SYLLABUS

1. Course title:

Pharmaceutical hemistry 1

2. Code:

3. Cycle of study:

1

4. ECTS credits:

9

5. Type of course:

(●) Mandatory ( ) Elective

6. Prerequisites:

none

7. Class restrictions:

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures: 4

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 4

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Pharmacy (integrated 1st and 2nd cycle)

12. Lecturer:

Miralem Smajić

13. Lecturer's e-mail:

miralem.smajic@untz.ba

14. Web site:

untz.ba

15. Course aims:

To learn the basic knowledge of the pharmaceutical and medical chemistry that will apply to further overcoming the pharmaceutical chemistry II and other professional subjects.
Provide students with basic knowledge of the physicochemical properties of pharmacologically active molecules, reactivity of their functional groups, mechanisms of drug action, structure-activity relationships, chemical drug interactions, drug-receptor interactions, chemical aspects of drug metabolism (in vivo and in vitro).

16. Learning outcomes:

- acquiring knowledge of the physical chemistry of pharmacologically active molecules,
- Knowledge of reactivity of functional groups, degradation reactions and chemical stability of molecules
- Understanding the basic mechanisms of drug effects
- ability to analyze the relationship between the chemical structure and the properties, effects and selectivity of the substance for pharmaceutical use
- understanding the chemical aspects of drug metabolism
- Understanding and analyzing basic mechanisms of drug effects from the studied pharmacotherapeutic groups

17. Course content:

Structure-activity relationships, physicochemical properties, pKa, stereochemical aspects of drug action, functional groups modification, isosterism and bioizosterism. Receptors and biologic response (ion channels, transmembrane proteins), dynamic nature of receptors, Mechanism of drug absorption, distribution (oral administration, absorption through mucous membranes, topical administration, inhalation), bioavailability, drug tolerance. Drug methabolism, phase I, Cyt P 450, induction and inhibition of Cytohrome P 450, anticonvulsants, barbiturates, hypnotics. Oxidative reactions, reductive reactions, phase II (conjugation), extrahepatic metabolism, drug interactions; Antibiotics; Antituberculotics; Antiparasites; Antivirotics; Sulphonamides and folate reductase inhibitors; Antineoplastic agents; Sterid hormones and its derivates; Thyroxin, thyreostatics, insulin, oral antidiabetics ; Vitamins and coenzymes.

18. Learning methods:

Oral Lectures-Mandatory attendance
Interactive teaching-active participation in lectures, repetition of materials, solving specific problems and cases, simulation of the test.
Computer Drawing Structure, Chem Draw, Merck Index Search, Physical-
Chemical parameters of substances for pharmaceutical use.
Experimental exercises-synthesis of substances for pharmaceutical use.
Seminars-organize on a given topic

19. Assessment methods:

Laboratory exercises (colloquium):
- laboratory exercises: synthesis of substances for pharmaceutical use.
Tests for the exempted part of the exam (written exam):
Individual learning: assessment of metabolic drug stability, quantitative drug structure structure and effect (QSAR), basic mechanisms of drug effects from studied pharmacotherapeutic groups.
Final exam (written exam):
Contrasting agents and radiopharmaceuticals in diagnostics and therapy. Hormones: Steroids (estrogens, androgens, gestagens, corticosteroids), thyroxine and thyrotoxicates, insulin and oral antidiabetic agents, peptide hormones, vitamins and calcium therapies. Hemotherapeutics: local antiinfectives (antiseptics, disinfectants, uroantiseptics, antimotics, antiparasitics, antituberculosis), sulfonamides.

20. Assessment components:

The assessment of the exam is based on the total number of points the student has obtained by fulfilling the pre-requisites and
By passing the exam, according to the quality of the acquired knowledge and skills and it contains a maximum of 100 points and is determined according to
The following scoring scale (minimum for pass-maximum number):
Activity in lectures: 2-5
Laboratory Exercises (Colloquium): 5-10
Test I: 13-25
Test II: (Final Exam) 30-60
Total: 51-100

21. Required reading list:

1. William Foye, Thomas Lemke, David Williams; Principles of Medicinal Chemistry, V ed, 2002, Willams & Wilkins, Baltimore, USA
2. Textbook of Organic Medicinal and Pharmaceutical Chemistry, Wilson E. Gisvold J. B., Lippincott Company, London, Philadelphia, New York, 2004.
3. Thomas Nogrady; Medicinal Chemistry, A Biomedical Approach, 2nd edition, Oxford University Press, New York
4. Gareth Thomas, Medicinal Chemistry, An introduction, John Wiley & Sons, Ltd, England
5. D. Radulović, S. Vladimirov; Farmaceutska hemija I, Beograd 2005

22. Web sources:

http://thepoint.lww.com/gateway

23. Applicable starting from the academic year:

2012/13

24. Adopted in the Faculty/Academy session: