SYLLABUS

1. Course title:

Pharmaceutical hemistry 2

2. Code:

3. Cycle of study:

1

4. ECTS credits:

10

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester:

1 6

9. Weekly contact hours:

9.1. Lectures:	3
9.2. Seminars:	0
9.3. Laboratory/Practice classes:	5

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.
Give the student basic knowledge of physico-chemical properties of pharmacologically active molecules, reactivity of their functional groups, mechanisms of drug action, structure-activity relationships, chemical interactions of drugs, 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
- understanding and analysis of chemical drug interactions.

17. Course content:

Histamine, histamine receptors, H1, H2. H3 antagonist; Serotonin, drugs affecting 5-HTreceptors, MAO inhibitors; GABA, anxiolytic, sedative and hypnotic agents, antipsychotics; Local and general anesthetics, opium alkaloids, opoid analgetic; Analgo-antupyretics, nonsteroid antireumathics, nonselective and selective COX2 inhibitors; Cholinergic neurochemistry, biosynthesis of acetylcholine, acetylholines receptors, holinergic agonists and anti-cholinergic drugs, muscarinic receptors agonists, direct agonists; indirect agonists-inhibitors of acetylcholine esterase; irreversible inhibitors, cholinesterase inhibitors, cholinergic blockers; Adrenergic neurotransmitters, adrenergic receptor agonist and antagonist (α and β); Cardiac glycosides; Diuretics, antihypertensives: ACE inhibitors, AT1 receptor antagonists, alpha blockers; Antihyperlipidemic agents, HMG-CoA reductase inhibitors, anticoagulans, thrombolytis; Agents for diagnostic imaging, iodinated contrasts, gadolinium complexes, HIDA and others

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 - identification and characterization of the selected substances.
Seminars-organize on a given topic

19. Assessment methods:

Laboratory Veils (Colloquium):
Laboratory exercises: characterization of selected active pharmaceuticals: spectrophotometric determination (diazepam, ibuprofen, ketoconazole, theobromine, diclofenac, nicotinamide ...); Determination of melting point of synthesized substances, IR and NMR identification, tankosolumn chromatography, chemical reaction identification.
Tests for the exempted part of the exam (written exam):
Individual learning: testing of knowledge in the field of cardiovascular and CNS medicines; Metabolic Stability of Drugs, Quantitative Structure and Effectiveness (QSAR), the basic mechanism of drug effects from the studied pharmacotherapeutic groups.
Final exam (written exam):
Drugs acting on the central nervous system: antipsychotics, anxiolytics, antidepressants, antihistamines, holinergics.
Medications acting on cardiovascular system: adrenergics, antiarrhythmics, vasodilators, diuretics, antihypertensive agents; Lipid regulating agents

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:

(max. 10 char.)