

**CORE COURSE I: (PHYCOLOGY AND
MICROBIOLOGY)**

**CODE: BOTACOR01T (4 Credits) & BOTACOR01P (2
Credits)**

COURSE OUTCOME: This course gives the students a clear concept of the microbial world--- bacteria and viruses---their forms, structures, types, their importance in the environment etc. This course also gives a comprehensive knowledge about Phycology---the study of Algae in which the students get to know the diversity of the algal world and their economic importance for mankind. Students are acquainted about the roles of algae in biotechnology, agriculture and environment. Students are also taught to handle microbes and algae practically in this course.

THEORY

(BOTACOR01T)

NAME OF THE DEPARTMENT					BOTANY							
HOD		DR. AYANA CHAKRABORTY										
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB			
		MORN										
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019					HONS		GENERAL		
								√				
SEM	1	Core Course		1			CREDIT POINT	4	Course Code	BOTACOR01T		
Name of the Course			PHYCOLOGY AND MICROBIOLOGY (CC1)									
Course Co-ordinator			DR. AYANA CHAKRABORTY									
TOTAL MARKS	50	TH	√	TUT					PRAC			
TOTAL HOURS	60	TH	√	TUT					PRAC			
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				1								
NAME OF THE UNIT/MODULE				Introduction to microbial world								
TOTAL HOURS	7	THEORY	√	TUTORIAL					PRAC			
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)												
SL	LECTURE HEAD/TOPIC						HR	DAY	MONTH			
1	Primary concept of microorganism, classification, domain concept						1	SS	JULY			
2	Five kingdom classification, Three domain concept by Carl Woese						1	SS	AUG			
3	Microbial characteristics, nutrition						1	SS	AUG			
4	Growth and Metabolism						1	SS	AUG			
5	Role of virus in vaccine production and research						1	SS	AUG			
6	Role of virus in medicine, diagnostic uses and plant diseases						1	SS	SEPT			
7	Economic Importance of bacteria in agriculture and industry						1	SS	SEPT			

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY HONS)											
NAME OF THE DEPARTMENT					BOTANY						
HOD		DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB		
		MORN									
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019				HONS		GENERAL		
							√				
SEM	1	Core Course			1			CREDIT POINT	4	Course Code	BOTACOR01T
Name of the Course			PHYCOLOGY AND MICROBIOLOGY (CC1)								
Course Co-ordinator			DR. AYANA CHAKRABORTY								
TOTAL MARKS	50	TH	√		TUT			PRAC			
TOTAL HOURS	60	TH	√		TUT			PRAC			
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				2							
NAME OF THE UNIT/MODULE				Viruses							
TOTAL HOURS	7	THEORY	√	TUTORIAL		PRAC					
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)											
SL	LECTURE HEAD/TOPIC					HR	DAY	MONTH			
1	Virus: physicochemical and biological characters and types of virus.					1	SS	SEPT			
2	General structure of virus, prion and viroids.					1	SS	SEPT			
3	Classification of virus					1	SS	NOV			
4	Study of DNA virus (T-phage)					1	SS	NOV			
5	Lytic and Lysogenic cycle					1	SS	NOV			
6	Study of RNA virus (TMV)					1	SS	NOV			
7	Multiplication of TMV					1	SS	NOV			

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY HONS)											
NAME OF THE DEPARTMENT					BOTANY						
HOD		DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB		
		MORN									
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019					HONS		GENERAL	
								√			
SE M	1	Core Course			1	CREDIT POINT		4	Course Code	BOTACOR01T	
Name of the Course			PHYCOLOGY AND MICROBIOLOGY (CC1)								
Course Co-ordinator			DR. AYANA CHAKRABORTY								
TOTAL MARKS	50	TH	√	TUT				PRAC			
TOTAL HOURS	60	TH	√	TUT				PRAC			
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				3							
NAME OF THE UNIT/MODULE				Bacteria							
TOTAL HOURS	7	THEORY	√	TUTORIAL				PRAC			
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)											
SL	LECTURE HEAD/TOPIC						HR	DAY	MONTH		
1	General Characters of bacteria						1	AC	DEC		
2	Types of bacteria (archaeobacteria, eubacteria, wall-less forms I.e., mycoplasma, spheroplasma)						1	AC	DEC		
3	Cell structure of bacteria and nutritional types						1	AC	DEC		
4	Vegetative and asexual reproduction of bacteria						1	SS	DEC		
5	Bacterial Conjugation						1	AC	DEC		
6	Bacterial Transformation						1	AC	DEC		
7	Bacterial Transduction						1	SS	DEC		

