

نموذج وصف المقرر باللغة العربية

1. اسم المقرر

البايولوجي الاشعاعي

2. رمز المقرر

3. الفصل / السنة

فصلى

4. تاريخ إعداد هذا الوصف

2026/6/20

5. أشكال الحضور المتاحة

حضورى

(عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي) 6.

(عدد الساعات (6)، عدد الوحدات (4)

(اسم مسؤول المقرر الدراسى (اذا اكثر من اسم يذكر 7.

أ.عبدالله حمود

8. اهداف المقرر

Understand the radiobiological effect of radiation on cells, tissues.
2- Understand the different responses of normal and tumor cells to radiation effect.
3- Study the effect of ionization radiation in radiotherapy.

اهداف المادة الدراسية

9. استراتيجيات التعليم والتعلم

الاستراتيجية

10. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم
الاول	2 نظري 4 عملي		- Introduction to Radiobiology - Radiation chemistry: - Initial physical event - Radiolysis of water - Direct Effect of Radiation - Indirect Effect of Radiation	نظري + عملي	اسئلة عامة ومناقشة وامتحانات يومية
الثاني	2 نظري 4 عملي		- Oxygen Effect (OER) - Radiosensitizers - RadioProtectors (DMF) - Irradiation-induced damage and the DNA damage response	نظري + عملي	اسئلة عامة ومناقشة بالاضافة الى جعل الطالب يطبق العملي

		- The DNA damage response - Sensors of damage			
اسئلة عامة ومناقشة بالاضافة الى جعل الطالب يطبق العملي	نظري + عملي	• Cell death after irradiation: - programmed cell death - Apoptosis - Autophagy - Necrosis, Senescence - mitotic catastrophe		2 نظري 4 عملي	الثالث
امتحان آني بالاضافة الى جعل الطالب يطبق العملي	نظري + عملي	• Molecular Repair of DNA Damage - Base Excision Repair - Homologous Recombination - Nonhomologous and Joining • Target theory - Single target -Single hit, - Multiple target- single hit		2 نظري 4 عملي	الرابع
امتحان تطبيق عملي	نظري + عملي	• Cell survival curves - Recovery - Cell-Cycle Effects - Radiation Effect Modification		2 نظري 4 عملي	الخامس
اسئلة عامة ومناقشة	نظري + عملي	• Types of Cellular Damage due to Radiation - Lethal Damage - Potential Lethal Damage		2 نظري 4 عملي	السادس
اسئلة عامة امتحان اني بالاضافة الى جعل الطالب يطبق العملي	نظري + عملي	• Radiobiology of Tissue and Organs Response to Radiation - The Most Sensitive - Sensitive - Moderately Sensitive - Less Sensitive		2 نظري 4 عملي	السابع
واجبات جماعية	نظري + عملي	• The severity of radiation effect: - Subacute Effects - Acute Effects - Chronic Effects		2 نظري 4 عملي	الثامن
اسئلة عامة ومناقشة	نظري + عملي	• Tumor Response to Radiation - Therapeutic index (combined radiation and drug treatments) - Tumor control probability - Normal Tissue complication		2 نظري 4 عملي	ش

		Probability			
امتحان	نظري + عملي	• Introduction to Biosafety and Security - Key components of Biorisk Management - Components of safety in all laboratories - Universal safety precaution		2 نظري 4 عملي	العاشر
اسئلة عامة ومناقشة بالاضافة الى نارات تخص الموضوع للمناقشة بين الطلبة	نظري + عملي	• Biosafety barriers in laboratories - Personal protective equipment(PPE) - Facility Design		2 نظري 4 عملي	الحادي عشر
اسئلة عامة ومناقشة بالاضافة الى نارات تخص الموضوع للمناقشة بين الطلبة	نظري + عملي	• Biological Agents - Routs of infection - Basis for control Measures - Hazard group classification system - A Biosafety cabinet (BSC)		2 نظري 4 عملي	الثاني عشر
اسئلة عامة وامتحان آني	نظري + عملي	• Biorisk and biohazards - Control of substances hazardous to health - Assessing risk for work with human blood and tissues hazards - Control measures for work with human blood and tissue - Containment level		2 نظري 4 عملي	الثالث عشر
واجبات جماعية بالاضافة الى نارات تخص الموضوع للمناقشة بين الطلبة وتطبيق عملي	نظري + عملي	• Types of biological wastes - Categories of biological wastes - Decontamination of biological wastes		2 نظري 4 عملي	الرابع عشر
اسئلة الامتحان	نظري + عملي	• Transportation of biological wastes - International Transport Regulations - The Basic Triple Packaging System		2 نظري 4 عملي	الخامس عشر

11.تقييم المقرر

توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير الخ

12.مصادر التعلم والتدريس

لا يوجد	الكتب المقررة المطلوبة (المنهجية أن وجدت)
	المراجع الرئيسة (المصادر)
	الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)
	المراجع الإلكترونية ، مواقع الانترنت

