



Course Specifications

Course Title:	Antimicrobials
Course Code:	2014113-3
Program:	Bachelor in Microbiology
Department:	Biology Department
College:	College of Sciences
Institution:	Taif University

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	5
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	6
H. Specification Approval Data	6

A. Course Identification

1. Credit hours: 3h
2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 11 th level/ 4 th year
4. Pre-requisites for this course (if any): Microbial plant pathology (2013116-3)
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	6 hrs/Week	100%
2	Blended		-
3	E-learning		-
4	Distance learning		-
5	Other		-

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	-
4	Others (specify)	-
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description:

The course content will be included the introduction of antimicrobial agents either natural or chemical preservatives. It contains the mode of action of these antimicrobials and the resistance mechanisms of the different microbial community to antimicrobials. Also, the different types of Antimicrobials as inhibitors of cell wall synthesis, genetic material and proteins in microorganisms will be also studied.

2. Course Main Objective:

The course will provide scientific knowledge about the antimicrobials; classification, sources (natural and artificial) and mode of action. Microbial resistance mechanisms to antimicrobials will be also considered

3. Course Learning Outcomes

CLOs	Aligned PLOs
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CLOs		Aligned PLOs
1	Knowledge and Understanding:	
1.1	Differentiate between the types of antimicrobial agents.	K3
1.2		
2	Skills:	
2.1	Define the mode of actions and resistance mechanism of antimicrobial.	S1
2.2	Research the recent advances in the field of antimicrobials and its natural or chemical synthesis.	S3
3	Values:	
3.1	Data analysis of the results concerning the effect of antimicrobial on microorganisms using scientific information and analytical skills.	V1
3.2	Write scientific reports on certain antimicrobial agents.	V2

C. Course Content

No	List of Topics	Contact Hours
1	Chapter 1: Introduction and classification of antimicrobial agents	3L + 3P
2	Chapter 2: Antimicrobials for the inhibitors of cell wall synthesis (Types - Mode of actions – Resistance mechanism).	3L + 3P
3	Chapter 3: Antimicrobials for the inhibitors of proteins synthesis (Types - Mode of actions – Resistance mechanism).	3L + 3P
4	Chapter 4: Antimicrobials for the inhibitors of DNA synthesis (Types - Mode of actions – Resistance mechanism).	3L + 3P
5	Chapter 5: Antimicrobials for the inhibitors of RNA synthesis (Types - Mode of actions – Resistance mechanism).	3L + 3P
6	Chapter 6: Antiseptics (Types - Mode of actions – Resistance mechanism).	6L + 6P
7	Chapter 7: Natural and chemical preservatives (Types - Mode of actions).	9L + 9P
Total		30L + 30P

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	Differentiate between the types of antimicrobial agents.	Lectures	Paper-based exams
2.0	Skills:		
2.1	Define the mode of actions and resistance mechanism of antimicrobial.	Lectures	Paper-based exams
2.2	Research the recent advances in the field of antimicrobials and its natural or chemical synthesis.	Lectures	Paper-based exams
3.0	Values:		
3.1	Data analysis of the results concerning the effect of antimicrobial on microorganisms using scientific	Interactive learning Brain storming	Practical reports Practical exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	information and analytical skills.		
3.2	Write scientific reports on certain antimicrobial agents.	Open discussion Small group activities	Assignments

2. Assessment Tasks for Students

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

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments and activities: 1- Written Assignment 2- Power-point presentation	Variable	10
2	Midterm Exam	5 th	20
3	Periodic Exam	7 th	10
4	Practical Reports	Continuous	15
5	Final Practical Exam	11 th	5
6	Final Exam	12 th	40

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice : 6 hours per week for academic advice and consultations.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> - Murray, P.R.1996. <i>ASM Pocket Guide to Microbiology</i>, ASM Press, Washington, D.C. - White DG, McDermott PF and Walker RD. 2003. Chapter 5: Antimicrobial Susceptibility Testing Methodologies.
Essential References Materials	<ul style="list-style-type: none"> - Microbial food Safety in Animal Agriculture Current Topics. ME Torrence and RE Isaacson, eds. Iowa State Press, Iowa, USA
Electronic Materials	Blackboard website Website of Saudi digital Library
Other Learning Materials	Computer-based programs and professional software.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> - Classrooms for 40 students\lecture Laboratory for 20 students\ lab activity
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> - Data show Smart blackboard

Item	Resources
<p>Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)</p>	<ul style="list-style-type: none"> - Autoclave - Incubators - Micropipettes and its tips - Petri dishes - Disinfectants - Culture media - Antibiotics - Antiseptics

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	Indirect
Quality of learning resources	Peer Reviewer Students	Direct Indirect
Extent of achieving the course learning outcomes	Peer Reviewer Students	Direct Indirect

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
Reference No.	Committee number 14 - Academic Year 1442-1443H
Date	22\5\2022G – 21\10\1443H

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