

1.	Subject	<b>INTRODUCTION TO HUMAN GENETICS</b>			
2.	Code	DA – 222			
3.	Study program:	Three-year professional studies for graduate obstetricians			
4.	Conducted by	UKIM – Medical Faculty Department of Human Genetics			
5.	Degree of education (first or second cycle)	First cycle			
6.	Academic year/semester	II/IV	7.	Credits	1.5
8.	Professor	Head of the Department: Prof. d-r Elena Shukarova - Angelovska *the lessons are held by all the professors of the Department of Human Genetics Prof. d-r Elena Shukarova – Angelovska Prof. d-r Aleksandar Petlichkovski			
9.	Prerequisite	None			
10.	Goals	<ul style="list-style-type: none"> <li>- The students get acquainted with the fundamental genetic principles that influence the medical practice</li> <li>- The students get acquainted with the fundamental principles of cytogenetics, molecular genetics and reproductive genetics</li> <li>- The students get acquainted with the elementary inheritance types</li> <li>- Elementary principles of genetic counseling in families where there are genetic conditions and malformations</li> <li>- The students get acquainted with the fundamental principles of diagnostic and the ethical principles of genetics</li> </ul>			
11.	Content summary:	<p>Theoretical lessons: Basics of human genetics – organization of the eukaryotic DNA, cell nucleus DNA and non-nucleus DNA, basic processes of replication, transcription and translation, foundations of cytogenetics, types of chromosomal aberrations, cell cycle and division, Mendel’s genetics, non-Mendelian, complex and multifactorial inheritance, mutations – types, ways of occurring, methods of discovering genetic changes – pre- and postnatal, methods of prenatal genetic diagnostic of congenital and hereditary conditions, meaning and interpretation of results from prenatal diagnostic, basic principles of genetic counseling, ethical aspects of genetic testing</p> <p>Practical lessons: Methods of genetic analysis – handling samples for genetic analysis – blood, tissue, amniotic fluid (taking, safe-keeping of samples for genetic analysis, following the privacy principles). Ways of gathering important data of the family and personal medical history for proper genetic analysis – family tree, obstetrical past, etc. DNA extraction, methods of discovering familiar and unfamiliar mutations, analysis of polymorphism. Basics of cytogenetics – making a karyotype, staining methods, FISH technique, recognizing chromosomal aberrations. Screening – organization and methods. Basics of dysmorphology and clinical recognition of syndromes and multimalformations, methods of prenatal and postnatal detection of malformations. Composing an informed consent for the genetic analysis that should be performed on a patient, ways of explaining the possibilities of a given analysis, interpretation of the analysis after getting the results, special conditions for an informed consent for genetic testing of minors</p>			
12.	Teaching methods:	Interactive lessons, practical lessons, seminars			
13.	Total classes:	40			
14.	Organization	20 theoretical lessons + 20 practical lessons			
15.	Types of teaching activities	15.1	Lessons:	20	

			theoretical classes	
		15.2	Practical lessons, seminars	20
16.	Other types of activities	16.1	Training	
		16.2	Self-supporting practice	
		16.3	Learning at home	
17.	Knowledge assessment	Points		
	17.1	Tests	Mid-term exam Complete theory exam – min 30 – max 50  Final exam Complete theory exam – min 30 – max 50 Oral exam – min 18 – max 30	
	17.2	Paper/project (oral and written presentation)		
	17.3	Active participation	<b>Min. – Max.</b> Theoretical lessons*                                3 - 5 Practical lessons**                                    3 - 5 **attending the practical lessons Every exercise gives 0,5 points – attendance and 0.5 points active participation	
18.	Grading criterion (points/grades)	Up to 59	5 (five) F	
		60-68	6 (six) E	
		69-76	7 (seven) D	
		77-84	8 (eight) C	
		85-92	9 (nine) B	
		93-100	10 (ten) A	
19.	Requirements for obtaining a signature and attending the final examination	To obtain a signature the student must gain minimum points from visiting the practical lessons.  To attend the final (oral) exam, the student must gain minimum 60% of the points in the written part of the exam.  The final grade for the subject is formed according to the table for grading, and is based on the sum of the points from all the activities, mid-term exams and final exam.		
20.	Language	Macedonian		
21.	Method of evaluating the quality of the lessons	Students' anonymous evaluation of the subjects, the professors and collaborators who hold the lessons.		
22.	Literature:			
	22.1	Mandatory literature		
		1.	Prof. d-r Kochova et al., Medical Genetics, University Ss. Cyril and Methodius, Medical Faculty Skopje, 2013	
		2.	Prof. d-r A. Petlichkovski, Genetics – Authorized lectures, 2014	

		3.	Prof. d-r M.Spiroski, Human Genetics Practicum 1, University Ss. Cyril and Methodeus, Medical Faculty Skopje. 2009
		4.	Prof. d-r Kochova et al., Human Genetics Practicum 2, University Ss. Cyril and Methodeus, Medical Faculty Skopje, 2009
	22.2	Additional literature	