



**INTEGRATED ACADEMIC
PHARMACY STUDIES**

THIRD YEAR OF STUDY

academic 2023/2024.

DISPENSING DRUGS IN PRACTICE

Course:

DISPENSING DRUGS IN PRACTICE

The course is evaluated with 5 ECTS credits. Classes of active teaching per week -3 hours (2 hours of lectures and 1 hour of work in a small group).

TEACHERS AND ASSOCIATES:

	Name and surname	E-mail	Title
1.	Dusan Djuric	duca1duca@gmail.com	Full professor
2.	Marko Folic	markof@medf.kg.ac.rs	Full professor
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5.	Radisa Pavlovic	r.pavlovic2407@gmail.com	Associate professor
6.	Tamara Nikolic Turnic	tamara.nikolic@medf.kg.ac.rs	Associate professor
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8.	Aleksandra Stojanovic	vranicaleksandra90@gmail.com	Assistant professor
9.	Natasa Mijailovic	nacakg@gmail.com	Assistant (PhD)
10.	Katarina Mihajlovic	katarina.radonjic@medf.kg.ac.rs	Assistant (PhD)
11.	Marko Ravic	markoravic@hotmail.com	Assistant
12.	Katarina Djordjevic	kacka96kg@gmail.com	Assistant
13.	Bozidar Pindovic	pindovic.bozidar@gmail.com	Assistant

COURSE STRUCTURE:

Module	Module name	Week	Lectures	Work in a small group	Teacher-supervisor module
1	Elements, as well as the basics of writing/interpreting prescriptions and requirements. Medication dispensing systems in a stationary healthcare facility.	6	2	1	Aleksandra Stojanovic
2	Methodological, professional, and expert approach to dispensing antidiabetic, corticosteroid, antiasthmatic, statin, or antianginal medications.	4	2	1	Radisa Pavlovic
3	Methodological, professional, and expert approach to dispensing anticoagulant, antibiotic, antipsychotic, or antidepressant therapy.	5	2	1	Aleksandra Stojanovic

EVALUATION:

The student overcomes the course based on the points achieved in the pre-examination activities and the final exam. The score is equivalent to the number of gained points (table). Points are earned as follows:

Activity during classes (pre-exam activities): The student can acquire up to 30 points by answering 2 exam questions during each week's class, while working in a small group and, according to the demonstrated knowledge, receives 0-2 points. If at the end of the semester the student did not acquire more than 50% of the maximum amount of points (30), they are considered to not have passed the pre-exam activity.

Module	Module Name	MAXIMUM POINTS
		Activity during classes
1.	Elements, as well as the fundamentals of writing/interpreting prescriptions and requirements. Medication dispensing systems in a stationary healthcare facility. Dispensing medications to disabled individuals.	12
2.	Methodological, professional, and expert approach to dispensing antidiabetic, corticosteroid, antiasthmatic, statin, and antianginal medications.	8
3.	Methodological, professional, and expert approach to dispensing anticoagulant, antibiotic, antiulcer, antipsychotic, or antidepressant therapy.	10
Σ		30

Final Exam: In this way, the student can acquire up to 70 points. The student takes a final exam consisting of 70 questions, testing their knowledge of all the material covered during the course. If the student does not answer more than 50% of the exam correctly, they are considered to not have passed the final exam.

Final grade is formed as follows:

In order for a student to pass the course, they must acquire a minimum of 51 points, pass the pre-exam activities in all modules, and pass the final exam (test).

