جامعة البحرين
University of Bahrain
مركز ضمان الجودة والاعتماد الأكاديمي
Quality Assurance and Accreditation Center

Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب
Section Concerning the Student

1. Course Code:	**BIOLS 250**	**1. رمز المقرر:**
2. Course Title	MICROBIOLOGY	**2. اسم المقرر:**
3. College:	College of Science	**3. الكلية:**
4. Department:	Biology	**4. القسم:**
5. Academic Program:	Bachelor of Science in biology	**5. البرنامج الأكاديمي:**
6. Course Credits:	2-2-3	**6. عدد الساعات المعتمدة:**
7. Course NQF Level:	8	**7. مستوى المقرر وفقا للإطار الوطني للمؤهلات:**
8. Notional Hours:	125	**8. عدد الساعات الافتراضية:**
9. NQF Credits:	13	**9. عدد الساعات المعتمدة للمقرر وفقا للإطار الوطني للمؤهلات:**
10. Prerequisite:	BIOLS 103	**10. المتطلب السابق للمقرر:**
11. Lectures Timing & Location:		**11. وقت المحاضرة ومكانها:**

12. General Mode of Teaching and Learning	Traditional تقليدي	**12. النمط العام للتعليم والتعلّم:**
13. Course Coordinator:		**13. منسّق المقرر:**
14. Course Instructor:		**14. مدرّس المقرر:**
15. Office Hours and Location:		**15. الساعات المكتبية ومكانها:**
16. Instructor's Email:		**16. البريد الإلكتروني لمدرّس المقرر:**
17. Academic Year:		**17. السنة الأكاديمية:**
18. Semester:		**18. الفصل الدراسي:**

19. Textbook(s):	**19. الكتب الدراسية للمقرر:**
Tortora, G. J.; Funke, B. R.; Case, C. L. (2013): Microbiology: An Introduction, Eleventh Edition, Pearson Education	
20. References:	**20.** المراجع:
Any Introduction microbiology book. Brock, T. D. and Madigan, M. T. (2000) Biology of microorganisms, Ninth Edition, Printice – Hall International (UK) limited, London.	
21. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.):	**21. مصادر التعلّم الأخرى (مثال: التعلّم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ....)**
http://www.microbes.info/	
22. Course Description (as published in the College Catalogue):	**22. توصيف المقرر (حسب ما ورد في دليل الكلية):**
Microbial world and its development; scope of microbiology; microbial taxonomy and nomenclature; morphology and fine structure; microbial growth and metabolism; control of microorganisms; microorganisms and diseases; exploitation of microorganisms by man.	
23. Course Intended Learning Outcomes (3 to 5 CILOs):	**23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعلّمية):**
1. Differentiate the main morphological characteristics, growth, reproduction, nomenclature and classification of algae, bacteria, fungi, protozoa, viruses.	
2. Explain the cell structure, cell division and metabolic characteristics of various microbial groups.	
3. Characterize microbial metabolic pathways in general terms for food production and human disease.	

4. Apply practical skills in laboratory techniques appropriate to microbiology	
5. Apply proper controls necessary for microbiological methods.	

24. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain):		**4) أساليب التقييم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):**	
Assessment **التقييم**	**Type** **النوع**	**Percentage** **النسبة**	**Assessment Date** **تاريخ التقييم**
Test 1	Individual فردي	*10%*	
Test 2	Individual فردي	*10%*	
Assignment	Individual فردي	*10%*	
Lab Exam	Individual فردي	*15%*	
Laboratory Reports, Assignments	Individual فردي	*15%*	
Final Exam	Individual فردي	*40 %*	
Total	**100%**		

25. Description of Topics Covered	**5) وصف الموضوعات التي ينبغي تناولها:**
Topic Title ***(e.g. chapter/experiment title)*** **الموضوع**	***Description*** **التفصيل**
Ch 1: The microbial world & you.	Microbes in our lives, naming and classifying microorganism, microbes and human welfare.
Ch 3: Observing microorganisms through microscope.	Unit's measurement, Microscopy: light microscopy, two-photon microscopy, scanning acoustic microscopy, microscopy, preparation of specimens for light microscopy, electron microscopy & scanned probe.
Ch 4: Functional anatomy of prok. And euk.	Comparing prokaryotic cells and eukaryotic, the size, shape and arrangement of bacterial cells, structures external to the cells, The cell wall, structure internal to the cell wall, the eukaryotic cell, the evolution of eukaryotic cells
Ch 5: Microbial Metabolism.	Catabolic & anabolic reaction, enzymes, energy production. Carbohydrate catabolism, lipid and protein catabolism,

	Biochemical tests & bacterial identification. Photosynthesis, metabolic diversity among organisms, metabolic pathway of energy use, the integration of metabolism.
Ch 6: Microbial Growth.	The requirement of growth, biofilm, culture media. Obtaining pure cultures, preserving bacterial cultures, the growth of bacterial culture.
Ch 7: The control of microbial growth.	The terminology of microbial control, the rate of microbial death, actions of microbial control agents, physical methods of microbial control, chemical methods of microbial control, microbial characteristics & microbial control. Obtaining pure cultures, preserving bacterial cultures, the growth of bacterial culture.
Ch 8: Microbial genetics.	Structure & function of the genetic material, the regulation of gene expression, Mutation. Genetic transfer & recombination, Genes & evolution.

