

UNIVERSITY OF ZAGREB SCHOOL OF MEDICINE

Plan of the course

Pharmacology

Academic year **2016/2017**

prof. dr. sc. Melita Šalković-Petrišić

I. COURSE AIMS

- To give the students the understanding of pharmacokinetics and pharmacodynamics principles regulating the action of drugs in general, as well as of the particular drug classes and their “prototype”
- To give the students the necessary knowledge to the rational use of drugs, i.e. to select and prescribe appropriate medications in such a way as to maximize the desirable and minimize the undesirable effects
- The course should prepare students to incorporate new information and the use of new drugs into their practice in the on-coming clinical courses, as well as afterwards in their independent work

In line with these aims, necessary knowledge to deal with the course should be:

anatomy, biochemistry, physiology and pathophysiology, pathology and microbiology

II. COURSE STRUCTURE

Course hours:

Lectures: 59

Seminar: 66

Practicum: 22

Total hours: 147

LECTURES (L) (59 hours)

L1 - Introduction to Pharmacology (1)

L2 - General principles of pharmacokinetics I: absorption, distribution and drug elimination (2)

L3 - General principles of pharmacokinetics II: pharmacokinetics (1)

L4 - Mechanism of drug action, receptors, signal transduction (2)

L5 - Growth factors (1)

L6 - Drug discovery and development, and regulatory issues (1)

L7 - General principles of autonomic pharmacology I: drugs affecting cholinergic transmission (2)

L8 - General principles of autonomic pharmacology II: drugs affecting adrenergic transmission (2)

L9 - Drugs and blood brain barrier (1)

L10 - Pharmacogenetics (1)

L11 - Antiepileptic drugs (2)

L12 - Antipsychotic and antiparkinsonian drugs (2)

L13 - Drugs used to treat neurodegenerative diseases (1)

L14 - Drug addiction, dependence and abuse (2)

L15 - Opioid drugs and analgesics (2)

L16 - Drugs used to treat ischaemic heart disease (2)

- L17 - Antiarrhythmic drugs (2)
- L18 - Drugs used to treat chronic heart failure (2)
- L19 - Antihypertensive drugs (2)
- L20 - Basic toxicology and principles of poisoning therapy (2)
- L21 - Drugs used to treat anaemia (1)
- L22 - General principles of diuretic drug action (1)
- L23 - Nonsteroidal anti-inflammatory drugs (1)
- L24 - Immunopharmacology (2)
- L25 - Drugs used to treat diabetes mellitus (2)
- L26 - Glucocorticoides (2)
- L27 - Drugs used to treat asthma and respiratory system disorders (1)
- L28 - Drugs used to treat peptic ulcer disease (1)
- L29 - Basic principles of chemotherapy (1)
- L30 - Sulphonamides, macrolides, fluoroquinolones (2)
- L31 - Penicillins and aminoglycosides (2)
- L32 - Antifungal drugs (1)
- L33 - Principles of skin disorder pharmacology (1)
- L34 - Anticancer drugs (2)
- L35 - Antiviral agents (2)
- L36 - Excipients related drug adverse effects (1)
- L37 - Introduction to prescription writing (1)
- L38 - Prescription writing for tablets, injections, solutions and powders for oral and topical administration, ointments (2)

SEMINARS (S) 61 hours

- S1 - The movement of drug molecules across cell barriers, routes of drug administration, body fluid compartments, drug metabolism, renal and biliary excretion (3)
- S2 - Single and two-compartment kinetic models (2)
- S3 - Protein targets for drug action, ion channels, G-protein coupled receptors, nuclear receptors, control of receptor expression (2)
- S4 - Quantitative aspects of drug-receptor interactions, types of agonists and antagonists (2)
- S5 - Chemical mediators (acetylcholine, biogenic amines and peptides) and the autonomic nervous system (2)
- S6 - Muscarinic and nicotinic actions of cholinergic and anticholinergic drugs (2)
- S7 - Neuromuscular blocking agents, botulinum toxin (1)

- S8 - Adrenergic agonists and antagonists, drugs that affect noradrenergic neurons (3)
- S9 - Anaesthetics, local anaesthetics (2)
- S10 - Hypnotics, anxiolytics (2)
- S11 - CNS stimulants, amphetamines, cocaine, cannabis, ethanol, psychotomimetic drugs (2)
- S12 - Antidepressants (2)
- S13 - Histamine and serotonin pharmacology (2)
- S14 - Drugs used to treat bleeding disorders (2)
- S15 - Blood and blood products (1)
- S16 - Inhibitors of renin-angiotensin system (2)
- S17 - Calcium channel antagonists and vasodilators (2)
- S18 - Inotropic drugs (1)
- S19 - Statins and drugs affecting cholesterol and lipid metabolism (2)
- S20 - Diuretic drugs, drugs used to treat volume, electrolyte, and acid-base disorders (2)
- S21 - NSAIDs, antirheumatic drugs, gout therapy (2)
- S22 - Insulin, oral hypoglycaemic drugs and antiobesity agents (2)
- S23 - Oral contraceptives, estrogen and progesterone replacement, estrogen and progesterone antagonists, androgen replacement and antagonists (2)
- S24 - Thyroid hormones and drugs used in thyroid disease (1)
- S25 - Drugs used to treat osteoporosis and bone diseases (1)
- S26 - Antidiarrheal drugs, prokinetic drugs, antiemetic drugs (2)
- S27 - Drugs used to treat inflammatory bowel diseases (1)
- S28 - Sulfonamides, Fluoroquinolones, Antituberculotics (2)
- S29 - Cephalosporins, Monobactams, Carbapenems, Vancomycin (2)
- S30 - Tetracyclins, macrolides, Cloramphenicol, Clindamycin (2)
- S31 - Repetition of antibiotic therapy (3)
- S32 - Herbal drugs, alternative medicine (1)
- S33 - Vitamin deficiencies and/or toxicities (1)

PRACTICALS (P) 22 hours

- P1 - Pharmacokinetic practicum (2)
- P2 - Principles of agonist-antagonist effects in the smooth muscle in vitro (3)
- P3 - Antinociceptive effects of opioid analgesics in experimental models (2)
- P4 - Effects of psychopharmacologic agents in experimental models (2)
- P5 - NO pharmacology (2)

P6 - Cardiovascular practicum (3)

P7 - Pharmacology in specific populations; paediatric and geriatric pharmacology, pregnancy and lactation (2)

P8 - Prescription writing (3)

P9 - Drug interactions (integrated pharmacology) (3)

Short Quizzes (Q): 4 hours

Q1 - General pharmacology

Q2 - Autonomic and central nervous system pharmacology, opioid analgesics

Q3 - Hormones, cardiovascular pharmacology

Q4 - Drugs used in infection and cancer treatment

Prescription writing test (T1): 1 hour

Total: 147

Lectures	59
Seminars	61
Practicals	22
Quiz	4
Prescription Writing Test	1

TOTAL 147

III. PLAN OF THE COURSE AND COURSE SCHEDULE

BLOCKS OF THE COURSE

Number of blocks: 1

Block number	Start	End
1.	26.9.2016	6.2.2017

BLOCKS OF THE COURSE

Number of blocks: 1

Block number	Start	End
1.	26.9.2016	6.2.2017

BLOCKS OF THE COURSE SCHEME

Block 1

Date	Time	Group	Course hours type	Theme	Teaching staff
Monday 26.9.2016.	08:30-09:15; FARMA Predavaonica		Lectures	Introduction to Pharmacology	prof. dr. sc. Melita Šalković-Petrišić
	09:30-11:00; FARMA Predavaonica		Lectures	General principles of pharmacokinetics I: absorption, distribution and drug elimination	prof. dr. sc. Vladimir Trkulja
	11:30-13:45; FARMA Vježbaonica		Seminar	The movement of drug molecules across cell barriers, routes of drug administration, body fluid compartments, drug metabolism, renal and biliary	prof. dr. sc. Predrag Sikirić
	11:30-13:45; FARMA Predavaonica		Seminar	The movement of drug molecules across cell barriers, routes of drug administration, body fluid compartments, drug metabolism, renal and biliary	prof. dr. sc. Melita Šalković-Petrišić
	11:30-13:45; FARMA Knjižnica		Seminar	The movement of drug molecules across cell barriers, routes of drug administration, body fluid compartments, drug metabolism, renal and biliary	doc. dr. sc. Jelena Osmanović Barilar
Tuesday 27.9.2016.	08:30-09:15; FARMA Predavaonica		Lectures	General principles of pharmacokinetics II: pharmacokinetics	prof. dr. sc. Vladimir Trkulja
	09:30-10:15; FARMA Predavaonica		Seminar	Single and two-compartment kinetic models	prof. dr. sc. Vladimir Trkulja
	09:30-10:15; FARMA Vježbaonica		Seminar	Single and two-compartment kinetic models	doc. dr. sc. Jelena Osmanović Barilar
	09:30-10:15; FARMA Knjižnica		Seminar	Single and two-compartment kinetic models	prof. dr. sc. Melita Šalković-Petrišić
	10:30-12:00; FARMA Vježbaonica		Practicum	Pharmacokinetic practicum	prof. dr. sc. Vladimir Trkulja
	10:30-12:00; FARMA Predavaonica		Practicum	Pharmacokinetic practicum	doc. dr. sc. Jelena Osmanović Barilar
	10:30-12:00; FARMA Knjižnica		Practicum	Pharmacokinetic practicum	prof. dr. sc. Melita Šalković-Petrišić
Monday 3.10.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Mechanism of drug action, receptors, signal transduction	prof. dr. sc. Zdravko Lacković
	10:15-11:45; FARMA Predavaonica		Seminar	Protein targets for drug action, ion channels, G-protein coupled receptors, nuclear receptors	prof. dr. sc. Zdravko Lacković
	10:15-11:45; FARMA Vježbaonica		Seminar	Protein targets for drug action, ion channels, G-protein coupled receptors, nuclear receptors	izv. prof. dr. sc. Ante Tvrdeić
	10:15-11:45; FARMA Knjižnica		Seminar	Protein targets for drug action, ion channels, G-protein coupled receptors, nuclear receptors	dr. sc. Ana Knezović
	12:00-12:45; FARMA Predavaonica		Lectures	Growth factors	prof. dr. sc. Predrag Sikirić

Date	Time	Group	Course hours type	Theme	Teaching staff
Tuesday 4.10.2016.	08:30-10:00; FARMA Vježbaonica		Seminar	Quantitative aspects of drugreceptor interactions, types of agonists and antagonists	izv. prof. dr. sc. Ante Tvrdeić
	08:30-10:00; FARMA Predavaonica		Seminar	Quantitative aspects of drugreceptor interactions, types of agonists and antagonists	prof. dr. sc. Melita Šalković-Petrišić
	08:30-10:00; FARMA Knjižnica		Seminar	Quantitative aspects of drugreceptor interactions, types of agonists and antagonists	dr. sc. Ivica Matak
	10:15-12:30; FARMA Vježbaonica	G1	Practicum	Principles of agonist-antagonist effects in the smooth muscle in vitro (GROUP 1)	dr. sc. Ivica Matak, dr. sc. Ana Knezović, prof. dr. sc. Melita Šalković-Petrišić
	13:00-15:15; FARMA Vježbaonica	G2	Practicum	Principles of agonist-antagonist effects in the smooth muscle in vitro (GROUP 2)	doc. dr. sc. Jelena Osmanović Barilar, dr. sc. Ivica Matak, dr. sc. Ana Knezović
Monday 10.10.2016.	08:30-09:15; FARMA Predavaonica		Lectures	Drug discovery and development, preclinical trials	prof. dr. sc. Vladimir Trkulja
	09:30-11:45; FARMA Vježbaonica	G3	Practicum	Principles of agonist-antagonist effects in the smooth muscle in vitro (GROUP 3)	dr. sc. Ivica Matak, dr. sc. Ana Knezović, prof. dr. sc. Melita Šalković-Petrišić
	12:00-12:45; FARMA Predavaonica		Seminar	GENERAL PHARMACOLOGY-Q1	prof. dr. sc. Melita Šalković-Petrišić
Tuesday 11.10.2016.	08:30-10:00; FARMA Predavaonica		Lectures	General principles of autonomic pharmacology I: drugs affecting cholinergic transmission	prof. dr. sc. Predrag Sikirić
	10:15-11:45; FARMA Predavaonica		Seminar	Chemical mediators (acetylcholine, biogene amines and peptides) and the autonomic nervous system	izv. prof. dr. sc. Ante Tvrdeić
	10:15-11:45; FARMA Vježbaonica		Seminar	Chemical mediators (acetylcholine, biogene amines and peptides) and the autonomic nervous system	prof. dr. sc. Vladimir Trkulja
	10:15-11:45; FARMA Knjižnica		Seminar	Chemical mediators (acetylcholine, biogene amines and peptides) and the autonomic nervous system	dr. sc. Ivica Matak
	12:00-13:30; FARMA Predavaonica		Seminar	Muscarinic and nicotinic actions of cholinergic and anticholinergic drugs, antiglaucoma drugs	prof. dr. sc. Melita Šalković-Petrišić
	12:00-13:30; FARMA Vježbaonica		Seminar	Muscarinic and nicotinic actions of cholinergic and anticholinergic drugs, antiglaucoma drugs	izv. prof. dr. sc. Ante Tvrdeić
	12:00-13:30; FARMA Knjižnica		Seminar	Muscarinic and nicotinic actions of cholinergic and anticholinergic drugs, antiglaucoma drugs	prof. dr. sc. Predrag Sikirić
Monday 17.10.2016.	08:30-10:00; FARMA Predavaonica		Lectures	General principles of autonomic pharmacology II: drugs affecting adrenergic transmission	prof. dr. sc. Vladimir Trkulja
	10:15-11:00; FARMA Predavaonica		Seminar	Neuromuscular blocking agents, botulinum toxin	prof. dr. sc. Zdravko Lacković
	10:15-11:00; FARMA Vježbaonica		Seminar	Neuromuscular blocking agents, botulinum toxin	prof. dr. sc. Vladimir Trkulja
	10:15-11:00; FARMA Knjižnica		Seminar	Neuromuscular blocking agents, botulinum toxin	dr. sc. Ivica Matak

Date	Time	Group	Course hours type	Theme	Teaching staff
	11:15-13:30; FARMA Predavaonica		Seminar	Adrenergic agonists and antagonists, drugs acting on adrenergic neurones	izv. prof. dr. sc. Ante Tvrdeić
	11:15-13:30; FARMA Vježbaonica		Seminar	Adrenergic agonists and antagonists, drugs acting on adrenergic neurones	prof. dr. sc. Predrag Sikirić
	11:15-13:30; FARMA Knjižnica		Seminar	Adrenergic agonists and antagonists, drugs acting on adrenergic neurones	doc. dr. sc. Jelena Osmanović Barilar
Tuesday 18.10.2016.	08:30-09:15; FARMA Predavaonica		Lectures	Drugs and blood barrier	prof. dr. sc. Marijan Klarica
	09:30-11:00; FARMA Predavaonica		Seminar	Anaesthetics, local anaesthetics	izv. prof. dr. sc. Ante Tvrdeić
	09:30-11:00; FARMA Vježbaonica		Seminar	Anaesthetics, local anaesthetics	izv. prof. dr. sc. Nada Božina
	09:30-11:00; FARMA Knjižnica		Seminar	Anaesthetics, local anaesthetics	dr. sc. Ivana Jurjević
	11:15-12:00; FARMA Predavaonica		Lectures	Pharmacogenetics	izv. prof. dr. sc. Nada Božina
	12:15-13:45; FARMA Predavaonica		Lectures	Antiepileptic drugs	izv. prof. dr. sc. Ante Tvrdeić
Monday 24.10.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Antipsychotic and antiparkinsonian drugs	prof. dr. sc. Zdravko Lacković
	10:15-11:45; FARMA Predavaonica		Seminar	Hypnotics, anxiolytics	izv. prof. dr. sc. Ante Tvrdeić
	10:15-11:45; FARMA Vježbaonica		Seminar	Hypnotics, anxiolytics	izv. prof. dr. sc. Nada Božina
	10:15-11:45; FARMA Knjižnica		Seminar	Hypnotics, anxiolytics	dr. sc. Ivana Jurjević
	12:15-13:00; FARMA Predavaonica		Lectures	Drugs used to treat neurodegenerative diseases	prof. dr. sc. Melita Šalković-Petrišić
Tuesday 25.10.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Drug addiction, dependence and abuse	prof. dr. sc. Zdravko Lacković
	10:30-12:00; FARMA Predavaonica		Seminar	CNS stimulants, amphetamines, cocaine, cannabis, ethanol, psychotomimetic drugs	prof. dr. sc. Zdravko Lacković
	10:30-12:00; FARMA Vježbaonica		Seminar	CNS stimulants, amphetamines, cocaine, cannabis, ethanol, psychotomimetic drugs	prof. dr. sc. Vladimir Trkulja
	10:30-12:00; FARMA Knjižnica		Seminar	CNS stimulants, amphetamines, cocaine, cannabis, ethanol, psychotomimetic drugs	dr. sc. Ivana Jurjević
	12:15-13:45; FARMA Predavaonica		Seminar	Antidepressants	izv. prof. dr. sc. Nada Božina
	12:15-13:45; FARMA Vježbaonica		Seminar	Antidepressants	prof. dr. sc. Melita Šalković-Petrišić
	12:15-13:45; FARMA Knjižnica		Seminar	Antidepressants	doc. dr. sc. Jelena Osmanović Barilar

Date	Time	Group	Course hours type	Theme	Teaching staff
Monday 31.10.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Opioid drugs and analgesics	prof. dr. sc. Zdravko Lacković
	10:15-11:45; FARMA Predavaonica	G2	Practicum	Antinociceptive effects of opioid analgesics in experimental models (GROUP 2)	prof. dr. sc. Vladimir Trkulja, dr. sc. Ivica Matak, dr. sc. Ana Knezović
	12:00-13:30; FARMA Predavaonica	G3	Practicum	Antinociceptive effects of opioid analgesics in experimental models (GROUP 3)	dr. sc. Ivica Matak, dr. sc. Ana Knezović, dr. sc. Ivana Jurjević
Monday 7.11.2016.	08:30-10:00; FARMA Predavaonica	G1	Practicum	Antinociceptive effects of opioid analgesics in experimental models (GROUP 1)	prof. dr. sc. Vladimir Trkulja, dr. sc. Ivica Matak, dr. sc. Ana Knezović
	10:30-12:00; FARMA Vježbaonica	G3	Practicum	Effects of psychopharmacologic agents in experimental models (GROUP 3)	prof. dr. sc. Marijan Klarica, dr. sc. Ivan Domagoj Drmić
	12:15-13:45; FARMA Vježbaonica	G2	Practicum	Effects of psychopharmacologic agents in experimental models (GROUP 2)	prof. dr. sc. Marijan Klarica, dr. sc. Ivan Domagoj Drmić
Tuesday 8.11.2016.	08:30-10:00; FARMA Vježbaonica	G1	Practicum	Effects of psychopharmacologic agents in experimental models (GROUP 1)	dr. sc. Ivan Domagoj Drmić, dr. sc. Ivana Jurjević
	10:15-11:00; FARMA Predavaonica		Seminar	AUTONOMIC AND CENTRAL NERVOUS SYSTEM PHARMACOLOGY, OPIOID ANALGESICS-Q2	prof. dr. sc. Vladimir Trkulja
	11:30-13:00; FARMA Predavaonica		Seminar	Histamine and serotonin pharmacology	prof. dr. sc. Predrag Sikirić
	11:30-13:00; FARMA Vježbaonica		Seminar	Histamine and serotonin pharmacology	izv. prof. dr. sc. Ante Tvrdeić
	11:30-13:00; FARMA Knjižnica		Seminar	Histamine and serotonin pharmacology	dr. sc. Ana Knezović
Monday 14.11.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Drugs used to treat ischaemic heart disease	prof. dr. sc. Melita Šalković-Petrišić
	10:15-11:45; FARMA Vježbaonica	G2	Practicum	O pharmacology (GROUP 2)	prof. dr. sc. Melita Šalković-Petrišić, dr. sc. Ana Knezović
	10:15-11:45; FARMA Predavaonica	G1	Seminar	Drugs used to treat bleeding disorders (GROUP 1)	izv. prof. dr. sc. Ante Tvrdeić
	12:15-13:45; FARMA Vježbaonica	G3	Seminar	Drugs used to treat bleeding disorders (GROUP 3)	doc. dr. sc. Jelena Osmanović Barilar
	12:15-13:45; FARMA Predavaonica	G2	Seminar	Drugs used to treat bleeding disorders (GROUP 2)	izv. prof. dr. sc. Ante Tvrdeić
Tuesday 15.11.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Antiarrhythmic drugs	izv. prof. dr. sc. Martina Lovrić-Benčić
	10:15-11:45; FARMA Predavaonica		Lectures	Drugs used to treat chronic heart failure	prof. dr. sc. Vladimir Trkulja
	12:15-13:45; FARMA Predavaonica	G1	Seminar	Blood and blood products (GROUP 1)	prof. dr. sc. Predrag Sikirić
	12:15-13:45; FARMA Knjižnica	G2	Seminar	Blood and blood products (GROUP 2)	prof. dr. sc. Vladimir Trkulja

