



**FOURTH YEAR OF STUDIES**

School year 2024/2025.

**BASICS OF CLINICAL PHARMACOLOGY**

Subject:

## **FUNDAMENTALS OF CLINICAL PHARMACOLOGY**

The course is awarded with 3 ECTS. There are 3 hours of active classes per week (2 hour of lectures and 1 hour of seminars)

## TEACHERS AND ASSOCIATES:

| RB  | Name and surname      | E-mail address                 | Title                |
|-----|-----------------------|--------------------------------|----------------------|
| 1.  | Slobodan Janković     | sjankovic @ fmn.kg.ac.rs       | Professor            |
| 2.  | Dragan Milovanovic    | piki@ptt.rs                    | Professor            |
| 3.  | Nataša Đorđević       | natashadj2002@yahoo.com        | Professor            |
| 4.  | Jasmina Milovanović   | jasminamilo@yahoo.com          | Professor            |
| 5.  | Dejana Ruzic Zecevic  | dejana.zecevic@gmail.com       | Associated Professor |
| 6.  | Marina Kostić         | marrina2006kg@yahoo.com        | Professor            |
| 7.  | Mihajlo Jakovljević   | jakovljevicm @ medf.kg.ac.rs   | Professor            |
| 8.  | Radica Zivković Zarić | radica_zivkovic@yahoo.com      | Assistant Professor  |
| 9.  | Miloš Milosavljević   | milosavljevicmilos91@gmail.com | Assistant Professor  |
| 10. | Ana Pejčić            | anapejcic201502@yahoo.com      | Assistant Professor  |

## COURSE STRUCTURE:

| Module | Name of the module   | Week | Lectures weekly | Seminars weekly | Teacher-leader of the module |
|--------|--|------|-----------------|-----------------|------------------------------|
| 1      | GENERAL CLINICAL PHARMACOLOGY  | 5    | 2               | 1               | prof. Dr. Slobodan Janković  |
| 2      | CLINICAL PHARMACOLOGY OF THE CENTRAL NERVOUS AND CARDIOVASCULAR SYSTEM | 5    | 2               | 1               | prof. Dr. Slobodan Janković  |
| 3      | CLINICAL PHARMACOLOGY OF OTHER SPECIAL THERAPEUTIC AREAS               | 5    | 2               | 1               | prof. Dr. Slobodan Janković  |
|        |  |      |                 |                 | $\Sigma 30+15=45$            |

## ASSESSMENT:

The student masters the subject in modules. The grade is equivalent to the number obtained points (see tables). Points are earned in two ways:

**ACTIVITY DURING THE CLASSES:** In this way, a student can earn up to 30 points by finding the answer to the therapeutic problem set during previous seminar in publications that meet the criteria of evidence-based medicine; in accordance with the demonstrated success in solving the problem, he/she gets 0-2 points .

**MODULAR EXAMS:** The student solves the given clinical case and answers orally. In this way, the student can acquire up to 40 points, according to the attached table. The solution of the clinical case is evaluated with 50% of the available points if it is attempted, with 75% if it is partially correct, and with 100% of the available points if it is completely correct.

| MODULE |  | MAXIMUM POINTS          |              |    |
|--------|--|-------------------------|--------------|----|
|        |  | activity during classes | final papers | Σ  |
| 1      | GENERAL CLINICAL PHARMACOLOGY  | 10                      | 15           | 25 |
| 2      | CLINICAL PHARMACOLOGY OF THE CENTRAL NERVOUS AND CARDIOVASCULAR SYSTEM | 10                      | 10           | 20 |
| 3      | CLINICAL PHARMACOLOGY OF OTHER SPECIAL THERAPEUTIC AREAS               | 10                      | 15           | 25 |
| Σ      |  | 30                      | 40           | 70 |

**FINAL EXAM (oral):** The student demonstrates mastering of the whole subject. In this way, the student can acquire up to 30 points.

### The final grade is formed as follows:

In order to pass the whole exam a student must obtain minimum 51 points.

To pass the module a student must:

1. earn more than 50% points on that module

| The number of points earned | rating |
|-----------------------------|--------|
| 0 - 50                      | 5      |
| 51 - 60                     | 6      |
| 61 - 70                     | 7      |
| 71 - 80                     | 8      |
| 81 - 90                     | 9      |
| 91 - 100                    | 10     |

### **The committee for final exam:**

Regular members: prof. dr Slobodan Janković, prof. dr Dragan Milovanović, prof dr Dejana Ružić Zečević

Reserve members: prof. dr Jasmina Milovanović, prof. dr Nataša Đorđević, prof. dr Mihajlo Jakovljević, prof. dr Marina Kostić, doc. dr Radica Živković Zarić, doc. dr Ana Pejčić i doc. dr Miloš Milosavljević

## **MODULAR EXAMS**

### **MODULE 1.**

**ORAL EXAM  
0-15 POINTS**

#### **ASSESSMENT**

The solution of the clinical case is evaluated with 50% of the available points if it is attempted, with 75% if it is partially correct, and with 100% of the available points if it is completely correct.

### **MODULE 2 .**

**ORAL EXAM  
0-10 POINTS**

#### **ASSESSMENT**

The solution of the clinical case is evaluated with 50% of the available points if it is attempted, with 75% if it is partially correct, and with 100% of the available points if it is completely correct.

### **MODULE 3.**

**ORAL EXAM  
0-15 POINTS**

#### **ASSESSMENT**

The solution of the clinical case is evaluated with 50% of the available points if it is attempted, with 75% if it is partially correct, and with 100% of the available points if it is completely correct.

## LITERATURE:

| MODULE   | TITLE OF THE TEXTBOOK                                      | THE AUTHORS          | PUBLISHER                                     | LIBRARY       | READING ROOM  |
|--|--|----------------------|---|---------------|---------------|
| 1. <b>GENERAL CLINICAL PHARMACOLOGY</b>  | Clinical pharmacology                                      | Slobodan M. Jankovic | Faculty of Medical Sciences, Kragujevac, 2023 | Yes           | Yes           |
|  | Lippincott Illustrated Reviews: Pharmacology Eight Edition | Karen Whalen         | Wolters Kluwer , 2022                         | Does not have | Does not have |
| 2. <b>CLINICAL PHARMACOLOGY OF THE CENTRAL NERVOUS AND CARDIOVASCULAR SYSTEM</b> | Clinical pharmacology                                      | Slobodan M. Jankovic | Faculty of Medical Sciences, Kragujevac, 2023 | Yes           | Yes           |
|  | Lippincott Illustrated Reviews: Pharmacology Eight Edition | Karen Whalen         | Wolters Kluwer , 2022                         | Does not have | Does not have |
| 3. <b>CLINICAL PHARMACOLOGY OF OTHER SPECIAL THERAPEUTIC AREAS</b>               | Clinical pharmacology                                      | Slobodan M. Jankovic | Faculty of Medical Sciences, Kragujevac, 2023 | Yes           | Yes           |
|  | Lippincott Illustrated Reviews: Pharmacology Eight Edition | Karen Whalen         | Wolters Kluwer , 2022                         | Does not have | Does not have |

All lectures are available on the website of the Faculty of Medical Sciences: [www.medf.kg.ac.rs](http://www.medf.kg.ac.rs)

# THE PROGRAM:

## FIRST MODULE: GENERAL CLINICAL PHARMACOLOGY

TEACHING UNIT 1 (FIRST WEEK):

### PHARMACOVIGILANCE

| lectures 2 hours   | seminar 1 hour   |
|--|--|
| <ul style="list-style-type: none"><li>Clinical pharmacology in the health care system.</li></ul> | <ul style="list-style-type: none"><li>Detection and reporting of adverse drug reactions.</li></ul> |

TEACHING UNIT 2 (SECOND WEEK):

### CLINICAL PHARMACOKINETICS

| lectures 2 hours   | seminar 1 hour  |
|--|---|
| <ul style="list-style-type: none"><li>Individualization of drug dosing according to pharmacokinetic models</li></ul> | <ul style="list-style-type: none"><li>Therapeutic drug monitoring</li><li>Calculators for individualizing dosage regimens</li></ul> |

TEACHING UNIT 3 (THIRD WEEK):

### PHARMACOGENETICS

| lectures 2 hours   | seminar 1 hour  |
|--|---|
| <ul style="list-style-type: none"><li>The importance of pharmacogenetics for the clinical application of drugs</li></ul> | <ul style="list-style-type: none"><li>Examples of drug administration depending on the patient's pharmacogenetic status</li></ul> |

UNIT 4 (FOURTH WEEK):

### PHARMACOECONOMICS

| lectures 2 hours  | seminar 1 hour  |
|---|---|
| <ul style="list-style-type: none"><li>Basics of pharmacoeconomics</li></ul> | <ul style="list-style-type: none"><li>Examples of pharmacoeconomic studies</li><li>Selection of drugs based on pharmacoeconomic studies</li></ul> |

UNIT 5 (FIFTH WEEK):

### RATIONAL PRESCRIBING

| lectures 2 hours   | seminar 1 hour  |
|--|---|
| <ul style="list-style-type: none"><li>Inappropriate prescribing of drugs</li><li>Principles of rational use of drugs</li></ul> | <ul style="list-style-type: none"><li>The most common errors when prescribing drugs in clinical practice.</li></ul> |

## SECOND MODULE: CLINICAL PHARMACOLOGY OF THE CENTRAL NERVOUS AND CARDIOVASCULAR SYSTEM

UNIT 6 ( SIXTH WEEK):

### DRUGS AND THE HEART

|   |  |
|---|--|
| lectures 2 hours  | seminar 1 hour   |
| <ul style="list-style-type: none"><li>• Prescribing drugs that affect heart rhythm.</li></ul> | <ul style="list-style-type: none"><li>• Treatment of heart failure</li></ul> |

UNIT 7 (SEVENTH WEEK):

### TREATMENT OF HYPERTENSION

|   |   |
|---|---|
| lectures 2 hours  | seminar 1 hour  |
| <ul style="list-style-type: none"><li>• Prescribing antihypertensive drugs.</li></ul> | <ul style="list-style-type: none"><li>• Treatment of hypertensive emergency</li></ul> |

UNIT 8 (EIGHTH WEEK):

### TREATMENT OF VASCULAR DISEASES

|  |   |
|--|---|
| lectures 2 hours   | seminar 1 hour  |
| <ul style="list-style-type: none"><li>• Prescribing drugs for cerebrovascular diseases</li></ul> | <ul style="list-style-type: none"><li>• Treatment of bacterial endocarditis</li></ul> |

UNIT 9 (NINTH WEEK):

### TREATMENT OF EPILEPSY

|   |   |
|---|---|
| lectures 2 hours  | seminar 1 hour  |
| <ul style="list-style-type: none"><li>• Prescribing antiepileptic drugs</li></ul> | <ul style="list-style-type: none"><li>• Termination of status epilepticus</li></ul> |

UNIT 10 (TENTH WEEK):

### TREATMENT OF PSYCHOSIS AND DEPRESSION

|   |   |
|---|---|
| lectures 2 hours  | seminar 1 hour  |
| <ul style="list-style-type: none"><li>• Prescribing antipsychotics</li><li>• Prescribing antidepressants and mood stabilizers</li></ul> | <ul style="list-style-type: none"><li>• Treatment of postoperative delirium in the elderly.</li></ul> |



# THIRD MODULE: CLINICAL PHARMACOLOGY OF OTHER SPECIAL THERAPEUTIC AREAS

UNIT 11 (ELEVENTH WEEK):

## HEMOSTASIS AND ANEMIA

|  |   |
|--|---|
| lectures 2 hours   | seminar 1 hour  |
| <ul style="list-style-type: none"><li>• Perioperative administration of anticoagulant and antiaggregation drugs.</li></ul> | <ul style="list-style-type: none"><li>• Treatment of anemia</li></ul> |

UNIT 12 (Twelfth Week):

## IMMUNOSUPPRESSANTS

|   |   |
|---|---|
| lectures 2 hours  | seminar 1 hour  |
| <ul style="list-style-type: none"><li>• Clinical application of immunosuppressants.</li></ul> | <ul style="list-style-type: none"><li>• Treatment of systemic Lupus erythematoses</li></ul> |

UNIT 13 (WEEK THIRTEEN):

## ANTIBIOTICS

|   |  |
|---|--|
| lectures 2 hours  | seminar 1 hour   |
| <ul style="list-style-type: none"><li>• Antibiotic management in the hospital</li><li>• Principles of rational use of antibiotics</li></ul> | <ul style="list-style-type: none"><li>• Dosing of antibiotics in dialysis patients</li></ul> |

UNIT 14 (FOURTEENTH WEEK):

## CORTICOSTEROIDS

|   |   |
|---|---|
| lectures 2 hours  | seminar 1 hour  |
| <ul style="list-style-type: none"><li>• Prescribing corticosteroids</li></ul> | <ul style="list-style-type: none"><li>• Treatment of rheumatoid arthritis</li></ul> |

UNIT 15 (FIFTEENTH WEEK):

## SEX HORMONES

|  |  |
|--|--|
| lectures 2 hours   | seminar 1 hour   |
| <ul style="list-style-type: none"><li>• Prescribing sex hormones and antiestrogens</li></ul> | <ul style="list-style-type: none"><li>• Hormone replacement in menopause</li></ul> |

**Consultations with teachers: every Friday, from 1 to 2 p.m., in the premises of the Department of Pharmacology (rooms 21 and 23)**

## **LECTURE SCHEDULE**

**PHARMACOLOGICAL  
CLASSROOM (H5)**

**FRIDAY  
15:45 - 17:15**

## **SEMINAR SCHEDULE**

**PHARMACOLOGICAL  
CLASSROOM (H5)**

**FRIDAY  
17:15 - 18:00**

## LESSONS SCHEDULE FOR FUNDAMENTALS OF CLINICAL PHARMACOLOGY COURSE

| module | week | date        | time        | place   | type | method unit name   | a teacher                 |
|--------|------|-------------|-------------|---------|------|--|---------------------------|
| 1      | 1    | 27.9.2024.  | 15:00-16:30 | PhClass | L    | Clinical pharmacology in the health care system.   | Prof. Slobodan Janković   |
| 1      | 1    | 27.9.2024.  | 16:30-17:15 | PhClass | S    | Detection and reporting of adverse drug reactions.   | Prof. Slobodan Janković   |
| 1      | 2    | 4.10.2024.  | 15:00-16:30 | PhClass | L    | Individualization of drug dosing according to pharmacokinetic models                         | Prof. Jasmina Milovanović |
| 1      | 2    | 4.10.2024.  | 16:30-17:15 | PhClass | S    | Therapeutic drug monitoring<br>Calculators for individualizing dosage regimens               | Prof. Jasmina Milovanović |
| 1      | 3    | 11.10.2024. | 15:00-16:30 | PhClass | L    | The importance of pharmacogenetics for the clinical application of drugs                     | Prof. Nataša Đorđević     |
| 1      | 3    | 11.10.2024. | 16:30-17:15 | PhClass | S    | Examples of drug administration depending on the patient's pharmacogenetic status            | Prof. Nataša Đorđević     |
| 1      | 4    | 18.10.2024. | 15:00-16:30 | PhClass | L    | Basics of pharmacoeconomics  | Prof. Dragan Milovanovic  |
| 1      | 4    | 18.10.2024. | 16:30-17:15 | PhClass | S    | Examples of pharmacoeconomic studies<br>Selection of drugs based on pharmacoeconomic studies | Prof. Dragan Milovanovic  |
| 1      | 5    | 25.10.2024. | 15:00-16:30 | PhClass | L    | Inappropriate prescribing of drugs<br>Principles of rational use of medicines                | Prof. Mihajlo Jakovljević |

## LESSONS SCHEDULE FOR FUNDAMENTALS OF CLINICAL PHARMACOLOGY COURSE

| module | week | date        | time        | place   | type | method unit name   | a teacher                            |
|--------|------|-------------|-------------|---------|------|--|--------------------------------------|
| 1      | 5    | 25.10.2024. | 16:30-17:15 | PhClass | S    | The most common errors when rescribing drugs in clinical practice    | Assist . Prof. Radica Zivković Zarić |
|        |      | 25.10.2024. | 17:15-20:00 | PhClass | FP   | <b>EXAM OF MODULE 1</b> – all available teachers from the Department |                                      |
| 2      | 6    | 1.11.2024.  | 15:00-16:30 | PhClass | L    | Prescribing drugs that affect heart rhythm.                          | Prof. Marina Kostić                  |
| 2      | 6    | 1.11.2024.  | 16:30-17:15 | PhClass | S    | Treatment of heart failure   | Prof. Marina Kostić                  |
| 2      | 7    | 8.11.2024.  | 15:00-16:30 | PhClass | L    | Prescribing antihypertensive drugs.                                  | Assoc. Prof. Dejana Ružić-Zečević    |
| 2      | 7    | 8.11.2024.  | 16:30-17:15 | PhClass | S    | Treatment of hypertensive emergency                                  | Assoc. Prof. Dejana Ružić-Zečević    |
| 2      | 8    | 15.11.2024. | 15:00-16:30 | PhClass | L    | Prescribing drugs for cerebrovascular diseases                       | Assist . Prof. Radica Zivković Zarić |
| 2      | 8    | 15.11.2024. | 16:30-17:15 | PhClass | S    | Treatment of bacterial endocarditis                                  | Assist . Prof. Radica Zivković Zarić |

