

Course Description

Organic Pharmaceutical Chemistry IV

Fifth Year Class – First Semester

• Educational Institution	Ministry of Higher Education and Scientific Research
• University Department / Center	Al- Zahrawi University College/ pharmacy college
• Course Name / Code	Organic Pharm.Chem.IV, PPCS 59
• Programs in which it is included	Bachelor of Pharmacy
• Available Forms of Attendance	Daily
• Semester / Year	First course-2025/2026
• Total Number of Study Hours	30 hours
• Date of preparing this description	2025-2026
• Course Objectives: To give the students knowledge and experience in pro-drug and hormones as part of their medicinal and pharmaceutical field. It includes classification, synthesis, biotransformation and or formulation of certain drugs to improve their action as well as to avoid some of side effects.	
• Learning Outcomes, Teaching and Learning Methods, and Evaluation	

- **Knowledge and Understanding: Basic concepts of pro-drugs to be used as a guide in drug design and formulation. Principles of drug delivery systems, development, synthesis and analysis Basic concepts of drug targeting to release the drug to the basic and specific site of action to minimize the side effects.**

- **Subject-Specific Skills:** Get experience in drug design programs such as docking and molecular dynamics. Construction of combinatorial chemistry libraries and high experience in drug encoding systems.

Teaching and Learning Methods: using white board and projector screen

- **Evaluation Methods:** Periodic exams, reports, seminars, routine homework, final exams.

- **Thinking Skills:** Practical workshops, homework, exams

Teaching and Learning Methods: using white board and projector screen. Lectures to distinct students to textbooks, notes and on-line material. Laboratory practice. Assignments and research done and presented by the students in seminars.

Evaluation Methods: Periodic exams, seminars, and reports

e. General and Transferable Skills: Communicate clearly by verbal and written means. Re and evaluate information from different sources to improve professional competencies. Work effectively in a team. Use numeracy, calculation and statistical methods as well as information technology tools. Practice independent learning needed for continuous professional development. Demonstrate creativity and time management abilities. Implement writing and presentation skills. Demonstrate critical thinking, problem solving and decision making abilities.

• Course Structure					
Weeks	Hours	Required Learning Outcomes	Unit Name / Course or Topic	Learning Methods	Evaluation Method
1	2	Lecture	Pro-drugs concepts, covalent	Lecture	Quizzes and reports
2	2	Lecture	covalent bonds, types of pro-drugs	Lecture	Quizzes and reports
3	2	Lecture	Chemical delivery	Lecture	Quizzes and reports
4	2	Lecture	systems, polymeric drugs	Lecture	Quizzes and reports
5	2	Lecture	Drug targeting	Lecture	Quizzes and reports
6-7	4	Lecture	Drug targeting II Active groups	Lecture	Quizzes and reports
8-9	4	Lecture	Combinatorial chemistry	Lecture	Quizzes and reports
10	2	Lecture	Combinatorial chemistry II SAR concept	Lecture	Quizzes and reports
11-13	6	Lecture	Isolation, purification, detection	Lecture	Quizzes and reports
14-15	4	Lecture	encoding combinatorial libraries	Lecture	Quizzes and reports

• Infrastructure	
Required Readings:	References: Wilson and Gisvold textbook of organic medicinal and pharmaceutical chemistry
Special Requirements (Workshops, Journals, Software, Websites):	Electronic Websites: Molecules journal, Journal of medicinal chemistry.
Social Services (Guest Lectures, Professional Training, Field Studies, Others)	Organizing workshops and courses for graduates: Distance education and electronic lectures

• Admission:	
Prerequisites	Admission according to the central plan
Minimum Number of Students	120
Maximum Number of Students	Admission exceeds the capacity plan: 140

Name of the Instructor: Lecturer Assistant: Ahmed M.Motlk