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY HONS)												
NAME OF THE DEPARTMENT						BOTANY						
HOD		DR. AYANA CHAKRABORTY										
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB			
		MORN										
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019					HONS		GENERAL		
								√				
SEM	1	Core Course			1			CREDI T POINT	4	Course Code	BOTACOR01T	
Name of the Course			PHYCOLOGY AND MICROBIOLOGY (CC1)									
Course Co-ordinator			DR. AYANA CHAKRABORTY									
TOTAL MARKS	50	TH	√			TUT			PRAC			
TOTAL HOURS	60	TH	√			TUT			PRAC			
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC					4							
NAME OF THE UNIT/MODULE					Algae							
TOTAL HOURS	11	THEORY	√		TUTORIAL			PRAC				
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)												
SL	LECTURE HEAD/TOPIC						HR	DAY	MONTH			
1	ALGAE: General characteristics, ecology and distribution						1	AC	JULY			
2	Range of thallus organisation of algae						1	AC	JULY			
3	Cell structure and cell components of algae						1	AC	JULY			
4	Cell wall structure, composition, pigment system and reserve food of algae						1	AC	JULY			
5	Algal flagella – types, structure, flagellar root						1	AC	JULY			
6	Classification criteria according to Lee, 2008						1	AC	AUG			
7	Evolutionary classification according to Lee, 2008						1	AC	AUG			
8	Methods of reproduction – vegetative and asexual						1	AC	AUG			
9	Sexual reproduction of algae						1	AC	AUG			
10	Role of algae in environment and agriculture						1	AC	AUG			
11	Role of algae in biotechnology and industry						1	AC	AUG			

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY HONS)											
NAME OF THE DEPARTMENT					BOTANY						
HOD		DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB		
		MORN									
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019				HONS		GENERAL		
							√				
SE M	1	Core Course		1			CREDIT POINT	4	Course Code	BOTACOR01T	
Name of the Course			PHYCOLOGY AND MICROBIOLOGY (CC1)								
Course Co-ordinator			DR. AYANA CHAKRABORTY								
TOTAL MARKS	50	TH	√		TUT			PRAC			
TOTAL HOURS	60	TH	√		TUT			PRAC			
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				5							
NAME OF THE UNIT/MODULE				Cyanophyta and Xanthophyta							
TOTAL HOURS	8	THEORY	√		TUTORIAL			PRAC			
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)											
SL	LECTURE HEAD/TOPIC					HR	DAY	MONTH			
33	Ecology, occurrence and range of thallus organisation of cyanophyta					1	AC	AUG			
34	Cell structure of cyanophyta					1	AC	AUG			
35	Morphology and reproduction of cyanophyta					1	AC	AUG			
36	Life cycle of <i>Nostoc</i>					1	AC	SEPT			
37	Ecology, occurrence and range of thallus organisation of xanthophyta					1	AC	SEPT			
38	Cell structure of xanthophyta					1	AC	SEPT			
39	Morphology and reproduction of xanthophyta					1	AC	SEPT			
40	Life cycle of <i>Vaucheria</i>					1	AC	SEPT			

