

نموذج توصيف مقرر
Course Description Form

Name of College\Faculty :Science

اسم الكلية:

Name of Department: Biological Sciences

اسم القسم العلمي:

Course Name	Cytogenetics	اسم المقرر
Course No.	0497-332	رقم المقرر
No. of Credits	3	عدد الوحدات
Theoretical Hours	2	عدد الساعات النظرية
Practical Hours	1	عدد الساعات العملية
Course topics		مواضيع المقرر
1. Origins and directions of clinical cytogenetics 2. DNA, chromosomes, and cell division 3. Tissue culture methods for chromosome preparation 4. Chromosome staining and banding techniques 5. Human chromosomes nomenclature 6. Examination, analysis and interpretation of chromosome preparation 7. Chromosomal numerical and structural abnormalities and their causes 8. <i>In-situ</i> hybridization in molecular cytogenetics 9. Genomic imprinting and uniparental disomy 10. Cancer cytogenetics 11. Pre-implantation and prenatal genetic diagnosis and genetic counseling		

Text book: (Name, Author , Year , Publisher)	عنوان الكتاب : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)
Gersen S. and Keagle M. B. 2010. The Principles of Cytogenetics. Human Press. USA.	
References: (Name , Author , Year . Publisher)	عنوان المرجع : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)
1. Miller O. J. and Therman E. 2001. Human Chromosome. Springer. USA.	
2. Verma R. S. and Babu A. 1995. Human Chromosomes Principals and Techniques. McGraw-Hill. USA	

Prerequisites	Genetics 0497-320				متطلبات المقرر	
Grading	Exams	20	%		الاختبارات	آلية رصد المقرر
	Quizzes		%		امتحانات قصيرة	
	H.W.	9	%		واجبات	
	Project (field study)	6	%		مشاريع (دراسة ميدانية)	
	Lab	30	%			
	Final	35	%		الاختبار النهائي	
	100 %					

أهداف مخرجات المقرر :					
الرقم	أهداف مخرجات المقرر :		أمثله من المقرر لتحقيق هذه الأهداف		المستوى المطلوب من عضو هيئة التدريس لتحقيق الهدف :
					منخفض متوسط عالي
1					
2					
3					
4					
5					
الحقول					
المهارات					
منسق المقرر (اسم عضو هيئة التدريس المشرف على توصيف المقرر ، توقيع ، الختم و الرتبة الأكاديمية)					
تاريخ إعداد النموذج					/ /

Course objectives			
No.	Course Objectives (Learning Outcomes)		Recommended Level to satisfy the objectives



		Example(s) of relevant (Topics and activities)	High	Medium	Low
1	Conduct different techniques (both direct and indirect) for chromosome preparation from different tissues.	Specimen collection and handling from different animals and tissues, culture initiation and termination, chromosomal slide preparation.	X		
2	Perform several chromosomal staining techniques for different diagnostic purposes and compose and interpret abnormal karyotypes.	Geimsa staining, Q, R, C and NOR banding techniques, photography and karyotyping.	X		
3	Describe how and why chromosomal numerical and structural abnormalities arise leading to genetic disorders.	The origin of diploid gametes and polyploidy and the factors leading to nondisjunction.	X		
4	Relate and understand the contribution of current methods in molecular cytogenetics to classical cytogenetics.	FISH and new probes. comparative genomic hybridization (CGH), Micro-FISH, primed in situ labeling (PRINS), multicolor FISH spectral karyotyping (SKY) and color banding.		X	
5	Describe how uniparental disomy and genomic imprinting may result in disease and chromosomal changes in cancer and their reasons.	Origin of uniparental disomy. Consequences of genomic imprinting. Reciprocal translocation and oncogene activation.			X



6	Understand the importance of cytogenetics prenatal diagnosis and preimplantation genetics.	Amniocentesis, chorionic villus sampling and embryo screening.		X	
Fields	Genetics, cytogenetics				
Skills	Chromosome preparations				
Coordinator (Name and Rank) :		Dr. Amani Al-Adsani, Assistant professor			
Signature and stamp :		<i>Dr. Amani Mustafa Al-Adsani</i> Biological Sciences Department			
Date:		24 \ 11 \ 2025			