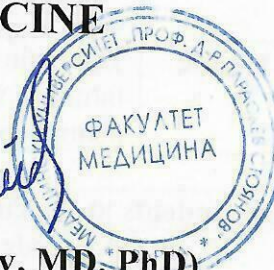




FACULTY OF MEDICINE

Approved:
Dean:

(Prof. Yoto Yotov, MD, PhD)



SYLLABUS

IN

CLINICAL PHARMACOLOGY

Specialty	MEDICINE
Educational - qualification degree	master
Organizational form of education	full-time
Auditorial activity (Lectures/Seminars)	33 (14/19)
Extra-auditorial activity	27
ECTS- credits	2
Discipline type	compulsory
Semester/s of education	ninth
Semester of examination	ninth
Developer(s) of the Syllabus:	Prof. Stefka Vasileva Valcheva-Kuzmanova, MD, PhD, DSc Assoc. Prof. Silvia Gancheva Marinova, MD, PhD

Varna, 2024



ANNOTATION

Aims of the course	The main aim of the clinical pharmacology course is to make medical students familiar with the principles of rational choice of drugs in the process of pharmacotherapy of important socially significant diseases.
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Outcomes for students at the end of the course:

Knowledge	<ul style="list-style-type: none"> ▪ Methods of clinical evaluation of efficacy and safety of drugs ▪ Principles of Good Clinical Practice ▪ Evidence Based Medicine ▪ Principles of clinical pharmacokinetics and pharmacodynamics ▪ Principles of drug administration in special populations – pregnant and lactating women, children and elderly patients ▪ Principles of drug administration in patients with co-morbidities ▪ Adverse drug reactions (ADR) and approaches for studying of ADR ▪ Impact of circadian rhythms, genetic polymorphism, diet, alcohol use and smoking on drugs effects ▪ Methods of pharmacoeconomic analysis ▪ Main drug groups for treatment of: <ul style="list-style-type: none"> ○ Arterial hypertension ○ Ischemic heart disease ○ Chronic heart failure ○ Thromboembolism ○ Bronchial asthma ○ Peptic ulcer disease ○ Diabetes mellitus ○ Osteoporosis ○ Pain ○ Community acquired pneumonia ○ Urinary tract infections
Skills	<ul style="list-style-type: none"> ▪ Following the principles of Good Clinical Practice in conduction of clinical trials ▪ Utilization of Evidence Based Medicine in pharmacotherapy ▪ Interpretation of costs and outcomes in pharmacoeconomic analyses ▪ Conduction of optimal and individualized drug therapy in the terms of drug efficacy, safety, suitability and cost ▪ Conduction of rational pharmacotherapy of cardiovascular diseases with social significance: <ul style="list-style-type: none"> ○ Arterial hypertension ○ Ischemic heart disease ○ Heart failure ○ Thromboembolism ▪ Conduction of rational pharmacotherapy of: <ul style="list-style-type: none"> ○ Bronchial asthma, ○ Peptic ulcer disease ○ Diabetes



	<ul style="list-style-type: none"> ○ Osteoporosis ■ Conduction of rational pharmacotherapy of pain with different pathogenesis ■ Conduction of rational pharmacotherapy with glucocorticoids ■ Conduction of rational antibacterial therapy in: <ul style="list-style-type: none"> ○ Community acquired pneumonia ○ Urinary tract infections
Competences	<ol style="list-style-type: none"> 1. Patient Care that is compassionate, appropriate, and effective for treating health problems and promoting health. <ul style="list-style-type: none"> ○ Gather essential and accurate information about the patient ○ Counsel patients and family members about rational pharmacotherapy ○ Recognize the indications for administration of specific drugs ○ Describe the potential benefits and risks of drug therapy in appropriate language for patients and caretakers ○ Acknowledge the impact of the pharmacotherapy on patient and family ○ Competently perform clinical trials required for their scope of practice ○ Make informed decisions concerning patient's drug therapy ○ Prescribe rational and individualized drug therapy 2. Medical Knowledge about established and evolving biomedical, clinical, and cognate (eg, epidemio-logical and social-behavioral) sciences and the application of this knowledge to patient care. <ul style="list-style-type: none"> ○ An ability to acquis scientific and clinical knowledge of rational pharmacotherapy according to the principles of Evidence Based Medicine ○ An investigative and analytical approach for solving of clinical problem concerning drug therapy and introduction of new drugs in clinical practice ○ An ability to apply medical and scientific knowledge of rational pharmacotherapy to clinical situations ○ An ability to teach others rational pharmacotherapy 3. Practice-Based Learning and Improvement that involves investigation and evaluation of their own patient care, appraisal, and assimilation of scientific evidence, and improvements in patient care. <ul style="list-style-type: none"> ○ Investigate and evaluate patient care practices ○ Appraise and assimilate scientific evidence concerning drug administration ○ Improve the practice of medicine concerning pharmacotherapy 4. Interpersonal and Communication Skills that result in effective information exchange and teaming with patients, their families, and other health professionals. <ul style="list-style-type: none"> ○ Create and sustain a therapeutic relationship with patients and families ○ Work effectively as a member or leader of a health care team