## LESSONS SCHEDULE FOR FUNDAMENTALS OF CLINICAL PHARMACOLOGY COURSE

| module | week | date        | time        | place   | type | method unit name   | a teacher                         |
|--------|------|-------------|-------------|---------|------|--|-----------------------------------|
| 2      | 9    | 22.11.2024. | 15:00-16:30 | PhClass | L    | Prescribing antiepileptic drugs  | Prof. Jasmina Milovanović         |
| 2      | 9    | 22.11.2024. | 16:30-17:15 | PhClass | S    | Termination of status epilepticus.   | Prof. Jasmina Milovanović         |
| 2      | 10   | 29.11.2024. | 15:00-16:30 | PhClass | L    | Prescribing antipsychotics<br>Prescribing antidepressants and mood stabilizers | Assist. Prof. Ana Pejčić          |
| 2      | 10   | 29.11.2024. | 16:30-17:15 | PhClass | S    | Treatment of postoperative delirium in the elderly.                            | Assist. Prof. Ana Pejčić          |
|        |      | 29.11.2024. | 17:15-20:00 | PhClass | FP   | <b>EXAM OF MODULE 2 – all available teachers from the Department</b>           |                                   |
| 3      | 11   | 6.12.2024.  | 15:00-16:30 | PhClass | L    | Perioperative administration of anticoagulant and antiaggregation drugs.       | Assoc. Prof. Dejana Ružić-Zečević |
| 3      | 11   | 6.12.2024.  | 16:30-17:15 | PhClass | S    | Treatment of anemia  | Assist. Prof. Ana Pejčić          |
| 3      | 12   | 13.12.2024. | 15:00-16:30 | PhClass | L    | Prescribing immunosuppressants.  | Assist Prof Miloš Milosavljević   |

## LESSONS SCHEDULE FOR FUNDAMENTALS OF CLINICAL PHARMACOLOGY COURSE

| module | week | date        | time        | place   | type | method unit name   | a teacher                       |
|--------|------|-------------|-------------|---------|------|--|---------------------------------|
| 3      | 12   | 13.12.2024. | 16:30-17:15 | PhClass | S    | Treatment of systemic Lupus erythematoses  | Assist Prof Miloš Milosavljević |
| 3      | 13   | 20.12.2024. | 15:00-16:30 | PhClass | L    | Antibiotic management in the hospital<br>Principles of rational use of antibiotics | Prof. Mihajlo Jakovljević       |
| 3      | 13   | 20.12.2024. | 16:30-17:15 | PhClass | S    | Dosing of antibiotics in dialysis patients .                                       | Assist Prof Miloš Milosavljević |
| 3      | 14   | 27.12.2024. | 15:00-16:30 | PhClass | L    | Prescribing corticosteroids  | Prof. Nataša Đorđević           |
| 3      | 14   | 27.12.2024. | 16:30-17:15 | PhClass | S    | Treatment of rheumatoid arthritis  | Prof. Nataša Đorđević           |
| 3      | 15   | 10.1.2025.  | 15:00-16:30 | PhClass | L    | Prescribing sex hormones and antiestrogens   | Prof. Marina Kostić             |
| 3      | 15   | 10.1.2025.  | 16:30-17:15 | PhClass | S    | Hormone replacement in menopause   | Prof. Marina Kostić             |
|        |      | 10.1.2025.  | 17:15-20:00 | PhClass | FP   | <b>EXAM OF MODULE 3</b> – all available teachers from the Department               |                                 |