The final grade will be formed according to the following table:

Number of points earned	Grade
0 - 50	5
51 - 60	6
61 - 70	7
71 - 80	8
81 - 90	9
91 - 100	10

Literature:

TEXTBOOK TITLE	AUTHORS	PUBLISHER	LIBRARY
Pharmacology and Toxicology. Third Edition	Janković SM (editor)	Kragujevac: Medical Faculty, 2011.	Yes
Pharmacy Management 1st ed.	Desselle S, Zgarrick D (editors)	Appleton and Lange, 2007.	Yes
Non-Medical Prescribing in Healthcare Practice: A Toolkit for Students and Practitioners. 1st ed.	Brookes D, Smith A.(editors)	Palgrave Macmillan, 2006.	Yes
Handbook of Pharmacology and Toxicology	Janković SM (editor)	Kragujevac: Faculty of Medical Sciences, 2021.	Yes
Pharmacovigilance and Safe Drug Use	erzić B, Anđelković D, Meyboom R, Stanulović M. (editors).	Belgrade: Faculty of Pharmacy, 2006.	Yes
Medication Management in Hospitals	Janković SM.	Kragujevac: Medical Faculty, 2006.	Yes
Pharmacotherapy Guide 6	Ugrešić N (editor).	Belgrade: Agency for Medicines and Medical Devices of Serbia, 2016.	Yes
The Clinical Use of Drugs (Koda Kimble and Youngs Applied Therapeutics) 10th Edition	Allredge B, Corelli R, Ernst M, Guglielmo BJ, Jacobson P (Editors)	Wolters Kluwer Health, Lippincott Williams &Wilkins, 2013	/
Applied Therapeutics: The Clinical Use of Drugs	Zeind C, Carvalho M	Wolters Kluwer Health, 2018	/
Pharmacotherapy: A Pathophysiologic Approach, Eleventh Edition	DiPiro J, Yee G, Posey M., Haines S, Nolin T, Ellingrod V.	McGraw Hill, 2020	/

All lectures and necessary materials for work in small groups are available on the website of the Faculty of Medical Sciences: www.medf.kg.ac.rs

Consultations: Every Thursday during the semester, from 13:00 to 14:00, Faculty of Medical Sciences, Office Number 24.

THE PROGRAM:

MODULE 1: ELEMENTS AS WELL AS THE BASICS OF WRITING/INTERPERTING PRESCRIPTINS AND REQUISITIONS. MEDICATION DISPENSING SYSTEMS IN A STATIONARY HEALTHCARE FACILITY

TEACHING UNIT 1 (FIRST WEEK):

Lectures 2 hours	Practical classes: 1 hour
Medication Dispensing Stages Verification of medication availability in the pharmacy/warehouse.	Verification of identification data on the prescription or requisition.

TEACHING UNIT 2 (SECOND WEEK):

Lectures 2 hours	Practical classes: 1 hour
Verification of dosage regimen, interactions, contraindications, and indications of the medication being dispensed. Types of prescription forms and their validity in the Republic of Serbia.	Detection of irregularities/irregularities on the prescription.

TEACHING UNIT 3 (THIRD WEEK):

Lectures 2 hours	Practical classes: 1 hour
Verbal and non-verbal communication skills with the patient - principles. Establishing contact, active listening, reaching agreements with the patient about the method of medication use.	Practice of communicating with patients who need medication.

TEACHING UNIT 4 (FOURTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Traditional medication dispensing system in a stationary healthcare facility. Possibilities of medication misuse in the traditional medication dispensing system.	Practical medication dispensing to patients in the surgical clinic.

TEACHING UNIT 5 (FIFTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Unit-dose medication distribution system in a stationary healthcare facility. Automatic medication dispensing. Software solutions of the unit-dose medication distribution system.	Practical medication dispensing in the unit-dose distribution system to patients in the internal medicine clinic.

TEACHING UNIT 6 (SIXTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Dispensing medications to handicapped individuals. Pharmacotherapy of the most common diseases of the ear, throat, and nose in primary healthcare. Most common errors occurring during medication dispensing to handicapped individuals.	Practical examples of dispensing medications to individuals with impaired hearing and/or vision.

MODULE 2: METHODOLOGICAL, PROFESSIONAL, AND EXPERT APPROACH TO DISPENSING ANTIDIABETIC, CORTICOSTEROID, ANTI-ASTHMATIC, STATIN, OR ANTI-ANGINAL MEDICATIONS.