	<p>5. Professionalism, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.</p> <ul style="list-style-type: none"> ○ Demonstrate professional conduct and accountability ○ Demonstrate humanism and cultural proficiency ○ Maintain emotional, physical, and mental health, ○ Pursue continual personal and professional growth <p>6. Systems-Based Practice, as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.</p> <ul style="list-style-type: none"> ○ Work effectively in various health care delivery settings and systems ○ Coordinate patient pharmacotherapeutic care within the health care system ○ Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based pharmacotherapeutic care as appropriate ○ Advocate for quality pharmacotherapeutic patient care ○ Work in interprofessional teams to enhance the safety of pharmacotherapeutic care and improve its quality ○ Participate in identifying system errors in pharmacotherapy and implementing potential systems solutions
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Key competencies for lifelong learning¹, that the discipline develops:

Literacy competence

Literacy is the ability to identify, understand, express, create, and interpret concepts, feelings, facts and opinions in both oral and written forms, using visual, sound/audio and digital materials across disciplines and contexts. It implies the ability to communicate and connect effectively with others, in an appropriate and creative way.

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Multilingual competence

This competence defines the ability to use different languages appropriately and effectively for communication. It broadly shares the main skill dimensions of literacy: it is based on the ability to understand, express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing) in an appropriate range of societal and cultural contexts according to one's wants or needs.

X

Mathematical competence and competence in science, technology, engineering

A. Mathematical competence is the ability to develop and apply mathematical thinking and insight in order to solve a range of problems in everyday situations. Building on a sound mastery of numeracy, the emphasis is on process and activity, as well as knowledge. Mathematical competence involves, to different degrees, the ability and willingness to use mathematical modes of thought and presentation (formulas, models, constructs, graphs, charts).

B. Competence in science refers to the ability and willingness to explain the natural world by making use of the body of knowledge and methodology employed, including observation and experimentation, in order to identify questions and to draw evidence-based conclusions. Competences in technology and engineering are applications of that

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¹ As defined in 2018 r. by the European Union Council ([https://eur-lex.europa.eu/legal-content/BG/TXT/HTML/?uri=CELEX:32018H0604\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/BG/TXT/HTML/?uri=CELEX:32018H0604(01)&from=EN))



knowledge and methodology in response to perceived human wants or needs. Competence in science, technology and engineering involves an understanding of the changes caused by human activity and responsibility as an individual citizen.

Digital competence

Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking.

Personal, social and learning to learn competence

Personal, social and learning to learn competence is the ability to reflect upon oneself, effectively manage time and information, work with others in a constructive way, remain resilient and manage one's own learning and career. It includes the ability to cope with uncertainty and complexity, learn to learn, support one's physical and emotional well-being, to maintain physical and mental health, and to be able to lead a health-conscious, future-oriented life, empathize and manage conflict in an inclusive and supportive context.

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Citizenship competence

the ability to act as responsible citizens and to fully participate in civic and social life, based on an understanding of social, economic, legal and political concepts and structures, as well as global developments and sustainability.

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Entrepreneurship competence

Entrepreneurship competence refers to the capacity to act upon opportunities and ideas, and to transform them into values for others. It is founded upon creativity, critical thinking and problem solving, taking initiative and perseverance and the ability to work collaboratively in order to plan and manage projects that are of cultural, social or financial value.

Cultural awareness and expression competence

Competence in cultural awareness and expression involves having an understanding of and respect for how ideas and meaning are creatively expressed and communicated in different cultures and through a range of arts and other cultural forms. It involves being engaged in understanding, developing and expressing one's own ideas and sense of place or role in society in a variety of ways and contexts.

Methods of education

- lectures
- seminars

Links with other courses from the curriculum of the specialty

- Pharmacology
- Internal Diseases – Part I
- Internal Diseases – Part II
- Epidemiology, Infectious Diseases, Medical Parasitology and Tropical Medicine
- General (Family) Medicine
- Pediatrics
- Obstetrics and Gynaecology
- Medical Genetics
- Social Medicine and Biostatistics
- Medical Ethics