# 22. PHARMACEUTICAL CHEMISTRY I (FIII-FRHEI)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
<th>Integrated studies of Pharmacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT</td>
<td>Department of Pharmacy</td>
</tr>
<tr>
<td>COURSE TITLE / CODE</td>
<td>PHARMACEUTICAL CHEMISTRY I</td>
</tr>
<tr>
<td>COURSE STATUS</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Condition:</td>
<td>Pharmaceutical Chemistry of Inorganic Compounds</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Winter semester (hours/week)</th>
<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
<th>Seminars</th>
<th>ECTS credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lectures</td>
<td>Practice</td>
<td>Lectures</td>
<td>Practice</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Teaching methods: Interactive Lectures with use of video presentations; Laboratory Practice – individual or in groups. Consultations.

**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.

**Goal**

**Knowledge**

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.

**Skills**

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 classes

**ANTIBACTERIAL ANTIBIOTICS**
- β-lactams antibiotics
- Aminoglycosides
- Tetracyclines
- Macrolides
- Polypeptides
- Chloramphenicol

**ANTIINFECTIOUS SUBSTANCES**
- Antimycotic antibiotics - Nystatin A₁, Amphotericin B, Natamycin, Griseofulvin
- Synthetic antibacterial substances - Quinolones, Nitrofurans and so on.
- Antituberculotic agents
- Antiprotozal agents, Anthelmintic agents

**SULFONAMIDES, SULFONES, AND FOLATE REDUCTASE INHIBITORS**

**ANTIMALARIAL AGENTS**

**ANTIVIRAL AGENTS**

**ANTINEOPLASTIC AGENTS**

**STEROIDS**
- **STEROID HORMONES**
  - estrogens
  - androgens
  - progestins
- **CORTICOSTEROIDS**
  - mineralocorticoids
  - glucocorticoids

**CONTRACEPTIVE AGENTS**

**ANABOLICS**

**CARDIOTONIC GLYCOSIDES**

**VITAMINS**
- Liposoluble vitamins: A,D,E and K
- Hydrophilic vitamins: vitamins of the B group, vitamin C.
## Practical classes

1. Introduction to laboratory work
2. Qualitative analysis of therapeutic substances;
3. Drug purity testing;
4. Writing 4 monographic publications according to Ph. Jug IV i V;
5. Mathematical calculations

### RECOMMENDED LITERATURE

**Compulsory**
3. Laboratorijske vežbe iz Farmaceutske hemije, Skripta za internu upotrebu, Zavod za farmaciju, Medicinski fakultet, Novi Sad
5. Farmakopeja SFRJ (Ph.Jug.IV), četrto izdanje, Savezni zavod za zdravstvenu zaštitu, Beograd, 1984

**Optional**

### Student’s activity assessment (points)

<table>
<thead>
<tr>
<th>Pre-exam activities</th>
<th>Final exam</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>Practice</td>
<td>Other</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

### Teaching staff

1. Prof. dr Žika Lepojević
2. Doc. dr Nataša Milić
3. As. Prip. Srđenović Branislava
4. Grujić Nevena, Techn.demonstrator u nastavi

Head of Department
Prof. dr Jovan Popović s.r.