COURSE SPECIFICATION

Course code: 0912-7LEK-C-CP

Course title in Polish: Farmakologia kliniczna
Course title in English: Clinical pharmacology

1. Placement of the course within the study programme

1.1. Field of study	Medical
1.2. Mode of study	Full-time
1.3. Level of study	Uniform Master's studies
1.4. Profile of study	General academic
1.5. Course specification author	dr hab. n. med. Ewa Orlewska, prof UJK, dr Piotr Rafalski
1.6. Contact	ewa.orlewska@ujk.edu.pl, piotr.rafalski@ujk.edu.pl

2. General characteristics of the course

2.1. Language of instruction	English
2.2. Entry requirements	Pharmacology, toxicology

3. Detailed characteristics of the course

3.1. Type of classes	English
3.2. Place of course delivery	Pharmacology, toxicology
3.3. Form of assessment	English
3.4. Teaching methods	Pharmacology, toxicology
3.5.a. Basic reading list	English
3.5.b. Supplementary reading list	Pharmacology, toxicology

4. Objectives, content and learning outcomes

4.1. Course objectives (taking into account the form of classes)

Lectures (including e-learning)

C1. Teaching students the basic principles of EBM
C2. Teaching students of rational therapy, with particular focus on pharmacokinetics, pharmacogenetics, and pharmacoeconomics
C3. Familiarization students with the specifics of pharmacotherapy in pediatrics, geriatrics, and during pregnancy
C4. Familiarization students with risks associated with the use od pain management, cancer treatment and antibiotic therapy.

Classes (including e-learning)

C1. Teaching students the interpretation of informational materials related to medications
C2. Familiarization students with health technology assessment
C3. Teaching students how to report adverse drug reactions
C4. Teaching students how to solve pharmacotherapeutic problems in selected patients groups and how to individualize applicable therapeutic guidelines

4.2. Course content (taking into count the form of classes)

Lecture topics

1. Pharmacoeconomic aspects of therapy. Basic types of pharmacoeconomic evaluation.
2. Optimization of pharmacotherapy based on genetic testing (pharmacogenetics and pharmacogenomics)
3. Individualization of pharmacotherapy in children.
4. Individualization of pharmacotherapy in the elderly.
5. Pharmacotherapy during pregnancy and breastfeeding
6. Altered drug action due to disturbances in pharmacokinetics in pathological conditions. Influence of environmental factors and circadian rhythm on drug action.
7. Pharmacotherapy of pain and inflammatory conditions.
8. Rational antibiotic therapy and hospital-acquired infections.

Seminars

1. Pharmacovigilance; Reporting adverse drug reactions. Adverse effects of drugs with particular emphasis on clinically significant drug interactions.
2. Pharmacokinetics (drug distribution parameters, characteristics of drug elimination processes), Pharmacokinetics in selected single and multiple dose models, influence of drug formulations on pharmacokinetics.
3. Therapeutic drug monitoring (TDM). Calculating modified drug doses and dosing intervals based on serum drug concentration measurement.
5. Medical databases and information selection. Searching data in available databases. Interpreting pharmaceutical characteristics of medicinal products and critically evaluating drug promotional materials.
6. Health Technology Assessment (HTA)
7. Common errors in pharmacotherapy – how to avoid them. Solving pharmacotherapeutic problems in selected patients.

4.3. Course learning outcomes

Course learning outcomes (code)	Upon completion of the course, the student	Alignment with programme learning outcomes
	in the area of knowledge knows and understands:	
W01	the basic principles of pharmacotherapy of diseases of the elderly;	E.W10.
W02	the possibilities of modern cancer therapy including multimodal therapy, the prospects for cell and gene therapies and their adverse effects;	E.W25.
W03	the principles of combination therapies in oncology, algorithms for diagnostic and therapeutic procedures in most common human cancers;	E.W26.
W04	indications for the implementation of monitoring therapy;	E.W42.
W05	basic pharmacoeconomic concepts;	E.W43.
	in the area of skills knows how to:	
U01	perform simple pharmacokinetic calculations;	C.U13.
U02	select drugs at appropriate doses for correcting the pathological phenomena in the body and in individual organs;	C.U14.

