

Course title: GENETICS

ECTS credit allocation (and other scores): 2 ECTS

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Medical and health sciences

Language: English

Number of hours per semester: 45 hours

Course coordinator/ Department and e-mail: prof. dr hab. Ewa Dzika, dr Katarzyna Kubiak, dr Hanna Szymańska/
Department of Medical Biology/ e.dzika@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: the basic concepts of genetics, chromosomal theory of inheritance; mechanisms of the genetic material, division (mitosis, meiosis). Functions of the human genome. Regulation of gene expression. Rules of monogenic inheritance and multifactorial (quantitative) traits. Genetic determination of blood groups in humans and Rh incompatibility. Types of human sex determination, inheritance of sex-linked traits. Mitochondrial inheritance. Structure of chromosomes and rules of description and construction of karyotypes. Aberrations of autosomes and heterosomes and the basis of mutagenesis. The basics of population genetics.

LECTURES: Problems in genetic diseases. Pharmacogenetics. Ecogenetics. GMOs.

Learning purpose: the basic genetic concepts and mechanisms of genetic inheritance. The molecular aspects of inheritance.

On completion of the study programme the graduate will gain:

Knowledge: the student knows the basic concepts, laws and mechanisms in the field of genetics; explains and gives the examples of the principle of inheritance of monogenic and multifactorial traits and diseases in humans; knows the rules of mitochondrial inheritance; defines chromosome aberrations and explains the reasons for their formation; discusses the molecular basis of the structure and functioning of human genetic information

Skills: evaluation the risks of the disease based on the principles of inheritance and the influence of environmental factors and usage the determinants of genetic diseases in disease prevention

Social Competencies: the student works individually and in group solving genetic problems; discusses and expresses opinions on the genetic determination of human traits and diseases, showing empathy in the relationship with the patient and his family and co-workers; respect the dignity and autonomy of persons entrusted to care; is aware of its own limitations and the need for constant education in the field of genetics

Basic literature: Jorde L.B., Carey J.C.; Bamshad M.J. Medical genetics, 4th edition; Mosby Elsevier, 2010; Tobias E.S., Connor M., Ferguson-Smith M. Essential Medical genetics, 6th edition; Blackwell Science, 2011

Supplementary literature: Passarge E. Color Atlas of Genetics, 5th edition; Thieme Publishing Group, 2017

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 35 hours (5 lectures, 5 seminar, 30 classes)



UNIVERSITY
OF WARMIA AND MAZURY
IN OLSZTYN

Student's independent work: 5 hours