



Course Specifications

Course Title:	Bacteriology
Course Code:	BIO333
Program:	Bachelor of Science in Biology
Department:	Department of Biology
College:	Faculty of Science
Institution:	University of Tabuk

Table of Contents

A. Course Identification	3	
6. Mode of Instruction (mark all that apply)		3
B. Course Objectives and Learning Outcomes	3	
1. Course Description		3
2. Course Main Objective		3
3. Course Learning Outcomes		3
C. Course Content	4	
D. Teaching and Assessment	4	
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods		4
2. Assessment Tasks for Students		4
E. Student Academic Counseling and Support	5	
F. Learning Resources and Facilities	5	
1. Learning Resources		5
2. Facilities Required		5
G. Course Quality Evaluation	5	
H. Specification Approval Data	6	



A. Course Identification

1. Credit hours:	3 (2 Theoretical + 1 Practical) hours
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
3. Level/year at which this course is offered:	Levels 6, 7 or 8/ Third or Fourth Year
4. Pre-requisites for this course (if any):	General Microbiology (BIO231)
5. Co-requisites for this course (if any):	None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2	50%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other (Laboratory)	2	50%

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	26
2	Laboratory/Studio	26
3	Tutorial	
4	Others (specify)	
	Total	52

B. Course Objectives and Learning Outcomes

<p>1. Course Description</p> <ul style="list-style-type: none"> - This course covers topics on the morphology and structure of bacteria, their different forms and arrangement, bacterial identification, classification, and taxonomy; a different group of Gram (-ve) (aerobic rods and cocci and facultative anaerobic) and Gram (+ve) (Endospore and non-spore-forming bacteria) bacteria and their role in our life, nutrition in bacteria and its effect on their growth, the filamentous bacteria and their importance to the environment.
<p>2. Course Main Objective</p> <p>By the end of this course, the students will be able to:</p> <ul style="list-style-type: none"> - Identify and describe the term bacteria. - Identify the forms, shapes, and structure of bacterial cells. - Distinguish Gram-Positive and Gram-Negative Bacteria. - Identify the plasma membrane, cell wall, cytoplasm, nuclear area of bacteria. - Describe aerobic, anaerobic, and facultative anaerobic bacteria. - Describe endospore-forming and non-spore-forming bacteria. - Describe the mode of nutrition in bacteria.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding:	
1.1	To Recognize the basic shapes, structure, and function of the bacterial cell.	K1
1.2	To describe Gram-positive and Gram-negative bacteria.	K2
2	Skills:	
2.1	To differentiate taxonomically between the different group of bacteria.	S1
2.2	To develop practical skills in sterilization, microscopy, and handling techniques, and staining procedures.	S2
2.3	To demonstrate the various methods for the identification of unknown microorganisms	S2
3	Values:	
3.1	To work in a team to conduct a specific project with minimal supervision.	V1

C. Course Content

No	(List of Topics (Theory parts	Contact Hours
1	Shapes of bacterial cells	2
2	The cell wall of bacteria (G-ve cell wall)	2
3	The plasma membrane, cytoplasm, nuclear area	2
4	Bacterial groups (G-ve aerobic rods and cocci)	2
5	Bacterial groups (Facultative anaerobic G-ve rods)	2
6	Endospore forming G+ve rods	2
7	Endospore forming G+ve rods	2
	Midterm Exam	
8	Non-spore-forming G+ve rods	2
9	Non-spore-forming G+ve rods	2
10	Nutrition in bacteria	2
11	Nutrition in bacteria	2
12	Actinomycetes	2
13	Actinomycetes	2
	Final Exam	
Total		26

.No	(List of Topics (Laboratory parts	Contact Hours
1	Introduction, Lab Safety and Microbiology Lab Equipment	2
2	Different Culture and Special Media for Bacterial Isolation	2
3	Isolation of Bacteria from Soil	2
4	Purification of Bacteria and Culture Characteristics	2
5	Bacterial Cell Count	2
6	Staining Methods: Simple and Negative Stain	2
7	Staining Methods: Differential Stain, Gram Stain	2

