Teaching Plan
Department of Biotechnology
Jagannath Barooah University, Jorhat
Academic Session: 2025-26
Name of the Teacher: Dr Sourabh Kr Das
Semester: 1st Semester (Minor)

Semester	Allotted Course Details	Method of Teaching	Teaching Material	Unit	Class Hours	Suggested Resources
Theory						
1st Sem	BTCMI011 (T) Cell Biology	Lecture, Discussion, Class Notes	Textbook, Videos Available on the Swayam portal	**Unit – 1. Cell Structure (All Topics)**	5	1. Essential Cell Biology – By Alberts, Bray, Hopkin (Garland Science) 2. Molecular Cell Biology – By Lodish, Berk 3. Cell Biology by S.C. Rastogi
				Unit -2. Cytoskeleton and endomembrane system (All Topics)	10	
				Unit – 3. Cell Division, signalling and some diseases (All Topics)	10	
				Unit – 4. Genetic Material (All Topics)	10	
				Unit – 5. Biophysical Techniques to study cell (All Topics)	10	

Semester	Allotted Course Details	Method of Teaching	Teaching Material	Unit	Class Hours	Suggested Resources
Practical						
1st Sem	BTCMI011 (Pr) Cell Biology	Practical demonstration and hands on	Microscope, and Biochemical analysis	Mitosis and the Cell Cycle in Onion Root-Tip Cells	2	Not applicable
				Meiosis in Onion Flower bud /Tradescantia Flower bud /Grasshopper testes	2	
				Buccal smear – Identification of Barr Body	4	
				Histochemical localization of Protein and Lipid	3	
				Anatomical studies of different types of cell & tissue (Histology): • Plant: Leaf of monocot & dicot, Stem of monocot & dicot, Root of monocot & dicot, Stomata • Animal: Simple epithelium, Squamous epithelium, Columnar Epithelium, Stratified	4	

Teaching Plan
Department of Biotechnology
Jagannath Barooah University, Jorhat
Academic Session: 2025-26
Name of the Teacher: Dr Sourabh Kr Das
Semester: 3rd Semester (Minor)

Semester	Allotted Course Details	Method of Teaching	Teaching Material	Unit	Class Hours	Suggested Resources
Theory						
3rd Sem	BTCMI031 **(Genetics)**	Lecture, Discussion, Class Notes	Textbook, Videos Available on the Swayam portal	**Unit-1. Basic Genetics** **(All Topics)**	15	1. Principle of Genetics – By Eldon John Gardner, Michael J. Simmons and S. Peter Snustad 2. Genetics – P.K. Gupta 3. Fundamentals of Genetics – B.D. Singh
				Unit-2. Chromosome **(All Topics)**	5	
				Unit – 3. Mutation and transposable elements **(All Topics)**	15	
				Unit – 4. Applied Genetics **(All Topics)**	10	

Semester	Allotted Course Details	Method of Teaching	Teaching Material	Unit	Class Hours	Suggested Resources
Practical						
3rd Sem	BTCMI031(Pr) Genetics	Practical Demonstration and Hands on Training	Microscope, Laboratory Equipment	Preparation of Karyotype	3	Not Applicable
				Preparation of Ideogram	3	
				To study Chromosome banding.	2	
				Pedigree charts of some common characters like blood group, colour blindness	2	
				Study of polyploidy in plant cells by colchicine treatment.	3	
				Demonstration of Monohybrid cross	2	

Teaching Plan
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Academic Session: 2025-26
Name of the Teacher: Dr Sourabh Kr Das
Semester: 5th Semester (Minor)

Semester	Allotted Course Details	Method of Teaching	Teaching Material	Unit	Class Hours	Suggested Resources
Theory						
5th Sem	BTCMI-051 (**Microbiology**)	Lecture, Discussion, Class Notes	Textbook, Videos Available on the Swayam portal	**Unit – 1. Fundamentals of Microbiology** **(All Topics)**	15	Essential Cell Biology – By Alberts, Bray, Hopkin (Garland Science)
				Unit – 2. Sterilization and Cultivation of Microbes **(All Topics)**	15	
				Unit – 3. Methods of Microbiology and Economic aspects **(All Topics)**	15	

Semester	Allotted Course Details	Method of Teaching	Teaching Material	Unit	Class Hours	Suggested Resources
Practical						
5th Sem	BTCMI-051 (Pr) (**Microbiology**)	Practical Demonstration and Hands on Training	Microscope, Laboratory Equipment	Demonstration on cleaning and sterilization of glassware	1	Practical Microbiology – By R.C. Dubey and D.K.Maheshwari
				Preparation of bacteriological media – Nutrient Agar, LB Broth, Potato Dextrose Agar and Sterilization by autoclaving	2	
				Isolation of pure culture of Bacteria and Fungi & maintenance of culture.	4	
				Gram staining of bacteria isolated from skin swab and curd/milk	3	
				To determine bacterial growth kinetics by turbido-metric method	2	
				Antibiotic sensitivity testing of microbes	3	