellular and Molecular Medicine and M.Sc. in Bioinformatics - Dual Degree
Programme
Curriculum (2020)**

SEMESTER I

S. No.	Course Code	Course Title	Credits
Subjects taught by Amrita Vishwa Vidyapeetham			
1.	BIO 400	Cell Biology & Stem Cell Biology	3
2.	BIO404	Intellectual Property Rights	1
3.	BIF410	Introduction to Bioinformatics	3
4.	BIF413	Programming Concepts	3
5.	BIO425	Molecular Biology for Bioinformatics	3
6.	BIF402	Database Design and Implementation for Bioinformatics	3
7.	BIF487	Programming for Bioinformatics -Lab	1
8.	BIF486	Bioinformatics Tools-Lab	1
Total semester credits taught by Amrita Vishwa Vidyapeetham			18
Subjects taught by University of Arizona			
9.	UAG 501	Maximizing UA Graduate School (non-credit bearing on degree)	1
10.	CMM 533	Molecular Medicine	1
11.	CMM 535	Genomic Medicine	1
Total semester credits taught by University of Arizona			3
Total credits for Semester I			21

SEMESTER II

S. No.	Course Code	Course Title	Credits
Subjects taught by Amrita Vishwa Vidyapeetham			
1.	BIO 464	Cancer Biology (BT/MB Elective I)	3
2.	BIF409	Structural Bioinformatics	4
3.	BIF417	Molecular Sequence Analysis	4
4.	BIF418	Mathematics for Bioinformatics	4
5.	BIF415	Machine Learning and Data Mining	3
6.	BIF416	Programming Using Perl	3
Total semester credits taught by Amrita Vishwa Vidyapeetham			21
Subjects taught by University of Arizona			
7.	CMM 603*	The Art of Scientific Discovery	2
8.	CMM 520	Clinical Cancer Genetics	2
9.	CMM 541	Bright-Field Microscopy	1
10.	CMM 546	Fluorescence Microscopy	1

11.	CMM 542	Digital Imaging	1
Total semester credits taught by University of Arizona			7
Total credits for Semester 1I			28

SEMESTER III

S. No.	Course Code	Course Title	Credits
Subjects taught by Amrita Vishwa Vidyapeetham			
1.	BIO513	Evolution and Comparative Genomics	3
2.	BIO518	Mathematical Modelling of Biological Systems	2
3.	BIF519	Advanced Programming for Bioinformatics	4
4.	BIF520	Object Oriented Programming Language	4
5.	BIF515	Computer-Aided Drug Design and Pharmacoinformatics	3
6.	BIF591	Advanced Programming -Lab	1
7.	BIF592	Object Oriented Programming-Lab	1
8.		Elective (Bioinformatics)	2
Total semester credits taught by Amrita Vishwa Vidyapeetham			20
Subjects taught by University of Arizona			
9.		CMM Elective	1
10.		CMM Elective	1
11.	CMM 547	Histology Basics	1
12.	CMM 548	Histology of the Digestive & Respiratory Systems	1
13.	CMM 549	Histology of the Urogenital & Endocrine Systems	1
Total semester credits taught by University of Arizona			5
Total credits for Semester III			25

SEMESTER IV

S. No.	Course Code	Course Title	Credits
Subjects taught by Amrita Vishwa Vidyapeetham			
1.	BIO 559	Thesis	10
Total semester credits taught by Amrita Vishwa Vidyapeetham			10
Total credits for Semester 1V			10
Total credits for the programme			84