Course Description Form

13.Course Name:					
radiobiology					
14.Course Code:					
15.Semester / Year:					
Second semester					
16.Description Preparation Date:					
20/6/2026					
17.Available Attendance Forms:					
18.Number of Credit Hours (Total) / Number of Units (Total)					
6 hours, 4 units					
19.Course administrator's name (mention all, if more than one name)					
20.Course Objectives					
Course Objectives		Understand the radiobiological effect of radiation on cells, tissues. 2- Understand the different responses of normal and tumor cells to radiation effect. 3- Study the effect of ionization radiation in radiotherapy.			
21.Teaching and Learning Strategies					
Strategy		Lectures and discussions Brainstorming strategy Community work strategy Strategy for dialogue and exchange of opinions In addition to the quizzes and practical application			
22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical 2 Practical 4		- Introduction to Radiobiology - Radiation chemistry: - Initial physical event - Radiolysis of water - Direct Effect of Radiation - Indirect Effect of	Theoretical and Practical	

			Radiation		
2	Theoretical 2 Practical 4		• Oxygen Effect (OER) - Radiosensitizers - Radioprotectors (DMF) • Irradiation-induced damage and the DNA damage response - The DNA damage response Sensors of damage	Theoretical and Practical	Home work Group sessions, in addition to seminars on the topic discussion Between students and practical application
3	Theoretical 2 Practical 4		• Cell death after irradiation: - programmed cell death - Apoptosis - Autophagy - Necrosis, Senescence mitotic catastrophe	Theoretical and Practical	Home work Group sessions, in addition to seminars on the topic discussion Between students and practical application
4	Theoretical 2 Practical 4		• Molecular Repair of DNA Damage - Base Excision Repair - Homologous Recombination	Theoretical and Practical	Home work Group sessions, in addition to seminars on the topic discussion Between students and practical application

			ogous Recom binatio n - Nonho mologo us and Joining • Target theory - Single target - Single hit, multiple target- sin hit		
5	Theoretical 2 Practical 4		• Cell survival curves - Recove ry - Cell- Cycle Effects - Radiati on Effect Modifi cation	Theoretical and Practical	Home work Group sessions, in addition seminars on the topic of discussion Between students and practical application
6	Theoretical 2 Practical 4		• Types of Cellular Damage due to Radiation - Lethal Damag e Potential Lethal Damage	Theoretical and Practical	Home work Group sessions, in addition seminars on the topic of discussion Between students and practical application
7	Theoretical 2 Practical 4		• Radiobiology of Tissue and Organs Response to Radiation - The Most Sensiti ve - Sensiti ve - Moder ately Sensiti ve	Theoretical and Practical	Home work Group sessions, in addition seminars on the topic of discussion Between students and practical application

			Less Sensitive		
8	Theoretical 2 Practical 4		• The severity of radiation effect: - Subacute Effects - Acute Effects - Chronic Effects		Home work Group sessions, in addition to seminars on the topic of discussion Between students and practical application
9	Theoretical 2 Practical 4		• Tumor Response to Radiation - Therapeutic index (combined radiation and drug treatments) - Tumor control probability - Normal Tissue complication Probability	Theoretical and Practical	Home work Group sessions, in addition to seminars on the topic of discussion Between students and practical application
10	Theoretical 2 Practical 4		• Introduction to Biosafety and Security - Key components of Bio risk Management - Components of		Home work Group sessions, in addition to seminars on the topic of discussion Between students and practical application

			safety in all laboratories Universal safety precautions		
11	Theoretical 2 Practical 4		• Biosafety barriers in laboratories - Personal protective equipment (PPE) Facility Design	Theoretical and Practical	Home work Group sessions, in addition to seminars on the topic of discussion Between students and practical application
12	Theoretical 2 Practical 4		• Biological Agents - Routes of infection - Basis for control Measures - Hazard group classification system A Biosafety cabinet (BSC)	Theoretical and Practical	Home work Group sessions, in addition to seminars on the topic of discussion Between students and practical application
13	Theoretical 2 Practical 4		• Biorisk and biohazards - Control of substances hazardous to health	Theoretical and Practical	Home work Group sessions, in addition to seminars on the topic of discussion Between students and practical application

			- Assessing risk for work with human blood and tissues hazards - Control measures for work with human blood and tissue Containment level		
14	Theoretical 2 Practical 4		• Types of biological wastes - Categories of biological wastes Decontamination of biological wastes	Theoretical and Practical	Home work Group sessions, in addition seminars on the topic of discussion Between students and practical application
15	Theoretical 2 Practical 4		• Transportation of biological wastes - International Transport Regulations The Basic Triple Packaging System	Theoretical and Practical	Exam
23.					
24.					

