

Course Title	<b>Introduction to Genetics</b>				
Course Code	MD145				
Course Type	Compulsory				
Level	1 <sup>st</sup> Cycle (MD)				
Year / Semester	1 <sup>st</sup> Year / 2 <sup>nd</sup> Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	2 hrs / 14 weeks	Laboratories / week	4 hrs / 14 weeks
Course Purpose and Objectives	<p>This course is intended to give the student a broad overview of basic principles underlying general and medical genetics. The students will also gain current knowledge in the clinical context, covering from the genome structure and function to mutations, screening for inherited disorders. A key part of the course will be the ability to dissect problem scenarios into its key features by thinking in an integrated manner and to looking at problems from different perspectives.</p>				
Learning Outcomes	<p>Upon successful completion of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>• Discuss the basic concepts of human genetics</li> <li>• Describe the molecular basis of monogenic diseases</li> <li>• Identify the genetic components of polygenic and multifactorial disease.</li> <li>• Describe the relationship between gene structure and function and its implication in the development of genetically-based diseases</li> <li>• Explain the importance of the study of population genetics and their relationship with the study of genetic diseases.</li> <li>• Describe the chromosome theory, molecular genetics and quantitative and evolutionary genetics</li> <li>• Debate the contribution of current advances in molecular genetic research and its implementation in clinical practice.</li> <li>• Evaluate genetic problems/abnormalities which are involved in the development of clinical pathological cases.</li> <li>• Demonstrate that they have acquired practical skills, through participation in real life and/or in virtual fashion, of all the basic analytical genetic techniques and studies in the various clinical laboratories.</li> <li>• Apply quantitative problem-solving skills to genetics problems and issues.</li> <li>• Select and apply experimental procedures to solve genetic problems</li> </ul>				

	<ul style="list-style-type: none"> <li>• Demonstrate the ability to use computers as information and research tools.</li> </ul>		
Prerequisites	None	Co-requisites	None
Course Content	<ul style="list-style-type: none"> <li>• Fundamentals of human genetics.</li> <li>• The chromosome and the molecular basis of monogenic, polygenic and multifactorial diseases.</li> <li>• Polymorphic DNA</li> <li>• Gene structure and function</li> <li>• Genetically-based diseases and Mendel's laws</li> <li>• Population genetics.</li> <li>• Current advances in molecular genetic research and their implementation in clinical practice</li> <li>• Basic analytical techniques in genetic studies</li> <li>• Diagnosis and prevention of genetic diseases.</li> <li>• Applying basic laboratory techniques for the analysis of DNA and manipulating DNA therapeutically</li> </ul>		
Teaching Methodology	Face-to-face		
Bibliography	<p>Essential Medical Genetics;; Connor, M. / Ferguson, M.; 978-1405169745; Wiley-Blackwell;</p> <p>Lewin's Genes X; Jocelyn E. Krebs; 978-0763779924; Jones and Bartlett Publishers, Inc;</p> <p>Thompson and Thompson, Genetics in Medicine; Nussbaum, R.; 978-1416030805; Saunders;</p>		
Assessment	Examinations:	70%	
	Assignment/Lab	20%	
	Class Participation:	10%	
Language	English		