

COURSE DESCRIPTIONS

Course Information					
Faculty	Pharmacy				
Department	pharmacy	NQF level	7		
Course Title	Radiation Technology	Code	901513	Prerequisite	0000
Credit Hours	2	Theory	2	Practical	
Course Leader	Dr. Abrar Aleikish	email	A.ALeikish@jadara.edu.jo		
Lecturers	Dr. Abrar Aleikish	emails	A.ALeikish@jadara.edu.jo		
Lecture time	18:00-20:00 Thu	Classroom	Online		
Semester	Second_2023/2024	Production	2017	Updated	2023
Awards		Attendance	Fulltime		

Short Description

Course content includes how to use very small amounts of radioactive materials, or radiopharmaceuticals, to examine the function and structure of organs. It is used to diagnose and treat abnormalities very early in the development of the disease.

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Course Objectives

- 1-Be able to understand the differences between screen-film and digital radiography.
- 2-Be able to understand the physical and technological principles of computed radiography.
- 3-Be able to understand the types of X-Ray digital detectors.
- 4-To learn the principal method of labelling.
- 5-Understand the method of storing radiopharmaceutical compounds.
- 6-Understand the quality control tests for radiopharmaceutical compounds.

Learning Outcomes

A. Knowledge - Theoretical Understanding

- a1.define the radiopharmaceutical compounds and their uses.
- a2. Summarize the influence of radiopharmaceutical compounds on human body

B. Knowledge - Practical Application

C. Skills – Generic Problem Solving and Analytical Skills

- b1. Determine the various radio imaging types. And classify the usage for each of them in term of organ functions.

D. Skills – Communication, ICT, and Numeracy

b2. Choose computer programs to calculate the half-life of the radiopharmaceutical compounds and determine their stability.
E. Competence: Autonomy, Responsibility, and Context
c1: Combine information technology skills including word processing and information retrieval through online computer searches to design radiopharmaceutical compounds with the suitable agents.
Teaching and Learning Methods
<p>Lectures will be given according to the specified time and location as assigned on the academic schedule (see course information above).</p> <p>Lectures will be administrated using power-point presentations and will be provided to the students through JU e-learning website.</p> <p>Textbook is obligatory and required by the students.</p> <p>Teaching duration: According to the academic calendar provided at JU website.</p>
Assessment Methods
<ul style="list-style-type: none"> • Mid exam (30%) • Quizzes and self study case (30%) • Final Exam (40%)

Course Contents					
Week	Hours	CLOs	Topics	Teaching & Learning Methods	Assessment Methods
1.	2	a1, a2, b1, b2	Radiopharmaceuticals and Methods of Radiolabeling	Advanced Lecture (Presentations)	Short quizzes, Exams
2.	2	a1, a2, b1, b2	Design of New Radiopharmaceuticals	Discussion Brainstorming	Short quizzes, homework
3	2	a1, a2, b1, b2	Methods of Radiolabeling	Advanced Lecture (Presentations) Discussion Brainstorming	quizzes - homework – exams
4	2	a1, a2, b1, b2	Specific Methods of Labeling	Advanced Lecture (Presentations) Brainstorming	quizzes - homework – exams

5	2		Mid exam		
6	2	a1, a2, b1, b2, c1	^{99m} Tc-Labeled Radiopharmaceuticals: ^{99m} Tc-Sodium Pertechnetate ^{99m} Tc-Labeled Human Serum Albumin ^{99m} Tc-Macroaggregated Albumin	Advanced Lecture (Presentations) Brainstorming	quizzes - homework – exams
7	2	a1, a2, b1, b2, c1	Structure of ^{99m} Tc-Complexes	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
8	2	a1, a2, b1, b2, c1	Kits for ^{99m} Tc-Labeling	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
9	2	a1, a2, b1, b2, c1	Ideal Radiopharmaceutical	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
10	2	a1, a2, b1, b2, c1	Quality Control of Radiopharmaceuticals. Physiochemical Tests Physical Characteristics pH and Ionic Strength	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
11	2	a1, a2, b1, b2, c1	Radiochemical Purity	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
12	2	a1, a2, b1, b2, c1	- Chemical Purity - Radioassay	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
13	2	a1, a2, b1, b2, c1	Biological Tests Sterility	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
14	2	a1, a2, b1, b2, c1	- Apyrogenicity, Toxicity	Advanced Lecture (Presentations) Using instructional technologies	quizzes - homework – exams
15,16			- Final exam		

Textbook	
Title	Fundamentals of Nuclear Pharmacy
Authors	Gopal B. Saha
Publisher	Springer
Year	2003
Edition	5 th Edition
Other references	- Nuclear Pharmacy: Concepts and Applications in Nuclear Pharmacy

Course Assessment Plan						
Assessment Method	Grade	CLOs				
		a1	a2	b1	b2	c1
First(Midterm)	30%	8	7	9	9	7
Second (if applicable)						
Final Exam	40%	5	6	9	7	13
Coursework						
Coursework assessment methods	Assignments	5		5		
	Case study					
	Discussion and interaction					
	Group work activities					
	Labtests and assignments					
	Presentations	20	5		7	8
	Quizzes	5			2	3
Total		13	13	18	19	37

Plagiarism
<p>Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code).</p> <p>Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism.</p>