U02	conducts analysis of the potential side effects of each drug and the interaction between them	E.U17.
U03	proposes individualization of existing guidelines and other therapeutic treatments in the case of non-effectiveness or contraindications to a standard therapy	E.U18.
U04	interprets descriptions of pharmaceutical medicines and critically assesses advertising materials relating to medicines	E.U31.

in the area of social competences is able to:

K01	establish and maintain deep and respectful contact with the patient and show understanding towards ideological and cultural differences;	H.S1.
K02	do what is right for the patient;	H.S2.
K03	respect medical confidentiality and patient's rights;	H.S3.
K04	take actions concerning the patient on the basis of ethical principles, being aware of social conditions and restrictions resulting from illness;	H.S4.
K05	recognize his/her own limitations and self-evaluate educational deficiencies and needs;	H.S5.
K06	promote healthy lifestyle;	H.S6.
K07	use reliable information sources;	H.S7.
K08	conclude on the basis of own surveys and observations;	H.S8.
K09	introduce rules of social conduct and teamwork to the group of specialists, including specialists form other medical professions also in the multicultural and multinational environment;	H.S9.
K10	give opinions concerning various aspects of professional activity;	H.S10.
K11	take responsibility for own decisions made during professional activities including own safety and safety of other people;	

4.4. Assessment methods for learning outcomes

Assessment method (+/-)

Course learning outcomes (code)	Oral/written/ practical examination /other (specify)*	Test*	Project*	In-class activity*	Independent study*	Group work*	Other (specify)*

Type of classes

	L	S	...	L	S	...	L	S	...	L	S	...	L	S	...	L	S	...	L	S	...
W01	+																				
W02	+																				
W03	+																				
W04	+																				
W05	+																				
U01	+				+																
U02					+																
U03					+																
U04					+																
U05	+				+																
K01	+																	+			
K02	+																	+			
K03																		+			
K04																		+			
K05																		+			
K06																		+			
K07																		+			

K08																		+			
K09																		+			
K10																		+			
K11																		+			

Annotation. 1: form of classes; 2: learning outcomes

4.5. Assessment criteria for learning outcomes

Type of classes:

LECTURE (L) (including classes conducted with the use of distance learning methods and techniques)

Grade	Assessment criteria
3,0	61-68%. Mastery of the program content at a basic level, responses are chaotic, prompting questions necessary
3,5	69-76%. Mastery of the program content at basic level, responses are organized but require teacher assistance
4,0	77-84%. Mastery of the program content at a basic level, responses are organized and independent. Ability to solve the problems in typical situations
4,5	85-92%. The scope of presented knowledge exceeds the basic level, based on additional suggested literature. Ability to solve the problems in new and complex situations.
5,0	93-100%. The scope of presented knowledge exceeds the basic level, based on independently acquired scientific sources of information

Type of classes:

SEMINAR (S) (including classes conducted with the use of distance learning methods and techniques)

Grade	Assessment criteria
3,0	61-68%. Mastery of the program content at a basic level, responses are chaotic, prompting questions necessary
3,5	69-76%. Mastery of the program content at basic level, responses are organized but require teacher assistance
4,0	77-84%. Mastery of the program content at a basic level, responses are organized and independent. Ability to solve the problems in typical situations
4,5	85-92%. The scope of presented knowledge exceeds the basic level, based on additional suggested literature. Ability to solve the problems in new and complex situations.
5,0	93-100%. The scope of presented knowledge exceeds the basic level, based on independently acquired scientific sources of information

Type of classes:

OTHER (...) (including classes conducted with the use of distance learning methods and techniques)

Grade	Assessment criteria
3,0	61-68%. Mastery of the program content at a basic level, responses are chaotic, prompting questions necessary
3,5	69-76%. Mastery of the program content at basic level, responses are organized but require teacher assistance
4,0	77-84%. Mastery of the program content at a basic level, responses are organized and independent. Ability to solve the problems in typical situations
4,5	85-92%. The scope of presented knowledge exceeds the basic level, based on additional suggested literature. Ability to solve the problems in new and complex situations.
5,0	93-100%. The scope of presented knowledge exceeds the basic level, based on independently acquired scientific sources of information

5. ECTS credit allocation – student workload

Category	Student workload (part-time mode)
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER (CONTACT HOURS)	**65**

Participation in lectures*	**27**
Participation in seminars/laboratories*	**35**
Other (specify) e.g. classes conducted with the use of distance learning methods and techniques*	**3**
INDEPENDENT STUDY (NON-CONTACT HOURS)	**35**
Preparation for lectures*	**20**
Preparation for seminars/laboratories*	**15**
Preparation for examination/test*	
Gathering materials for project, online research*	
Preparation of a multimedia presentation*	
Other (specify)*	
TOTAL HOURS	**100**
ECTS CREDITS for the course	**4**

*** delete as appropriate**

Approved for implementation (date and legible signatures of course instructors in the given academic year):

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