CHEM 444 Syllabus

Course Code	Course Name	Credits	Prerequisite(S)	Classification	
CHEM 444	Photochemistry	2	CHEM 242 CHEM 344	Elective Course	
Course Description	Photochemistry taught graduate level students. The course focuses on: Basic principles of photochemistry The Laws of Photochemistry, Lambert Beer's Law, fluorescence, phosphorescence Physical basis of Molecular Luminescence, Quantum yields, and Photochemical Reaction Experimental methods in photochemistry. Photochemical Reactions and their Kinetics. Techniques and applications of photochemistry				
Class Scheduling	Classes are held 2 times/week each for 50 minutes.				
Textbook	Principles and Applications of Photochemistry, R. P. Wayne, 2009, Oxford Photochemistry; C. E. Wayne & R. P. Wayne, 1996, OUP primer.				
Course Coordinator	Dr. Qana Alsulami				
Relationship to SOs	1 2 X X	3 X X	4 5	6	
CLOs	By the end of this cours	e student will	be able to:		

CLO1. Define photochemistry reactions by knowing their introduction, basic principles, light sources used in and deactivation processes. (SO1)

CLO2. Explain the spin of the excited states (SO1)

CLO3. Analyze the electronic transition for atom and molecules with light. (SO3)

CLO4. Demonstrate how to solve different type of problems by using mathematical skills and the required knowledge. (SO3)

CLO5. Compare the different photophysical processes. (SO2)

Contents	List of Topics	
	Introductory Concepts	1
	Light Sources Used in Photochemistry	1
	Efficiency of Photochemical Processes: Quantum Yield	1
	The Beer–Lambert Law	1
	The Physical Basis of Light Absorption by Molecules	1
	Absorption of light by organic molecules	2
	The Physical Deactivation of Excited States	
	Jablonski Diagrams	3
	Excited-state Lifetimes	
	fluorescence quantum yield of 1	
	Selection Rules	3
	Experimental methods in photochemistry	
	Photochemical Reactions and their Kinetics	1
	Techniques and applications of photochemistry	1
	Revision	1