
COURSE MEDICINAL CHEMISTRY II

ACADEMIC YEAR: 2019-20

TYPE OF EDUCATIONAL ACTIVITY: : Characterizing

TEACHER: Dott. Michele Manfra

e-mail: **michele.manfra@unibas.it**

website:

<http://docenti.unibas.it/site/home/docente.html?m=008398>

phone: **0971205039**mobile (optional):

Language: **ITALIAN**

ECTS: 12n.**96** of hoursSede: **Potenza**Dipartimento/Scuola: **Department
of Sciences**Program: **Pharmacy (LM-13)**Semester: **I**Semester: **I****(from 01 October
2019 to 20 January
2020)**

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

Knowledge and understanding

- General planning strategies in pharmaceutical chemistry
- Synthesis and study of action mechanisms at the molecular level
- Chemical-toxicological aspects and relationships between chemical structure and biological activity of drugs

Application of knowledge and understanding

- Ability to analyze the chemical-physical and stereo-electronic properties of drugs
 - Ability to relate the chemical-physical characteristics to the therapeutic use of the drug under examination
 - Analysis and discussion on the synthetic realization of drugs on the market.
 - Ability to discuss possible structural changes, dictated by metabolic processes, which make it possible to modulate the profile of a drug to its therapeutic use
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PRE-REQUIREMENTS**Chemistry, organic-chemistry,biology,biochemistry,anatomy and physiology**

SYLLABUS**Part I: Principles of Drug Discovery [21H]**

Drug Discovery from Natural Products Drug Design and Relationship of Functional Groups to Pharmacologic Activity .Molecular Modeling .Receptors and Drug Action

Part II: Drug Receptors Affecting Neurotransmission and Enzymes as Catalytic Receptors [21H]

Drugs Affecting Cholinergic Neurotransmission. Adrenergic Receptors and Drugs Affecting Adrenergic Neurotransmission .Serotonin Receptors and Drugs Affecting Serotonergic Neurotransmission .Amino Acid Neurotransmitters in the Central Nervous System . Inhibitors of Nerve Conduction: Local Anesthetics .Phosphodiesterase Inhibitors. Medications of each class with approach to design, chemical synthesis, study of the mechanism of action and SAR

Part III: Pharmacodynamic Agents [22H]

Section 1: Drugs Affecting Central Nervous System

General Anesthetics. Sedative-Hypnotics. Antiseizure Agents . Antidepressants. Psychotherapeutic Drugs: Antipsychotic and Anxiolytic Agents .Hallucinogens, Stimulants and Related Drugs of Abuse Opioid Analgesics. Drugs Used to Treat Neuromuscular Disorders: Antiparkinsonian and Spasmolytic Agents. Medications of each class with approach to design, chemical synthesis, study of the mechanism of action and SAR

Section 2: Drugs Affecting the Cardiovascular System [32H]

Cardiac Agents: Cardiac Glycosides, Antianginal, and Antiarrhythmic Drugs . Diuretics. Angiotensin Converting Enzyme Inhibitors, Antagonists and Calcium Blockers .Central and Peripheral Sympatholytics and Vasodilators .Antihyperlipoproteinemics and Inhibitors of Cholesterol Biosynthesis. Medications of each class with approach to design, chemical synthesis, study of the mechanism of action and SAR

TEACHING METHODS

Lectures – Lab activities. For better learning in the classroom exercises will be performed to the design and synthesis of drugs

EVALUATION METHODS

ACHIEVEMENT OF THE OBJECTIVES IS CERTIFIED BY PASSING AN EXAM.THE EXAM PROVIDES FOR A PRELIMINARY WRITTEN EXAM TO AN ORAL EXAM THAT TAKES PLACE ON DIFFERENT CALENDARED DAYS. THE WRITTEN TEST CONSISTS OF FIVE ANSWER AND IT HAS A DURATION NOT EXCEEDING 120 MINUTES AND IS AIMED AT VERIFYING THE ABILITY TO PROPERLY APPLY THEORETICAL KNOWLEDGE AND THE ABILITY TO COMMUNICATE IN WRITING. THE ORAL TEST CONSISTS OF A 40-MINUTE DISCUSSION AIMED AT ASSESSING THE LEVEL OF KNOWLEDGE AND UNDERSTANDING ACQUIRED BY THE STUDENT ON THE THEORETICAL CONTENTS OF THE PROGRAM. THE ORAL TEST WILL ALSO ALLOW STUDENTS TO COMMUNICATE WITH THE LANGUAGE SKILLS AND AUTONOMOUS EXPOSURE ORGANIZATION ON THE SAME SUBJECTS WITH THEORETICAL CONTENT.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- D.A. Williams, T.L. Lemke, *Foye's Principi Di Chimica Farmaceutica*, Piccin.
- G.L. Patrick, *Introduzione Alla Chimica Farmaceutica*, Edises, II edizione
- Wilson&Gisvold *Chimica Farmaceutica* .Ed.CEA
- T. Nogrady, D. Weaver, *Medicinal Chemistry – A Molecular And Biochemical Approach*, 3rd Ed., Oxford University Press.
- Monografie della Collana "*Chimica dei recettori*", Editore C. Melchiorre, CLUEB (Bologna).
- C. Wermuth, *Le Applicazioni Della Chimica Farmaceutica*, Edises.
- P. Krosggaard-Larsen, T. Liljefors, U. Madsen Ed., *Textbook Of Drug Design And Discovery*, Taylor & Francis.
- *Goodman & Gilman's The Pharmacological Basis of Therapeutics*, Twelfth Edition, McGraw-Hill Medical Publishing Division (2011).
- *Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry*-Lippincott Williams & Wilkins
- Kleemann, Engel, Kutscher, Reichert, *Pharmaceutical Substances*, 5th ed., ThiemeVerlag. *Burger's Medicinal Chemistry, Drug Discovery and Development*. 7th edition. Wiley. *Journal of Medicinal Chemistry*, ACS.
- SLIDES OF COURSE TEACHER

INTERACTION WITH STUDENTS

Students will be received once a week ,on Monday 11.30-13.30, or any other day with previous email contact

EXAMINATION SESSIONS (FORECAST)¹

¹Subject to possible changes: check the web site of the Teacher or the Department/School for updates.

13/01/2020; 3/02/2020; 9/03/2020; 15/06/2020; 13/07/2020; 14/09/2020; 12/10/2020; 9/11/2020; 14/12/2020

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION
