

COURSE MEDICINAL CHEMISTRY II

ACADEMIC YEAR: 2016-17

TYPE OF EDUCATIONAL ACTIVITY: (Basic, Characterizing, Affine, Free choice, Other) Characterizing,

TEACHER: MANFRA MICHELE

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mobile (optional):

Language: ITALIAN

ECTS: **12** (12 lessons e
tutorials/practice)n.**96** of hours: (96 di lessons
tutorials/practice)Sede: **Potenza**
Dipartimento/Scuola:**Dipartimento
di Scienze**
CdS:**FARMACIA (LM-13)**Semester: I
(Anticipated dates of
the beginning and end
of the course:
05/10/2016,
30/01/2017)**EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES**

The course aims to provide students with Knowledge concerning the strategy drug Design, synthesis and study of mechanism of action at the molecular level and chemical toxicology aspects and structure and activity relationships and biological activity of drugs. For this purpose, the physical-chemical properties and stereo-electronic properties of drugs will be analyzed in a critical way and placed in relation to the therapeutic use of the test drug and will be analyzed and discussed the realization of synthetic drugs on the market. Also will be discussed potential structural changes dictated by metabolic processes that allow to modulate the profile of a drug to its therapeutic use. It is expected that the student acquires knowledge of basic concepts related to chemical and molecular study of drugs and is able to discuss the mechanisms of action and structure-activity relationships on the basis of the chemical characteristics of the molecules involved. It is expected that the students acquire the essential elements for designing drugs on a rational basis.

PRE-REQUIREMENTS**Organic-chemistry, Medical chemistry I****SYLLABUS****Part I: Principles of Drug Discovery**

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

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

Part III: Pharmacodynamic Agents**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

Section 2: Drugs Affecting the Cardiovascular System

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

TEACHING METHODS

Lectures – Lab activities.

EVALUATION METHODS

TEST

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

For better learning in the classroom exercises will be performed to the design and synthesis of drugs

EXAMINATION SESSIONS (FORECAST)¹

20/02/2017,13/03/2017,19/06/2017,10/07/2017,19/09/2017,02/10/2017,06/11/2017,04/12/2017,08/01/2018

SEMINARS BY EXTERNAL EXPERTS YES ☐ NO ☒

FURTHER INFORMATION

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