Date	Time	Group	Course hours type	Theme	Teaching staff
	12:15-13:45; FARMA Vježbaonica	G3	Practicum	Pharmacology (GROUP 3)	prof. dr. sc. Melita Šalković-Petrišić, dr. sc. Ana Knezović
Monday 21.11.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Antihypertensive drugs	prof. dr. sc. Vladimir Trkulja
	10:15-11:45; FARMA Predavaonica		Seminar	Inhibitors of renin-angiotensin system	izv. prof. dr. sc. Ante Tvrdeić
	10:15-11:45; FARMA Vježbaonica		Seminar	Inhibitors of renin-angiotensin system	prof. dr. sc. Vladimir Trkulja
	10:15-11:45; FARMA Knjižnica		Seminar	Inhibitors of renin-angiotensin system	doc. dr. sc. Jelena Osmanović Barilar
	12:00-13:30; FARMA Predavaonica		Seminar	Calcium channel antagonists, vasodilators	prof. dr. sc. Zdravko Lacković
	12:00-13:30; FARMA Knjižnica		Seminar	Calcium channel antagonists, vasodilators	prof. dr. sc. Predrag Sikirić
	12:00-13:30; FARMA Vježbaonica		Seminar	Calcium channel antagonists, vasodilators	prof. dr. sc. Vladimir Trkulja
Tuesday 22.11.2016.	08:15-09:00; FARMA Knjižnica	G2	Seminar	Inotropic drugs (GROUP 2)	doc. dr. sc. Jelena Osmanović Barilar
	08:15-09:00; FARMA Predavaonica	G3	Seminar	Inotropic drugs (GROUP 3)	izv. prof. dr. sc. Ante Tvrdeić
	08:30-10:45; FARMA Vježbaonica	G1	Practicum	Cardiovascular practicum (GROUP1)	dr. sc. Ivan Domagoj Drmić, prof. dr. sc. Predrag Sikirić
	09:15-10:45; FARMA Predavaonica	G2	Seminar	Statins and other drugs affecting cholesterol and lipid metabolism (GROUP 2)	prof. dr. sc. Zdravko Lacković
	09:15-10:45; FARMA Knjižnica	G3	Seminar	Statins and other drugs affecting cholesterol and lipid metabolism (GROUP 3)	dr. sc. Ivana Jurjević
	11:15-13:30; FARMA Vježbaonica	G3	Practicum	Cardiovascular practicum (GROUP 3)	dr. sc. Ivan Domagoj Drmić, prof. dr. sc. Predrag Sikirić
	11:15-12:00; FARMA Predavaonica	G1	Seminar	Inotropic drugs (GROUP 1)	prof. dr. sc. Vladimir Trkulja
12:15-13:00; FARMA Predavaonica	G1	Seminar	Statins and other drugs affecting cholesterol and lipid metabolism (GROUP 1)	doc. dr. sc. Jelena Osmanović Barilar	
Monday 28.11.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Basic toxicology and principles of poisoning therapy	prof. dr. sc. Zijad Duraković
	10:15-11:00; FARMA Predavaonica		Lectures	Drugs used to treat anaemia and coagulation disorders	prof. dr. sc. Vladimir Trkulja
	11:30-13:45; FARMA Vježbaonica	G2	Practicum	Cardiovascular practicum (GROUP 2)	dr. sc. Ivan Domagoj Drmić, prof. dr. sc. Predrag Sikirić
	11:30-13:00; FARMA Knjižnica	G3	Seminar	Blood and blood products (GROUP 3)	prof. dr. sc. Vladimir Trkulja

