



Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب Section Concerning the Student

1. Course Code:	BIOLS 360	1. رمز المقرر:
2. Course Title	Principles of Genetics	2. اسم المقرر:
3. College:	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 وفقاً للإطار الوطني للمؤهلات:
8. Notional Hours:	124	8. عدد الساعات الافتراضية:
9. NQF Credits:	12	9. عدد الساعات المعتمدة للمقرر وفقاً للإطار الوطني للمؤهلات:
10. European Credit Transfer System (ECTS) credits	6	10. عدد الساعات للمقرر بالنظام الأوروبي
11. Prerequisite:	BIOLS 102	11. المتطلب السابق للمقرر:
12. Lectures Timing & Location:		12. وقت المحاضرة ومكانها:

13. General Mode of Teaching and Learning	Traditional تقليدي	13. النمط العام للتعليم والتعلم:
14. Course Coordinator:		14. منسق المقرر:
15. Course Instructor:		15. مدرّس المقرر:
16. Office Hours and Location:		16. الساعات المكتبية ومكانها:
17. Instructor's Email:		17. البريد الإلكتروني لمدرّس المقرر:
18. Academic Year:		18. السنة الأكاديمية:
19. Semester:		19. الفصل الدراسي:
20. Textbook(s):	20. الكتب الدراسية للمقرر:	
-Essentials of Genetics/ by Kulg & Cummings; 10 th ; Global Edition 2020 -Genetics: analysis & principles; 7 th ed; Robert J. Brooker; 2021		
21. References:	21. المراجع:	
Genetics: A Conceptual Approach; Pierce, Benjamin A; 2019. Human Genetics: Concepts and Applications; Ricki Lewis, 2020. An Introduction Genetic Analysis; J.F. Griffith; 2016.		
22. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.):	22. مصادر التعلم الأخرى (مثال: التعلم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ....)	
- https://learn.genetics.utah.edu/ - MIT Open courseware https://ocw.mit.edu/courses/biology/7-03-genetics-fall-2004/lecture-notes/ - www.ncbi.nlm.nih.gov (genebank and software therein) - www.sciencedirect.com (literature search) http://geneed.nlm.nih.gov/index.php		
23. Course Description (as published in the College Catalogue):	23. توصيف المقرر (حسب ما ورد في دليل الكلية):	
DNA and RNA; replication; translation and its code; regulation of gene expression; Mendelian vs. non-mendelian inheritance; mapping the eukaryotic chromosome; sex determination and differentiation; genes and environment; mutation and mutagenesis; immunogenetics; an introduction to population genetics.		
24. Course Intended Learning Outcomes (3 to 5 CILOs):	24. مخرجات التعلم للمقرر (CILOs) (3 إلى 5 مخرجات تعليمية):	
1. Explain the fundamental principles of transmission genetics, molecular genetics, and population genetics at the level appropriate for Biology majors. 2. Practice problem solving, critical thinking, and communication skills both generally and with respect to genetic problems.		

3. Design simple Mendelian crosses and genetic investigation			
4. Compare both classical and modern experimentation that have contributed to our knowledge of genetics.			
5. Use IT resources and software to search for genetic information.			
25. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain):		25. أساليب التقييم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):	
Assessment التقييم	Type النوع	Percentage النسبة	Assessment Date تاريخ التقييم
Test I	Individual فردى	15%	
Test 2	Individual فردى	15%	
Class Participation and Discussion	Individual فردى	10%	
Assignment 1	Group جماعى	20%	
Assignment 2	Group جماعى		
Final Exam	Individual فردى	40%	
Total	100%		
26. Description of Topics Covered		26. وصف الموضوعات التي ينبغي تناولها:	
Topic Title (e.g. chapter/experiment title) الموضوع		Description التفصيل	
Ch. 1 & 2; 16: Intro; Mitosis , Meiosis and cancer		Cell Reproduction and Cycle and Cancer	
Ch. 9 DNA Structure and Analysis		DNA as Genetic Material and its structure Model	
Ch. 10 DNA Replication and Recombination		DNA Replication; enzyme and Models	
Ch. 11 Chromosome Structure and DNA Sequence Organization		Genome Structure	
Ch. 12 The Genetic code and Transcription		Gene Expression: Transcription	
Ch. 13 Translation and Proteins		Gene Expression: Translation	
Ch. 6 & 14 Gene Mutation and : Causes & Mechanisms		Mutation; mutagenesis and Environment	
Ch. 15+ Regulation of Gene Expression and Immunogenetics		Immunogenetics and response	
Ch.5 Sex Determination and Sex Chromosomes		Sex determination and differentiation: evolutionary approach	
Ch. 7 Linkage and Chromosome Mapping in Eukaryotes		Genetic & Physical mapping approaches in Drosophila and human	

