



Course Specification

(Bachelor)

Course Title: : Medicinal Chemistry - 3

Course Code: PHCH 518

Program: Pharmaceutical Sciences

Department: Pharmaceutical Chemistry

College: Pharmacy

Institution: Najran University

Version: 3

Last Revision Date: 18/11/2024

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A. General information about the course:

1. Course Identification

1. Credit hours: 2 (2+0)

2. Course type

A. ☐ University ☐ College ☐ Department ☐ Track ☒ Program
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (9th Level / 5th year)

4. Course general Description:

The course includes detailed information about the nomenclature chemical structure, synthesis, and methods of assay of the chemotherapeutic agents including the antibacterial, antifungal, antiviral and anthelmintic agents this in addition to the chemotherapy of anticancer drugs and immunosuppressive agents. Also, the course teaches the chemistry of hormones its synthetic analogs and the hormone antagonists.

5. Pre-requirements for this course (if any):

PHCH 417

6. Co-requisites for this course (if any):

None

7. Course Main Objective(s):

- a- In the context of developing knowledge, the students continue their study, and they are expected to deepening their understanding of medicinal chemistry role in discovery, development, synthesis and study of therapeutic agents.
- b- Identify functional groups and ring systems that characterize each of the drug classes.
- c- Identify the structural features and functional groups important for the pharmacological actions(s) of each drug class.
- d- Recognize how changes in structural features and functional groups affect potency and activity of each drug class.
- e- Understand the mechanism of action (where known) of the various drugs.
- f- Make intelligent hypotheses about the biological activity, mechanism, and/or metabolism of an unknown compound based on the structural features found in the molecule.
- g- Describe the cross-reactivity between drug classes based on structure-activity relationships.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100





No	Mode of Instruction	Contact Hours	Percentage
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	0
3.	Field	0
4.	Tutorial	0
5.	Others (specify)	0
Total		30

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Develop the essential facts, concepts, principles and theories relating to the subject areas of medicinal chemistry .	K3	Lectures Group discussion	Written exam
1.2	Know quantitative structure activity relationship of various classes of medicinal chemistry	K3	Lectures Group discussion	Written exam
2.0	Skills			
2.1	Interpret the chemical information and data concerning structure activity relationship	S1	Lectures Group discussion Multimedia instruction	Written exam





Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Evaluate scientific and professional literature critically to be utilized in evidence-based practice and conducting research.	S2	Lectures Group discussion Multimedia instruction	Assignments
2.3	Communicate clearly by verbal and writing means	S5	Lectures Group discussion Multimedia instruction	Assignments
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate leadership, entrepreneurial and managerial skills, in addition to accountability, confidence, reflective reasoning and independent thinking to respond to routine or unanticipated circumstances.	V4	Lectures Group discussion	Observation cards

C. Course Content

No	List of Topics	Contact Hours
1.	Antibacterial agents: 1- Lactam Antibiotics 2- Non-β-Lactam Antibiotics	10
2.	Anti-Viral	4
3.	Anti-Fungal	2
4.	Antiparasitic Agents	2
5.	Steroidal Hormones	4
6.	Cancer Chemotherapy	4
7.	Antidiabetic	4
Total		30





D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	4	10
2.	Midterm exam	8	25
3.	Assignment	12	10
4.	Observation card	15	5
5.	Final exam	17-19	50
6.	Total		100

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<ol style="list-style-type: none"> Wilson and Gisvolds Textbook of Organic Medicinal and Pharm. Chemistry, 12th edition. PowerPoints slides
Supportive References	<ul style="list-style-type: none"> Textbook of drug design and discovery (3rd edition) by Povl Krogsgaard-Larsen, Tommy Liljefors, Ulf Madsen. Foye's Principles of Medicinal Chemistry 8th Edition by Victoria F. Roche, S. William Zito, Thomas L. Lemke, David A. Williams. The Organic Chemistry of Drug Design and Drug Action, (3rd Edition) by Richard B. Silverman and Mark W. Holladay An Introduction to Medicinal Chemistry (6th edition) by Graham L. Patrick
Electronic Materials	http://www.dlaf.nu.edu.sa/ http://www.drugdesign.com/web/
Other Learning Materials	NA

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Suitable lecture room equipped with data show and internet and sufficient number of seats
Technology equipment (projector, smart board, software)	Computers, data show, sound systems and internet
Other equipment (depending on the nature of the specialty)	NA



F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of departments and students	Indirect Questionnaires (indirect)
Effectiveness of Students assessment	Faculty members and students	Indirect Questionnaires (indirect)
Quality of learning resources	Students	Questionnaires (Indirect)
The extent to which CLOs have been achieved	Student peer reviewer	Direct Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Pharmaceutical Chemistry Department Council
REFERENCE NO.	4-2024
DATE	18/11/2024