TEACHING UNIT 7 (SEVENTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Warnings to be given to patients using insulin and/or oral antidiabetic drugs. Indications and contraindications of oral antidiabetic drugs.	Practical examples of dispensing medications to patients with diabetes.

TEACHING UNIT 8 (EIGHTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Warnings to be given to patients using systemic corticosteroids. Indications and contraindications of systemically administered corticosteroids.	Practical examples of dispensing medications to patients with autoimmune connective tissue diseases.

TEACHING UNIT 9 (NINTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Warnings to be given to patients with asthma using inhalation therapy. Indications and contraindications of beta-agonists.	Practical examples of dispensing medications to patients with bronchial asthma.

TEACHING UNIT 10 (TENTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Warnings to be given to patients with angina pectoris receiving beta-blockers and nitrates. Indications and contraindications of calcium channel blockers.	Counseling patients on statin therapy.

MODULE 3: METHODOLOGICAL, PROFESSIONAL, AND EXPERT APPROACH IN DISPENSING ANTICAGULANT, ANTIBIOTIC, ANTIPSYCHOTIC, OR ANTIDEPRESSANT THERAPY. DISPENSING MEDICATIONS TO HANDICAPPED INDIVIDUALS.

TEACHING UNIT 11 (ELEVENTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Warnings for patients using oral anticoagulants. Adverse effects of heparin. Heparin dosing. Differences between unfractionated and fractionated heparin.	Practical examples of prescribing antibiotics and analgesics to patients on long-term warfarin therapy.

TEACHING UNIT 12 (TWELVE WEEK):

Lectures 2 hours	Practical classes: 1 hour
Adverse effects of antibiotics. Interactions of macrolide antibiotics with drugs prolonging the QT interval.	Practical examples of prophylactic antibiotic use.

TEACHING UNIT 13 (THIRTEENTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Dispensing medications to individuals with gastrointestinal tract diseases. Clinical significance of prebiotics and probiotics.	Practical examples of dispensing medications to individuals with gastrointestinal tract diseases.

TEACHING UNIT 14 (FOURTEENTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Dispensing medications to individuals with psychoses and major depression. Adverse effects and contraindications of antipsychotics and antidepressants.	Practical examples of dispensing medications to individuals with depression.

TEACHING UNIT 15 (FIFTEENTH WEEK):

Lectures 2 hours	Practical classes: 1 hour
Pharmacotherapy of the most common conditions and diseases of the urogenital tract in primary healthcare. Women's health - pharmacotherapy in primary healthcare.	Practical examples of dispensing medications and OTC products for the most common urogenital tract diseases registered in primary healthcare.

LECTURE SCHEDULE

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PRACTICE SCHEDULE

TEACHING SCHEDULE FOR THE COURSE INTRODUCTION TO PHARMACEUTICAL PRACTICE

module	week	date	time	place	type	the name of the method unit	teacher
1	1				L	Medication Dispensing Stages Verification of medication availability in the pharmacy/warehouse.	Aleksandra Stojanovic, <i>Lecturer</i>
					P	Verification of identification data on the prescription or requisition.	Katarina Mihajlovic Katarina Djordjevic
	2				L	Verification of dosage regimen, interactions, contraindications, and indications of the medication being dispensed. Types of prescription forms and their validity in the Republic of Serbia.	Aleksandra Stojanovic, <i>Lecturer</i>
					P	Detection of irregularities/irregularities on the prescription.	Katarina Mihajlovic Katarina Djordjevic
	3				L	Verbal and non-verbal communication skills with the patient - principles. Establishing contact, active listening, reaching agreements with the patient about the method of medication use.	Srdjan Stefanovic, <i>Lecturer</i>
					P	Practice of communicating with patients who need medication.	Srdjan Stefanovic Katarina Djordjevic
	4				L	Traditional medication dispensing system in a stationary healthcare facility. Possibilities of medication misuse in the traditional medication dispensing system.	Aleksandra Stojanovic, <i>Lecturer</i>
					P	Practical medication dispensing to patients in the surgical clinic.	Aleksandra Stojanovic Marko Ravic
	5				L	Unit-dose medication distribution system in a stationary healthcare facility. Automatic medication dispensing. Software solutions of the unit-dose medication distribution system.	Radisa Pavlovic, <i>Lecturer</i>
					P	Practical medication dispensing in the unit-dose distribution system to patients in the internal medicine clinic.	Marko Ravic Katarina Mihajlovic
2	6				L	Dispensing medications to handicapped individuals. Pharmacotherapy of the most common diseases of the ear, throat, and nose in primary healthcare. Most common errors occurring during medication dispensing to handicapped individuals.	Radisa Pavlovic, <i>Lecturer</i>

