



DEPARTMENT OF BOTANY
Tentative Course Plan

Class: BS- Botany

Semester- 5th

Session: 2018-22

Instructor	Sana Gulzar		Email: sanach545@gmail.com	
Course Title	Bacteriology and virology		Program	BS
Course Number	BOTA-01501		Credit Hours	3(2+1)
Lectureday: period (00:00a.m to 00: 00a.m), Room# 00 Monday 2:30 pm to 4:30 pm Friday 12:30 pm to 2:30 pm			
Course Objective:				
<ul style="list-style-type: none"> ➤ To develop a clear understanding about Bacteria and Viruses. ➤ To enable the students to study and generate new knowledge in a purposeful manner. 				
Methods of Teaching				
<ul style="list-style-type: none"> • Assigned readings ✓ • Group activities & Discussion✓ • Audiovisual aids lectures ✓ • Web-assisted instruction ✓ • Student-Directed Teaching ✓ 				
Resource Material	1. Recommended books:			
	1. Okafor, N. 2011. Environmental microbiology of aquatic and waste systems. Springer.			
	2. Kathleen, P.T and C. Barry. 2011. Foundations in microbiology. McGraw-Hill science.			
	3. Icon group international, 2011. The 2011 Report on in-vitro Diagnostic Microbiology, virology, serology, cytology and histology products: world market segmentation by city. ICON group international.			
	2. Reference Books		3. Research Papers	
	i	Kathleen, P.T and C. Barry. 2011. Foundations in microbiology. McGraw-Hill science.	i	Palukaitis, P and J.P. Carr. 2008. Plant resistance responses to viruses.
ii	A text book of Botany (paper A). Diversity of plants by Tanveer Ahmad Malik and Dr. Hammad Ashraf.	ii	Mayo, M.A and A.A. Brunt. 2001. The current state of plant virus taxonomy.	
4.Hot Research Papers		5.Web Resources		
i		i		
ii		ii		
Office Help Hours				
Grading	Exam (Date to be announced) Mid- Exam (30%) Final Exam (50%) Problem Session/Assignments (20%)			
Problem Sessionday: 00 and 00 periods (0:00-00:00am), Room# 00			
SEQUENCE OF TOPICS TO BE COVERED				
Lecturer #	Topics (outline of main topics and sub topics)	Chapter #	Tutorial /Laboratory	
1	Introductory lecture to the subject		Different methods of sterilization of glassware and media etc.	
2	History and characteristics of bacteria	Bacteriology		
3	Evolutionary tendencies in Monera		Culturing of bacteria, Preparation of culture media, and isolation techniques.	
4	General classification, Lynn Margulis and karlen Schwartz classification	Classification		
5	Morphology of bacteria			

6	Bacterial cell structure		
7	Transformation, bacterial conjugation and transduction	Genetic recombination in bacteria	Staining of bacteria and different staining techniques.
8	Locomotion, growth and reproduction in bacteria		
9	Glycolysis and alternative pathways to Glycolysis	Bacterial metabolism of respiration	Gram staining technique of bacteria.
10	Krebs cycle or TCA	-	
11	Electron transport chain (ETC)	-	Preparation of slides for study of various forms of capsule/ slime.
12	Fermentation and its types	Fermentation	
13	Light dependent and independent reactions	photosynthesis	
14	Bacterial nitrogen fixation	Nitrogen fixation	Study of flagella-staining with the help of prepared slides.
15	Biological importance of bacteria	Importance of bacteria	
16	Importance with special reference to agriculture, biotechnology and genetic engineering	-	
Mid Term Exam		Course/Discussion from session 1 to 16	
17	Harmful effects of bacteria	Harmful bacteria	
18	General features of viruses	virology	Study of endospore- staining in bacteria.
19	History of discovery of viruses		
20	Viral architecture		Observation of symptoms of some viral infected plant specimens.
21	Classification, Baltimore classification system		
22	Dissemination and replication of single and double stranded DNA/RNA viruses		
23	Bacteriophage and its life cycle	Phage virus	Collection of at least 10 virus-infected plant specimens.
24	Plant viruses, plant viral taxonomy		
25	Virus biology and virus transmission	Virus transmission	
26	Different methods of virus transmission	-	-
27	Tobacco mosaic virus, transmission and replication	TMV	-
28	Molecular biology of plant virus transmission		
29	Symptomatology of virus infected plants (internal symptoms)		-
30	External symptoms		
31	Metabolism of virus infected plants		
32	Resistance to viral infection		
Final Term Exam		Course/Discussion from session 1- 32	

Student Evaluation criteria:

Attendance	5%
Workshop / Assignments/Case study	5%
Surprise Test/Sudden Test , Quizzes	5%
Class Participation	5%
Mid Term Paper	30%
Final Term paper	50%
Total	100%

Student Responsibilities:

Students must attend class. Failure to attend class may result in failure in the course. Students must also arrive on time and remain in class for the entire period. Cellular Phones and Beeper must be Turned off (Proper classroom decorum [behavior] adopts, Course outlines and calendars explain requirements and assignments, students are responsible for knowing what they say. Students are also responsible for doing all assigned work on time. Excessive absences (more than 03) will result in "F Grade". Students may prepare Sketchbook for taking notes and for references.

Instructor / Tutor

Approved by:

Chairman