Date	Time	Group	Course hours type	Theme	Teaching staff
Tuesday 29.11.2016.	08:30-09:15; FARMA Predavaonica		Lectures	General principles of diuretic drug action	prof. dr. sc. Predrag Sikirić
	09:30-11:00; FARMA Predavaonica		Seminar	Diuretic drugs, drugs used to treat volume, electrolyte, and acid-base disorders	prof. dr. sc. Predrag Sikirić
	09:30-11:00; FARMA Vježbaonica		Seminar	Diuretic drugs, drugs used to treat volume, electrolyte, and acid-base disorders	izv. prof. dr. sc. Ante Tvrdeić
	09:30-11:00; FARMA Knjižnica		Seminar	Diuretic drugs, drugs used to treat volume, electrolyte, and acid-base disorders	prof. dr. sc. Vladimir Trkulja
	11:15-12:00; FARMA Predavaonica		Lectures	Nonsteroidal antiinflammatory drugs	prof. dr. sc. Vladimir Trkulja
	12:15-13:45; FARMA Predavaonica		Seminar	NSAIDs, antirheumatic drugs, antigout drugs	izv. prof. dr. sc. Ante Tvrdeić
	12:15-13:45; FARMA Vježbaonica		Seminar	NSAIDs, antirheumatic drugs, antigout drugs	prof. dr. sc. Predrag Sikirić
	12:15-13:45; FARMA Knjižnica		Seminar	NSAIDs, antirheumatic drugs, antigout drugs	dr. sc. Ivana Jurjević
Monday 5.12.2016.	08:30-10:00; FARMA Predavaonica		Lectures	Immunopharmacology	prof. dr. sc. Vladimir Trkulja
	10:15-11:45; FARMA Knjižnica		Seminar	Pharmacology in specific populations: paediatric and geriatric pharmacology, pregnancy and lactation	doc. dr. sc. Jelena Osmanović Barilar
	10:15-11:45; FARMA Predavaonica		Seminar	Pharmacology in specific populations: paediatric and geriatric pharmacology, pregnancy and lactation	izv. prof. dr. sc. Ante Tvrdeić
	10:15-11:45; FARMA Vježbaonica		Seminar	Pharmacology in specific populations: paediatric and geriatric pharmacology, pregnancy and lactation	prof. dr. sc. Vladimir Trkulja
	12:15-13:45; FARMA Predavaonica		Lectures	Drugs used to treat diabetes mellitus	izv. prof. dr. sc. Ivana Pavlić-Renar
Tuesday 6.12.2016.	08:30-10:00; FARMA Predavaonica		Seminar	Insulin and oral hypoglycaemic drugs	prof. dr. sc. Melita Šalković-Petrišić
	08:30-10:00; FARMA Knjižnica		Seminar	Insulin and oral hypoglycaemic drugs	doc. dr. sc. Jelena Osmanović Barilar
	08:30-10:00; FARMA Vježbaonica		Seminar	Insulin and oral hypoglycaemic drugs	prof. dr. sc. Vladimir Trkulja
	10:15-11:45; FARMA Predavaonica		Lectures	Glucocorticoides	prof. dr. sc. Predrag Sikirić
	12:00-13:30; FARMA Predavaonica		Seminar	Oral contraceptives, estrogen, progesterone and androgen replacement/antagonizing drugs	prof. dr. sc. Melita Šalković-Petrišić
	12:30-14:00; FARMA Vježbaonica		Seminar	Oral contraceptives, estrogen, progesterone and androgen replacement/antagonizing drugs	izv. prof. dr. sc. Alenka Boban Blagaić
	12:30-14:00; FARMA Knjižnica		Seminar	Oral contraceptives, estrogen, progesterone and androgen replacement/antagonizing drugs	doc. dr. sc. Jelena Osmanović Barilar
Monday 12.12.2016.	08:30-09:15; FARMA Predavaonica		Seminar	Thyroid hormones and drugs used in thyroid disease	izv. prof. dr. sc. Alenka Boban Blagaić

Date	Time	Group	Course hours type	Theme	Teaching staff
	08:30-09:15; FARMA Vježbaonica		Seminar	Thyroid hormones and drugs used in thyroid disease	prof. dr. sc. Predrag Sikirić
	08:30-09:15; FARMA Knjižnica		Seminar	Thyroid hormones and drugs used in thyroid disease	dr. sc. Ana Knezović
	09:30-10:15; FARMA Predavaonica		Seminar	Drugs used to treat osteoporosis and bone metabolism diseases	prof. dr. sc. Predrag Sikirić
	09:30-10:15; FARMA Knjižnica		Seminar	Drugs used to treat osteoporosis and bone metabolism diseases	izv. prof. dr. sc. Alenka Boban Blagaić
	09:30-10:15; FARMA Vježbaonica		Seminar	Drugs used to treat osteoporosis and bone metabolism diseases	doc. dr. sc. Jelena Osmanović Barilar
	10:30-11:15; FARMA Vježbaonica		Seminar	HORMONES, CARDIOVASCULAR PHARMACOLOGY-Q3	prof. dr. sc. Melita Šalković-Petrišić
	11:30-12:15; FARMA Predavaonica		Lectures	Drugs used to treat asthma and respiratory system disorders	prof. dr. sc. Vladimir Trkulja
Tuesday 13.12.2016.	08:30-09:15; FARMA Predavaonica		Lectures	Drugs used to treat peptic ulcer disease	prof. dr. sc. Predrag Sikirić
	09:30-11:00; FARMA Vježbaonica		Seminar	Antidiarrheal drugs, prokinetic drugs, antiemetic drugs	izv. prof. dr. sc. Alenka Boban Blagaić
	09:30-11:00; FARMA Predavaonica		Seminar	Antidiarrheal drugs, prokinetic drugs, antiemetic drugs	prof. dr. sc. Predrag Sikirić
	09:30-11:00; FARMA Knjižnica		Seminar	Antidiarrheal drugs, prokinetic drugs, antiemetic drugs	doc. dr. sc. Jelena Osmanović Barilar
	11:15-12:00; FARMA Vježbaonica		Seminar	Drugs used to treat inflammatory bowel diseases	izv. prof. dr. sc. Alenka Boban Blagaić
	11:15-12:00; FARMA Predavaonica		Seminar	Drugs used to treat inflammatory bowel diseases	prof. dr. sc. Predrag Sikirić
	11:15-12:00; FARMA Knjižnica		Seminar	Drugs used to treat inflammatory bowel diseases	doc. dr. sc. Jelena Osmanović Barilar
Monday 9.1.2017.	08:30-09:15; FARMA Predavaonica		Lectures	Basic principles of chemotherapy	doc. dr. sc. Jelena Osmanović Barilar
	09:30-11:00; FARMA Predavaonica		Lectures	Sulphonamides, macrolides, fluoroquinolones	doc. dr. sc. Jelena Osmanović Barilar
	12:00-13:30; FARMA Predavaonica	G1	Seminar	Sulphonamides, Fluoroquinolones, Antituberculotics (GROUP 1)	izv. prof. dr. sc. Alenka Boban Blagaić
	12:00-13:30; FARMA Knjižnica	G3	Seminar	Cephalosporins, Monobactams, Carbapenemes, Vancomycin (GROUP 3)	doc. dr. sc. Jelena Osmanović Barilar
	12:00-13:30; FARMA Vježbaonica	G2	Seminar	Sulphonamides, Fluoroquinolones, Antituberculotics	prof. dr. sc. Predrag Sikirić
Tuesday 10.1.2017.	08:30-10:00; FARMA Predavaonica		Seminar	Tetracyclines, Macrolides, Cloramphenicol, Clinamycin	izv. prof. dr. sc. Ante Tvrdeić
	08:30-10:00; FARMA Vježbaonica		Seminar	Tetracyclines, Macrolides, Cloramphenicol, Clinamycin	prof. dr. sc. Melita Šalković-Petrišić