	Mid Term practical exam	
8	Staining Methods: acid-Fast and Special Stain	2
9	Microscopic Test for Bacterial Motility	2
10	Bacterial Growth Curve	2
11	Bacterial Growth Control	2
12	Anaerobic Culture Method	2
13	Anaerobic Culture Method	2
	Final Exam	
Total		26

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding		
1.1	To recognize the basic shapes, structure, and function of the bacterial cell.	<ul style="list-style-type: none"> - Lectures. - Activates and homework. 	<ul style="list-style-type: none"> - Quizzes. - Homework. - Final exams.
1.2	To describe Gram-positive and Gram-negative bacteria.		
2.0	Skills		
2.1	To differentiate taxonomically between the different group of bacteria.	<ul style="list-style-type: none"> - Lab demonstrations and dissection. - Individual and small group tasks. 	<ul style="list-style-type: none"> - Assessment of lab reports. - Practical examinations.
2.2	To develop practical skills in sterilization, microscopy, and handling techniques, and staining procedures.		
2.3	To demonstrate the various methods for the identification of unknown microorganisms		
3.0	Values		
3.1	To work in a team to conduct a specific project with minimal supervision.	<ul style="list-style-type: none"> - Lab demonstration. - Essay writing. - Group presentation. 	<ul style="list-style-type: none"> - Individual and group presentations. - Assessment of lab reports.

2. Assessment Tasks for Students

#	*Assessment task	Week Due	Percentage of Total Assessment Score
1	Quizzes + Assignments + Class discussion	1 - 13	10%
2	Midterm Theoretical Exam	8	25%
3	Midterm Practical Exam	8	10%
4	Midterm Practical Exam	14	15%
5	Final Theoretical Exam	15	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)



E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Office hours: 6 hours / week at least.
- Academic Guidance for about 30 students as determined by admission and registration.
- Direct supervision of staff for lab works.
- Electronic communication through blackboard and e-mail.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	-Madigan, M. T., Martinko, J. M., Bender, K. S., Buckley, D. H., Stahl, D. A. and Brock, T. (2014). Brock Biology of Microorganisms, 14th edition. Pearson, USA. ISBN: 9781292018317.
Essential References Materials	-Willey, J. M., Sherwood, L., Prescott, M. L. and Woolverton, C. J. (2008). Prescott, Harley, and Klein's Microbiology, McGraw-Hill Higher Education.
Electronic Materials	http://www.textbookofbacteriology.net/kt_toc.html On-line textbook of Bacteriology: Kenneth Tobar, U. of Wisconsin-Madison, Department of Bacteriology. URL (http://www.textbookofbacteriology.net/) - Websites on the internet that are relevant to the topics of the course -www.sciencedirect.com
Other Learning Materials	Multimedia associated with the textbook and the relevant websites American society of microorganisms

2. Facilities Required

Item	Resources
Accommodation Classrooms, laboratories, demonstration) (.rooms/labs, etc)	- A sufficient number of classrooms, well equipped -Practical laboratories are available to accommodate students. Virtual session provided by the blackboard (which - (allow discussions, and sharing PowerPoint and video
Technology Resources AV, data show, Smart Board, software,) (.etc)	-Data show -Wireless connection in the building for students and faculties
Other Resources Specify, e.g. if specific laboratory) equipment is required, list requirements or (attach a list	-Well-equipped microbiology laboratory -Instruments required for conducting the experiments such as: light microscope, incubator, autoclave, water bath, balance, UV, spectrophotometer.



G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	-Students	Indirect - Questionnaires
Extent of achievement of course learning outcomes	Program committee - Staff members. - Students	- Direct - Questionnaires. - Reports. - Meetings
Quality of learning resources	Program leaders - Peer Reviewer	Direct & Indirect - Questionnaires. - Reports. - Meetings

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Biology Department Council
Reference No.	
Date	1/6/2022