Ch. 3 Mendelian Genetics			Monohybrid; dihybrids crosses; and Mendelian patterns of Inheritance	
Ch. 4 Modification of Mendelian Ratios			Gene interactions; and two-genes or polygenic traits	
27. Weekly Schedule			27. الجدول الأسبوعي	
Week الأسبوع	Date التاريخ	Topics Covered الموضوعات المتناولة	CILOs مخرجات التعلم للمقرر (CILOs)	Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم
1		Cell: Structure/ Function, Cycle and Reproduction; check points and Cancer	1,2	Traditional تقليدي
2		Genetic material: Structure and Analysis.	1,2	Traditional تقليدي
3		DNA Replication: Mechanism and Models	1,2,4	Traditional تقليدي
4		Genomes: Structure & Organization	1,2,4	Traditional تقليدي
5		Gene Expression: the Genetic Codes & Transcription	1,2,4	Traditional تقليدي
6		Gene Expression: Translation and Collinearity.	1,4,5	Traditional تقليدي
7		Gene Mutation and Repair: Causes & Mechanisms	1,2,4	Traditional تقليدي
8		Regulation of Gene Expression: Factors and Elements & Immunogenes	1,2	Traditional تقليدي
9		Sex Determination: Evolution and Mechanisms	1,2	Traditional تقليدي
10		Eukaryotic Genetic Mapping	1,2	Traditional تقليدي

11		Eukaryotic Genetic Mapping	1,2,3	تقليدي Tranditional
12		Mendelian Inheritance: Laws & Patterns	1,2,3	تقليدي Tranditional
13		-Mendelian Inheritance; cont'd; -Non-Mendelian Inheritance: Patterns and Interpretation	1,2,3	تقليدي Tranditional
14		-Mendelian Inheritance; cont'd; -Non-Mendelian Inheritance: Patterns and Interpretation	1,2,3	تقليدي Tranditional
15		- Non-Mendelian Inheritance: Patterns and Interpretation	1,2,3	تقليدي Tranditional
16		Final Exam at 11:30 am-1:30pm	1,2,3,4	تقليدي Tranditional
28. Academic Integrity Statement			28. 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.			يتعين على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقاً للوائح سلوك الطلاب والنزاهة الأكاديمية، سياسات مكافحة الانتحال ، ودليل حقوق الطلبة واجباتهم ، 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 وفقاً للسياسات واللوائح المذكورة آنفاً.	
29. Attendance and Absence Regulations			29. 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، ووفقاً للمادة (33) من نظام الدراسة والامتحانات في جامعة البحرين .	

Course Weekly Breakdown: Laboratory

Week of	Topics covered	CILOs	Teaching Method	Assessment
	Cell Reproduction: Meiosis & Mitosis	1,5	Practical & Microscopy	Assignment # 1
	Heredity: Mendelian Genetics	1,2,3,5	Case Study	
	Genetics & Principles of probability	2,3	Breeding Models & Case Study	
	Polygenic Inheritance and variation	2,4,5	Practical Investigation	Assignment # 2
	Gene Activity & Analysis: Case Study	1,4,5	Workshop	
	Isolation of the Genetic Material from Eukaryotic cells	1,2,4,5	Practical	
	DNA Analysis: Electrophoresis & Quantification - I	1,2,4,5	Practical	
	DNA Analysis: Electrophoresis & Quantification - II	1,2,4	Practical	
	Mutation and mutagenesis	1,2,4,5	Workshop	
	Hardy-Weinberg Law	1,2,4	Practical Investigation	Assignment # 2
	Case Studies	1,2,4,5	Practical Investigation	Assignment # 2