Date	Time	Group	Course hours type	Theme	Teaching staff
	08:30-10:00; FARMA Knjižnica		Seminar	Tetracyclines, Macrolides, Cloramphenicol, Clinamycin	prof. dr. sc. Predrag Sikirić
	10:15-11:45; FARMA Predavaonica		Lectures	Penicillins and aminoglycosides	prof. dr. sc. Melita Šalković-Petrišić
	12:15-13:45; FARMA Predavaonica	G1	Seminar	Cephalosporins, Monobactams, Carbapenemes, Vancomycin (GROUP 1)	doc. dr. sc. Jelena Osmanović Barilar
	12:15-13:45; FARMA Knjižnica	G3	Seminar	Sulphonamides, Fluoroquinolones, Antituberculous (GROUP 3)	izv. prof. dr. sc. Alenka Boban Blagaić
	12:15-13:45; FARMA Vježbaonica	G2	Seminar	Cephalosporins, Monobactams, Carbapenemes, Vancomycin (GROUP 2)	prof. dr. sc. Vladimir Trkulja
Monday 16.1.2017.	08:30-09:15; MEF (C) - Šercer		Lectures	Antifungal drugs	prof. dr. sc. Mihael Skerlev
	09:15-10:00; MEF (C) - Šercer		Lectures	Principles of skin disorder pharmacology	prof. dr. sc. Mihael Skerlev
	10:15-11:45; MEF (C) - Šercer		Lectures	Antihancer drugs	prof. dr. sc. Antonio Juretić
	12:15-13:45; MEF Mašek		Lectures	Antiviral drugs	mr. sc. Branko Miše
Tuesday 17.1.2017.	08:30-10:45; MEF Mašek		Seminar	Repetition of antibiotic therapy	prof. dr. sc. Vladimir Trkulja
	08:30-10:45; FARMA Vježbaonica		Seminar	Repetition of antibiotic therapy	prof. dr. sc. Predrag Sikirić
	08:30-10:45; FARMA Knjižnica		Seminar	Repetition of antibiotic therapy	doc. dr. sc. Jelena Osmanović Barilar
	11:15-12:00; MEF Čačković		Seminar	DRUGS USED IN INFECTION AND CANCER TREATMENT-Q4	prof. dr. sc. Vladimir Trkulja
Monday 23.1.2017.	08:30-09:15; MEF Čačković		Lectures	Excipient-related drug adverse effects	prof. dr. sc. Melita Šalković-Petrišić
	09:30-10:15; MEF Mašek		Lectures	Introduction to prescription writing	prof. dr. sc. Melita Šalković-Petrišić
	10:30-12:00; FARMA Predavaonica		Lectures	Prescription writing for tablets, injections, solutions and powders for oral and topical administrations, ointments	prof. dr. sc. Melita Šalković-Petrišić
Tuesday 24.1.2017.	08:30-10:45; MEF Nova vijećnica	G3	Practicum	Prescription writing (GROUP 3)	prof. dr. sc. Melita Šalković-Petrišić
	08:30-09:15; MEF Kompjutorska učionica	G1	Seminar	Herbal drugs, alternative medicine (GROUP 1)	prof. dr. sc. Zdravko Lacković
	09:30-10:15; MEF Kompjutorska učionica	G1	Seminar	Vitamin deficiencies and/or toxicities (GROUP 1)	prof. dr. sc. Zdravko Lacković
	10:45-13:00; FARMA Vježbaonica	G2	Practicum	Drug interactions (integrated pharmacology) (GROUP 2)	izv. prof. dr. sc. Ante Tvrdeić
Monday 30.1.2017.	08:30-10:45; FARMA Predavaonica	G2	Practicum	Prescription writing (GROUP 2)	prof. dr. sc. Melita Šalković-Petrišić