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY HONS)												
NAME OF THE DEPARTMENT						BOTANY						
HOD		DR. AYANA CHAKRABORTY										
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB			
		MORN										
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019					HONS		GENERAL		
								√				
SE M	1	Core Course		1			CREDIT POINT	4	Course Code	BOTACOR01T		
Name of the Course			PHYCOLOGY AND MICROBIOLOGY (CC1)									
Course Co-ordinator			DR. AYANA CHAKRABORTY									
TOTAL MARKS	50	TH	√	TUT				PRAC				
TOTAL HOURS	60	TH	√	TUT				PRAC				
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC					6							
NAME OF THE UNIT/MODULE					Chlorophyta and Charophyta							
TOTAL HOURS	8	THEORY	√	TUTORIAL				PRAC				
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)												
SL	LECTURE HEAD/TOPIC						HR	DAY	MONTH			
1	General characters, occurrence and range of thallus organisation of chlorophyta						1	AC	SEPT			
2	Cell structure, Morphology and reproduction of chlorophyta						1	AC	SEPT			
3	Life cycle of <i>Volvox</i>						1	AC	SEPT			
4	Life Cycle of <i>Oedogonium</i> (macrandrous)						1	AC	SEPT			
5	Life Cycle of <i>Oedogonium</i> (nannandrous)						1	AC	SEPT			
6	General characters, occurrence and range of thallus organisation of Charophyta						1	AC	OCT			
7	Cell structure, Morphology and reproduction of Charophyta						1	AC	OCT			
8	Life cycle of <i>Chara</i> and Evolutionary significance of Prochloron						1	AC	NOV			

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY HONS)											
NAME OF THE DEPARTMENT						BOTANY					
HOD		DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB		
		MORN									
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019				HONS		GENERAL		
							√				
SE M	1	Core Course		1	CREDIT POINT		4	Course Code	BOTACOR01T		
Name of the Course			PHYCOLOGY AND MICROBIOLOGY (CC1)								
Course Co-ordinator			DR. AYANA CHAKRABORTY								
TOTAL MARKS	50	TH	√	TUT		PRAC					
TOTAL HOURS	60	TH	√	TUT		PRAC					
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC					7						
NAME OF THE UNIT/MODULE					Phaeophyta and Rhodophyta						
TOTAL HOURS	12	THEORY	√	TUTORIAL		PRAC					
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)											
SL	LECTURE HEAD/TOPIC					HR	DAY	MONTH			
1	Characteristics, occurrence and Range of thallus organisations of Phaeophyta					1	AC	NOV			
2	<i>Ectocarpus</i> : Cell structure, morphology, asexual and sexual reproduction					1	AC	NOV			
3	Life Cycle of <i>Ectocarpus</i>					1	AC	NOV			
4	<i>Fucus</i> : Cell structure, morphology, asexual and sexual reproduction					1	AC	NOV			
5	Life Cycle of <i>Fucus</i>					1	AC	NOV			
6	Characteristics, occurrence of Rhodophyta					1	AC	NOV			
7	Range of thallus organisations of Rhodophyta					1	AC	NOV			
8	<i>Polysiphonia</i> : Cell structure, morphology, asexual reproduction					1	AC	NOV			

9	Sexual reproduction of <i>Polysiphonia</i>	1	AC	NOV
10	Life Cycle of <i>Polysiphonia</i>	1	AC	DEC
11	Doubt Clearing Class	1	AC	DEC
12	Class test	1	AC	DEC

PRACTICAL

(BOTACOR01P)

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY HONS)										
NAME OF THE DEPARTMENT						BOTANY				
HOD		DR. AYANA CHAKRABORTY								
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB	PB	
		MORN								
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019				HONS		GENERAL	
							√			
SE M	1	Core Course		1	CREDIT POINT		2	Course Code	BOTACOR01P	
Name of the Course			Phycology and Microbiology							
Course Co-ordinator			Dr. Ayana Chakraborty							
TOTAL MARKS	25	TH		TUT		PRAC		√		
TOTAL HOURS	60	TH		TUT		PRAC		√		
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				1						
NAME OF THE UNIT/MODULE				Phycology Practical						
TOTAL HOURS	36	THEORY		TUTORIAL		PRAC		√		
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)										
SL	TOPIC					HR	DAY	MONTH		
1	Study of vegetative and reproductive structures of <i>Nostoc</i> through temporary preparation and permanent slides.					2	AC	JULY		
2	Study of vegetative and reproductive structures of <i>Volvox</i> through temporary preparation and permanent slides.					2	AC	JULY		
3	Study of vegetative and reproductive structures of <i>Oedogonium</i> (macrandrous) through temporary preparation and permanent slides.					2	AC	AUG		
4	Study of vegetative and reproductive structures of <i>Oedogonium</i> (nannandrous) through temporary preparation and permanent slides.					2	AC	AUG		
5	Study of vegetative and reproductive structures of <i>Chara</i> through temporary preparation and permanent slides.					2	AC	AUG		
6	Study of vegetative and reproductive structures of <i>Vaucheria</i>					2	AC	SEPT		

