MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
(Formerly West Bengal University of Technology)
Syllabus of B. Sc Genetics
(Effective from 2023-24 Academic Sessions)

Graduate Attributes

By the end of the program the students will be able to:

- ✓ Comprehensive, detailed understanding of the chemical basis of heredity and detailed understanding of genetic methodology.
- ✓ Quantification of heritable traits in families and populations provides insight into cellular and molecular mechanisms.
- ✓ Understanding of how genetic concepts affect broad societal issues including health and disease, food and natural resources, environmental sustainability, etc.
- ✓ Understanding the role of genetic mechanisms in evolution.
- ✓ The knowledge required to to design, execute, and analyze the results of genetic experimentation in animal and plant model systems.
- ✓ The ability to recognize the experimental rationale of genetic studies as they are described in peer-reviewed research articles and grant proposals to federal and other funding agencies.
- ✓ The ability to evaluate conclusions that are based on genetic data.
- ✓ Insight into the mathematical, statistical, and computational basis of genetic analyses that use genome-scale data sets in systems biology settings.
- ✓ Understanding the role of genetic technologies in industries related to biotechnology, pharmaceuticals, energy, and other fields.
- ✓ Communication skills required in the discipline including oral presentations of research data, published research articles, grant proposals, and poster presentations at conferences.
- ✓ Teamwork and leadership skills including group analysis of data, working together in the research laboratory, joint compositions of written reports, substantive participation in research group meetings, etc.

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Curriculum Structure

SEM-1

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN 1101 BMGN 1191	Biochemistry	3	0	2	5
2.		BMGN 1102 BMGN 1192	Cell Biology	3	0	2	5
3.	DSE	MIC101	Computer Fundamental	3	0	0	3
4.	GE		Any one from GE Basket A/D	3	0	0	3
5.	AECC	AECC101	English & Professional Communication	2	0	0	2
6.	SEC	SEC181	Life Skills & Personality Development	2	0	0	2
7.	VAC	VAC181A VAC181B VAC181C	Yoga/ Health& Wellness/ Sports / Physical Fitness and Wellness/Community Services	2	0	0	2
Total Credit							22

SEM-2

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN 2101 BMGN 2191	Principles of Transmission Genetics	3	0	2	5
2.		BMGN 2202 BMGN 2292	Population and Evolutionary Genetics	3	0	2	5
3.	DSE	MIC201	Management Information System	3	0	0	3
4.	GE		Any one from GE Basket B/E	3	0	0	3
5.	AECC	AECC 201	Modern Indian Languages and Literature	2	0	0	2
6.	SEC	SEC201	IT Tools for Business / Monetizing Social Media or Design Thinking	2	0	0	2
7.	VAC	VAC281A VAC281B VAC281C VAC281D	Critical Thinking / NSS/ Mental Health/ Environmental Studies	2	0	0	2
Total Credit							22

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SEM-3

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN 3201 BMGN 3291	Molecular Biology	3	0	2	5
2.		BMGN 3202	Model Organism in Human Genome Project	4	1	0	5
3.	DSE	MIC301	Word and PowerPoint & Spreadsheet Application with Excel	3	1	0	4
4.	GE		Any one from GE Basket C/F	3	0	0	3
5.	AECC	AECC 301B	The Constitution and Human Rights	2	0	0	2
6.	SEC	SEC301	Understanding basics of Cyber Security	2	0	0	2
Total Credit							21

SEM-4

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN 4201	Plant And Animal Tissue Culture Techniques	4	0	0	4
2.		BMGN 4202	Bio-analytical Tools	4	0	0	4
3.		BMGN 4203 BMGN 4293	Genetics and Karyotyping	3	0	2	5
4.	DSE	MIC401A/B	Basics of Operating System/ Database Management with SQL	3	1	0	4
5.		MIC402A/B	Graphic Design with Photoshop and Illustrator/ Unix And Shell	3	1	0	4
6.	AECC	AECC401	Universal Human Values (UHV)	2	0	0	2
Total Credit							23

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SEM-5

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN5301 BMGN5391	Recombinant DNA Technology	3	0	2	5
2.		BMGN5302 BMGN5392	Immunology	3	0	2	5
3.	DSE	MIC501A/B/C	Cloud Computing /Introduction to Computer Network	3	1	0	4
4.		MIC502	E-commerce and Application	3	1	0	4
5.	SEC	SEC 581	Internship to be started after exam of 4thsem (sem break) and completed within 5thsem (weekends)	0	0	4	4
Total Credit							22

SEM-6

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN 6301	Human Molecular Genetics	3	1	0	4
2.		BMGN 6302	Developmental Genetics	4	1	0	5
3.		BMGN 6303 BMGN 6393	Plant Molecular Genetics	3	0	2	5
4.	DSE	MIC601A	Web Development with HTML and CSS	3	1	0	4
5.		MIC602A/B	Internet and Networking /ERP	3	1	0	4
Total Credit							22

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SEM-7

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN 7401 BMGN 7491	Bioinformatics	3	0	2	5
2.		BMGN 7402	Reproductive and Cancer Genetics and Emerging Technology	4	1	0	5
3.		BMGN 7403	Research Methodology	4	0	0	4
4.	DSE	MIC701A/B/C	Any one from Computer Minor basket	3	1	0	4
5.		MIC702A/B/C	Any one from Computer Minor basket	3	1	0	4
Total Credit							22

SEM-8

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	DSC	BMGN 8401	IPR, Bioethics and Bio-safety	4	1	0	5
2.		BMGN 8402	Clinical Genetics and Genetic Counselling	4	1	0	5
4.	SEC	881	Internship & Research Project/ Dissertation	0	0	12	12
Total Credit							22