

МЕДИЦИНСКИ УНИВЕРСИТЕТ - ВАРНА
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FACULTY OF MEDICINE

Approved:

Dean:

(Prof. Yoto Yotov, MD, PhD)



SYLLABUS

IN

CHEMISTRY

Specialty	MEDICINE
Educational - qualification degree	master
Organizational form of education	full-time
Auditorial activity (Lectures/Seminars)	105 (60/45)
Extra-auditorial activity	105
ECTS- credits	7
Discipline type	compulsory
Semester/s of education	first and second
Semester of examination	second
Developer(s) of the Syllabus:	Assoc. Prof. Veselina Panayotova, PhD
	Assoc. Prof. Katya Peycheva, PhD

Varna, 2024

ANNOTATION

Aims of the course	The course material is designed to meet the objectives of the Chemistry course for medical students. The goal of the course is to enable students to gain fundamental knowledge about the chemical structure, properties, and functions of substances crucial to the human body, as well as the chemical and energy changes involved in various metabolic reactions. A deep understanding of these principles assists students in comprehending, interpreting, and drawing conclusions about essential chemical concepts, which form the basis for further knowledge acquisition in related fields such as biochemistry, physiology, pharmacology, toxicology, and others. The course offers a comprehensive overview of general, inorganic, and organic chemistry, emphasizing their applications in biomedical sciences.
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Outcomes for students at the end of the course:	
Competences	
Competence group	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.
Knowledge	<ul style="list-style-type: none"> ▪ Basic knowledge about various laboratory equipment, consumables, and supplies ▪ Storage and handling rules for reagents: acids, bases, toxic substances, flammable and combustible reagents ▪ First aid for chemical burns and poisonings in the chemical laboratory
Skills	<ul style="list-style-type: none"> ▪ Basic skills and development of the ability to observe, monitor, and document various processes ▪ Ability to extract and interpret data from conducted experiments
Competence group	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.
Knowledge	<ul style="list-style-type: none"> ▪ Application of classical and modern methods for identifying and analyzing the structure and properties of substances
Skills	<ul style="list-style-type: none"> ▪ For selecting and analyzing relevant educational and scientific literature from specialized databases on a given topic in medical chemistry.
Competence group	4. Interpersonal and Communication Skills that result in effective information exchange and teaming with patients, their families, and other health professionals.
Knowledge	<ul style="list-style-type: none"> ▪ Specific basic terminology in medical chemistry
Skills	<ul style="list-style-type: none"> ▪ For analyzing and presenting scientific results through reports, posters, or articles

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.	X
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 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.	X
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.	X
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.	
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.	
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.	X

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))

Methods of education
<ul style="list-style-type: none"> ▪ lectures ▪ seminars ▪ practicals and laboratory exercises, discussions, work with scientific literature, presentations

Links with other courses from the curriculum of the specialty
<ul style="list-style-type: none"> ▪ Builds upon knowledge acquired in/Depends on: <ul style="list-style-type: none"> ○ Biology, Physics ▪ Necessary for the following disciplines: <ul style="list-style-type: none"> ○ Biochemistry, Biophysics, Physiology, Pathophysiology Pharmacology ▪ Other related disciplines: <ul style="list-style-type: none"> ○ Pathology, Clinical Laboratory, Toxicology, Nuclear Medicine