	through temporary preparation and permanent slides.			
7	Study of vegetative and reproductive structures of <i>Ectocarpus</i> through temporary preparation and permanent slides.	2	AC	SEPT
8	Study of vegetative and reproductive structures of <i>Fucus</i> through temporary preparation and permanent slides.	2	AC	SEPT
9	Study of vegetative and reproductive structures of <i>Polysiphonia</i> through temporary preparation and permanent slides.	2	AC	SEPT
10	Study of <i>Procloron</i> through electron micrographs – drawing and description	2	AC	SEPT
11	Magnification under low power objective	2	AC	NOV
12	Magnification under high power objective	2	AC	NOV
13	Camera lucida drawing (using drawing prism) of vegetative and reproductive structure of <i>Chara</i>	2	AC	NOV
14	Camera lucida drawing (using drawing prism) of vegetative and reproductive structure of <i>Oedogonium (macrandrous)</i>	2	AC	NOV
15	Camera lucida drawing (using drawing prism) of vegetative and reproductive structure of <i>Oedogonium (nannadrous)</i>	2	AC	DEC
16	Camera lucida drawing (using drawing prism) of vegetative and reproductive structure of <i>Vaucheria</i>	2	AC	DEC
17	Camera lucida drawing (using drawing prism) of vegetative and reproductive structure of <i>Polysiphonia (cystocarp)</i>	2	SS	DEC
18	Camera lucida drawing (using drawing prism) of vegetative and reproductive structure of <i>Polysiphonia (tetrasporophyte)</i>	2	SS	DEC
19	Practice Class		XX	

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR HONS and GENERAL)										
NAME OF THE DEPARTMENT						Botany				
HOD		Dr.AyanaChakraborty								
INITIALS OF FACULTIES		DAY	AC	MS	SDG	SS	AB1	AB		
		MORN								
PERIOD OF SEMESTER			FROM JULY 2019 TO DECEMBER 2019				HONS		GENERAL	
							√			
SEM	1	Core Course		1			CREDIT POINT	2	Course Code	BOTACORO1P
Name of the Course			Phycology and microbiology							
Course Co-ordinator			Dr. Ayana Chakraborty							
TOTAL MARKS	25	TH			TUT			PRAC	√	
TOTAL HOURS	60	TH			TUT			PRAC	√	
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC					2					
NAME OF THE UNIT/MODULE					Microbiology practical					
TOTAL HOURS	30	THEORY			TUTORIAL			PRAC	√	
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)										
SL	TOPIC					HR	DAY	MONTH		
1	Study of T-phage through Electron micrograph, Identifying characters and drawings					2	SS	JULY		
2	Study of TMV through Electron micrograph, Identifying characters and drawings					2	SS	AUG		
3	Study of Lytic cycle of Bactria through Electron micrograph, Identifying characters and drawings					2	SS	AUG		
4	Study of Lysogenic cycle of Bactria through Electron micrograph, Identifying characters and drawings					2	SS	AUG		
5	Study of different types of bacteria through Electron micrograph---- their identifying characters and drawing.					2	SS	AUG		

6	Study of Binary fission, root nodules bacteria and Endospore of bacteria---- their identifying characters and drawing.	2	SS	SEPT
7	Study of conjugation process of bacteria through Electron micrograph---- their identifying characters and drawing.	2	SS	SEPT
8	Demonstration for preparation of media----PDA and NA media, Preparation of slant and stab; Introduction to Autoclave.	2	SS	SEPT
9	Preparation of PDA media and sterilization.	2	SS	SEPT
10	Preparation of NA media and sterilization.	2	SS	OCT
11	Sub-culturing of bacteria from stock culture	2	SS	NOV
12	Gram staining (gram positive bacteria).	2	SS	NOV
13	Gram staining (gram negative bacteria).	2	SS	NOV
14	Endospore staining.	2	SS	NOV
15	Practice class.	2	SS	DEC
16	Practice class.		XX	