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FACULTY OF MEDICINE

Approved:
Dean:
(Prof. Dr. Yoto Yotov, MD, PhD)

SYLLABUS

IN

Cytology, General Histology and Embryology

Specialty	**MEDICINE**
Educational - qualification degree	**master**
Organizational form of education	**full-time**
Auditorial activity (Lectures/Seminars)	**90 (50/40)**
Extra-auditorial activity	**120**
ECTS- credits	7
Discipline type	**compulsory**
Semester/s of education	**first**
Semester of examination	**first**
Developer(s) of the Syllabus:	**Prof. Anton Tonchev, MD, PhD, DSc** **Assoc. Prof. Stoyan P. Pavlov, MD, PhD** **Assoc. Prof. Meglena Angelova, MD, PhD** **Assoc. Prof. Desislava Marinova, MD, PhD** **Assoc. Prof. Blagovesta Mitkova, MD, PhD** **Dr. Manlio Vinciguerra, PhD**

Varna, 2024

ANNOTATION

Aims of the course	The course in cytology, general histology and general embryology aims at providing medical students with basic up-to-date knowledge about the structural organization and functions of cells and tissues as well as about the formation and development of the human embryo. This knowledge is necessary for the formation of medical-biological and clinical thinking. The morphology of cells and tissues is examined at light microscopic, electron microscopic and molecular level in close connection with their function. This introduces the students into the logic of the structure and functions of living matter, develops their diagnostic and differential-diagnostics at the level of the studied objects, creates the basis for mastering the structure of the organs and systems and makes sense of the dependence between the deviated from the norm macromolecules, respectively the structures and the disturbed functions of the cells and tissues (problematic clinical solving). The necessary knowledge complex is complemented by the knowledge related to gender differentiation, the formation and development of the embryo and its envelopes, and the influence of various factors on the processes during the embryonic period. All this determines the place and importance of cytology, general histology and general embryology as a fundamental medical discipline, the deep knowledge of which is vital for the training and overall development of the medical doctor.

Outcomes for students at the end of the course:	
Competences	
Competence group	1. **Patient Care** that is compassionate, appropriate, and effective for treating health problems and promoting health.
Knowledge	-
Skills	-
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	▪ about the structural organization and functions of cells and tissues ▪ about the formation and development of the human embryo ▪ the fundamental principles of organ and system composition in the human body
Skills	▪ development of medical-biological and clinical thinking ▪ working with a microscope ▪ cytological diagnosis - recognizing the basic types of healthy cells and their morphological features ▪ histological diagnosis - recognizing the basic types and subtypes of healthy tissues and their morphological features ▪ rationalizing the structure and function of living matter ▪ rationalizing tissue, organ and system structure ▪ rationalizing the interdependence between macromolecules, structures and functions in health and pathology

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	▪ Design and work with a light microscop in the cytological and histological practice
Skills	▪ Working with a microscope and microscopic images ▪ Histological and cytological description of a microscopic slide ▪ Extraction, description and sketching of important features of a cytological and histological microscopic preparation
Competence group	4. **Interpersonal and Communication Skills** that result in effective information exchange and teaming with patients, their families, and other health professionals.
Knowledge	-
Skills	-
Competence group	5. **Professionalism,** as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
Knowledge	-
Skills	-
Competence group	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.
Knowledge	-
Skills	-

Key competencies for lifelong learning[1], 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.	
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.	X
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.	

[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)

Methods of education
▪ lectures ▪ seminars ▪ execution of practical and creative tasks, cases, presentations etc.

Links with other courses from the curriculum of the specialty
▪ **Builds upon knowledge acquired in/Depends on:** o fundamental discipline ▪ **Necessary for the following disciplines:** o Anatomy and histology o General Pathology o Clinical pathology