Date	Time	Group	Course hours type	Theme	Teaching staff
	08:30-09:15; MEF Kompjutorska učionica	G3	Seminar	Herbal drugs, alternative medicine (GROUP 3)	prof. dr. sc. Zdravko Lacković
	09:30-10:15; MEF Kompjutorska učionica	G3	Seminar	Vitamin deficiencies and/or toxicities (GROUP 3)	prof. dr. sc. Zdravko Lacković
	10:45-13:00; FARMA Knjižnica	G1	Practicum	Drug interactions (integrated pharmacology) (GROUP 1)	izv. prof. dr. sc. Ante Tvrdeić
Tuesday 31.1.2017.	08:30-09:15; MEF Kompjutorska učionica	G2	Seminar	Herbal drugs, alternative medicine (GROUP 2)	prof. dr. sc. Zdravko Lacković
	08:30-10:45; MEF Nova vijećnica	G1	Practicum	Prescription writing (GROUP 1)	prof. dr. sc. Melita Šalković-Petrišić
	09:30-10:15; MEF Kompjutorska učionica	G2	Seminar	Vitamin deficiencies and/or toxicities (GROUP 2)	prof. dr. sc. Zdravko Lacković
	10:45-13:00; FARMA Knjižnica	G3	Practicum	Drug interactions (integrated pharmacology) (GROUP 3)	doc. dr. sc. Jelena Osmanović Barilar
Monday 6.2.2017.	08:30-10:45; MEF Čačković		Practicum	Prescription writing test	prof. dr. sc. Melita Šalković-Petrišić

LOCATION A1

Department of Pharmacology, Medical School, Salata 11, 10 000 Zagreb

Lectures will take place in: Lecture hall (Department of Pharmacology)

Seminars will take place in: Lecture hall/Seminar room (Department of Pharmacology)

Practicals will take place in: Seminar room (Department of Pharmacology)

Students will be informed in advance for any change in room/Department location..

Introductory iMicrobiology classes will be held by the teaching staff of the Department of Microbiology at the location of the Department of Pharmacology.

IV. EXAMINATIONS

B. Types of examination and examination dates

1) Obligatory short quizzes (30 questions each):

Quiz I: October 10, 2016

Quiz II: November 8, 2016

Quiz III December 12, 2016

Quiz IV: January 17, 2017

Passing is not a requirement for continuing the course attendance or for the final exam but students can earn credits (maximum 2 per Quiz) which are added to the results of the final test.

Quiz score ≤ 20 = 0 points

Quiz score 21-25= 1point

Quiz score 26-30= 2 points

2) Obligatory Prescription Writing Test

Passing is required for signing up for the final exam. First term of the Prescription Writing Test is scheduled at the end of Pharmacology Course (February 6, 2017) and the others will be determined if needed.

2) Final exam:

a) Prerequisites: completed course and Prescription Writing Test passed

- Students must have recorded attendance of ALL seminars and practicals and of 34 lecture units (8 out of 42 are allowed to be missed). All missed seminars/practicals must be compensated by colloquium as well as lectures if >8 are missed.

b) Final Test (110 multiple choice questions) + oral

Final test: threshold score is ≥ 66 provided minimum points per topic for all topics have been achieved (maximally 3 points are tolerated to miss from the threshold minimum only if the total score is ≥ 66). Credits earned in Quizzes are added to the final test score ONLY if the minimum points per topic has been achieved for all topics and the final test score is ≥ 66

c) Topics:

Topic	Maximal points (number of questions)	Minimal threshold
General pharmacology	12	6
Pharmacology of the autonomic nervous system	15	8
Pharmacology of the central nervous system	14	7
Cardiovascular pharmacology	15	8
Chemotherapeutic drugs	16	8

Antiinflammatory drugs; Immunosuppressant drugs; Drugs used to treat diseases of the blood	14	7
Drugs used to treat diseases of the gastrointestinal and urogenital tract	12	6
Endocrine drugs; Drugs used to treat respiratory system disorders	12	6
total	110	

d) Terms:

Regular terms

Date

Winter

February 16, 2017

Summer

July 5, 2017

July 19, 2017

Autumn

September 4, 2017

September 12, 2017

September 20, 2017

Additional term

Generation 2015/2016 and below

1.

April 26, 2017

V./I. LIST OF LECTURERS AND TEACHING STAFF

1. prof. dr. sc. Melita Šalković-Petrišić
2. izv. prof. dr. sc. Alenka Boban Blagaić
3. izv. prof. dr. sc. Nada Božina
4. dr. sc. Ivan Domagoj Drmić
5. prof. dr. sc. Marijan Klarica
6. dr. sc. Ana Knezović
7. prof. dr. sc. Zdravko Lacković
8. dr. sc. Ivica Matak
9. doc. dr. sc. Jelena Osmanović Barilar
10. prof. dr. sc. Predrag Sikirić
11. prof. dr. sc. Vladimir Trkulja
12. izv. prof. dr. sc. Ante Tvrdeić
13. dr. sc. Ivana Jurjević
14. izv. prof. dr. sc. Martina Lovrić-Benčić
15. prof. dr. sc. Antonio Juretić
16. prof. dr. sc. Mihael Skerlev
17. mr. sc. Branko Miše
18. izv. prof. dr. sc. Ivana Pavlić-Renar

V./II EXTERNAL ASSOCIATES:

1. prof. dr. sc. Zijad Duraković

V./III UNTENURED LECTURERS:

VI. LITERATURE

A. Obligatory

1. Basic & Clinical Pharmacology, BG Katzung, A Trevor (eds). 13st McGraw Hill Companies, New York, 2015.
2. Pharmacology Manual, 1st edition, V. Bradamante, M. Klarica, M. Salkovic-Petrisic (eds), Medicinska naklada, Zagreb, 2010.