Study program: Integrated academic studies of Pharmacy

Type and level of the study program: integrated academic studies

Course title: PHARMACEUTICAL CHEMISTRY II (PhIII-PHCHII)

Teacher: Nevena N. Grujić-Letić

Course status: compulsory

ECTS Credits: 8

Condition: Pharmaceutical Chemistry I

Course aim:
The aim of this course is to provide students with basic, scientific and academic knowledge and skills in the field of pharmacological active substances of natural, semi-synthetic and synthetic origin. Students learn about the structure, international generic names, branded names of medications, nomenclature and physical-chemical properties of drugs. Special emphasis is given to the association between the chemical structure and effects, as well as to drug biotransformation.

Expected outcome of the course:
Students receive training to understand chemical structures and properties of pharmacological active substances, their metabolism and effects through receptors or some other way. Students are challenged to use their knowledge in research and practice.

It is necessary to develop skills in laboratory practice, skills in analyses and preparation of pharmacological active substances, binding gathered practical and theoretical knowledge and their application in pharmacology, pharmaceutical technology and other medical courses.

Course description

Theoretical education

1. Antibacterial antibiotics
   - β-lactam antibiotics
   - Aminoglycosides
   - Tetracyclines
   - Macrolides
   - Polypeptides
   - Chloramphenicol
2. Antifungal substances
   - Antimicrobial agents - Nystatin A₁, Amphotericin B, Natamycin, Griseofulvin
   - Synthetic antibacterial substances - Quinolones, Nitrofurans and so on.
   - Antituberculotic agents
   - Antiprotozoal agents, Anthelmintic agents
3. Sulfonamides, sulfones, and folate reductase inhibitors
4. Antimalarial agents
5. Antiviral agents
6. Antineoplastic agents

Practical education: exercises, other forms of education, research related activities

1. Introduction to laboratory work.
2. Qualitative analysis of therapeutic substances: theoretical principles, the identification of 25 medicinal substances, elemental analysis, reactions of functional groups, reactions of cations and anions.
3. Drug purity testing: theoretical principles, proving the presence of ammonium ions, arsenic, barium, iron (III), potassium, calcium, nitrate, sulfate, phosphate, chloride, alkaline earth metals, heavy metals, organic ingredients.
4. Writing 4 monographic publications according to Ph. Jug IV i V: theoretical principles, identification, purity testing, determination by volumetric analysis.
5. Mathematical calculations.

Literature

Compulsory
3. Pharmaceutical Chemistry Laboratory Experiments, Department of Pharmacy, Medical Faculty, University of Novi Sad.

Additional

Number of active classes

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<tr>
<th>Lectures:</th>
<th>Practice:</th>
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<tr>
<td>45</td>
<td>60</td>
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Other types of teaching:

Research related activities:

Student activity assessment (maximally 100 points)

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<thead>
<tr>
<th>Pre-exam activities</th>
<th>points</th>
<th>Final exam</th>
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<tr>
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<td>5</td>
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