26. Weekly Schedule			**6) الجدول الأسبوعي**	
Week الأسبوع	**Date التاريخ**	**Topics Covered الموضوعات المتناولة**	**CILOs مخرجات التعلُم للمقرر (CILOs)**	**Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم**
1		*Microbes in our lives, naming and classifying microorganism, microbes and human welfare.*	*1*	Traditional تقليدي *Short reading texts Video demonstration* Self-*assessment during class time*
2		*Unit's measurement, Microscopy: light microscopy, two-photon microscopy, scanning acoustic microscopy, microscopy, preparation of specimens for light microscopy, electron microscopy & scanned probe.*	**1,4**	Traditional تقليدي

3		*Comparing prokaryotic cells and eukaryotic, the size, shape and arrangement of bacterial cells, structures external to the cells, The cell wall,*	**1**	Traditional تقليدي
4		*structure internal to the cell wall, the eukaryotic cell, the evolution of eukaryotic cells*	**1,2**	Traditional تقليدي
5		*Catabolic & anabolic reaction, enzymes, energy production.*	**3**	Traditional تقليدي
6		*Carbohydrate catabolism, lipid and protein catabolism, Biochemical tests & bacterial identification.*	**3**	Traditional تقليدي
7		*Photosynthesis, metabolic diversity among organisms, metabolic pathway of energy use, the integration of metabolism.*	**3**	Traditional تقليدي
8		*The requirement of growth, biofilm, culture media*	**3**	Traditional تقليدي
9		*Obtaining pure cultures, preserving bacterial cultures, the growth of bacterial culture.*	**4**	Traditional تقليدي
10		*The terminology of microbial control, the rate of microbial death, actions of microbial control agents,*	**3,4**	Traditional تقليدي
11		*Physical methods of microbial control, chemical methods of microbial control, microbial characteristics & microbial control. Obtaining pure cultures, preserving bacterial cultures, the growth of bacterial culture.*	**4**	Traditional تقليدي
12		*Structure & function of the genetic material*	**3**	Traditional تقليدي
13		*The regulation of gene expression*	**3**	Traditional تقليدي
14		*Genetic mutations. Genetic transfer & recombination*	**3**	Traditional تقليدي
15	Click or tap to enter a date.			Choose an item.
16	Click or tap to enter a date.			Choose an item.

Practical Part

Week	*Dates*	*Topics covered*	*CILOs*	*Teaching Method*	*Assessment*
1		**Introduction** & **Safety** rules in the microbiology laboratory. **Lab (2):** The Omnipresence of microorganisms and the necessity of sterile technique.	*4,5*	*Lecture & Practical*	Assignment & Lab-Exam
2		**Lab (1):** Isolation technique and use of petri dish cultures. **Lab (3):** Cultivation of anaerobic microorganisms.	*4,5*	*Lecture & Practical*	Assignment & Lab-Exam
3		**Lab (4):** Smear preparation and fixation. **Lab (5):** The Gram Stain.			
4		**Lab (6):** Acid-Fast Stain (Ziehl-Neelsen method). **Lab (7):** Demonstration of bacterial endospores. **Lab (8):** Demonstration of bacterial capsules.	*4,5*	*Lecture & Practical*	Assignment & Lab-Exam
5		**Lab (9):** Exoenzymes of bacteria.	*4,5*	*Lecture & Practical*	Assignment, quiz & Lab-Exam
6		**Lab (10):** Endoenzymes of bacteria.			
7		**Lab (12):** Control of bacterial growth (The effect of heat on microbial growth).	*4,5*	*Lecture & Practical*	Assignment & Lab-Exam
8		**Lab (13):** Control of bacterial growth (Chemotherapeutic agents).			
9		**Lab (14):** Control of bacterial growth (Disinfectants and antiseptics).			

10		**Lab (15):** API 20 E.	*4,5*	*Lecture & Practical*	Assignment & Lab-Exam

27. Academic Integrity Statement	**7) بيان النزاهة الأكاديمية**
Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, Anti-plagiarism Policies, and Students' Rights and Responsibilities Handbook. The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations.	يتعيّن على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقًا للوائح سلوك الطلاب والنزاهة الأكاديمية، سياسات مكافحة الانتحال، ودليل حقوق الطلبة وواجباتهم، المعمول بها في جامعة البحرين. يمكن لعواقب الغش والسرقة الأدبية والتعاون غير المصرح به وغيرها من أشكال عدم الأمانة الأكاديمية أن تكون خطيرة للغاية وسيتم التعامل معها وفقًا للسياسات واللوائح المذكورة آنفا.
28. Attendance and Absence Regulations	**8) نظام الحضور والغياب**
Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33) of Regulations of Study and Examination at the University of Bahrain.	يجب على الطلبة الالتزام بالحضور المنتظم للمحاضرات الصفية والعملية، حسبما تحدده طبيعة المقرر الدراسي، ووفقا للمادة (33) من نظام الدراسة والامتحانات في جامعة البحرين.