TEACHING SCHEDULE FOR THE COURSE INTRODUCTION TO PHARMACEUTICAL PRACTICE

module	week	date	time	place	type	the name of the method unit	teacher
					P	Practical examples of dispensing medications to individuals with impaired hearing and/or vision.	Marko Ravic Bozidar Pindovic
	7				L	Warnings to be given to patients using insulin and/or oral antidiabetic drugs. Indications and contraindications of oral antidiabetic drugs.	Radisa Pavlovic, <i>Lecturer</i>
					P	Practical examples of dispensing medications to patients with diabetes.	Marko Ravic Katarina Djordjevic
	8				L	Warnings to be given to patients using systemic corticosteroids. Indications and contraindications of systemically administered corticosteroids.	Radisa Pavlovic, <i>Lecturer</i>
					P	Practical examples of dispensing medications to patients with autoimmune connective tissue diseases.	Marko Ravic Bozidar Pindovic
	9				L	Warnings to be given to patients with asthma using inhalation therapy. Indications and contraindications of beta-agonists.	Aleksandra Stojanovic, <i>Lecturer</i>
					P	Practical examples of dispensing medications to patients with bronchial asthma.	Katarina Djordjevic Bozidar Pindovic
	10				L	Warnings to be given to patients with angina pectoris receiving beta-blockers and nitrates. Indications and contraindications of calcium channel blockers.	Radisa Pavlovic, <i>Lecturer</i>
					P	Counseling patients on statin therapy.	Katarina Mihajlovic Natasa Mijailovic
3	11				L	Warnings for patients using oral anticoagulants. Adverse effects of heparin. Heparin dosing. Differences between unfractionated and fractionated heparin.	Radisa Pavlovic, <i>Lecturer</i>
					P	Practical examples of prescribing antibiotics and analgesics to patients on long-term warfarin therapy.	Natasa Mijailovic Bozidar Pindovic
	12				L	Adverse effects of antibiotics. Interactions of macrolide antibiotics with drugs prolonging the QT interval.	Radisa Pavlovic, <i>Lecturer</i>

TEACHING SCHEDULE FOR THE COURSE INTRODUCTION TO PHARMACEUTICAL PRACTICE

module	week	date	time	place	type	the name of the method unit	teacher
					P	Practical examples of prophylactic antibiotic use.	Natasa Mijailovic Bozidar Pindovic
	13				L	Dispensing medications to individuals with gastrointestinal tract diseases. Clinical significance of prebiotics and probiotics.	Aleksandra Stojanovic, <i>Lecturer</i>
					P	Practical examples of dispensing medications to individuals with gastrointestinal tract diseases.	Natasa Mijailovic Bozidar Pindovic
	14				L	Dispensing medications to individuals with psychoses and major depression. Adverse effects and contraindications of antipsychotics and antidepressants.	Aleksandra Stojanovic, <i>Lecturer</i>
						P	Practical examples of dispensing medications to individuals with depression.
	15				L	Pharmacotherapy of the most common conditions and diseases of the urogenital tract in primary healthcare. Women's health - pharmacotherapy in primary healthcare.	Aleksandra Stojanovic, <i>Lecturer</i>
						P	Practical examples of dispensing medications and OTC products for the most common urogenital tract diseases registered in primary healthcare.
						FINAL EXAM	