

GBIO0015-1	A tour in genetic epidemiology
	Duration :
	15h Th, 15h Pr, 60h Proj.
	Number of credits :
	Master in biomedical engineering (120 ECTS) 3 credits
	Master in bio-informatics and modelling (120 ECTS) 3 credits
	Lecturer :
	Kristel Van Steen
	Language(s) of instruction :
	English language
	Learning unit contents :
	In this course an introduction is given to different flavors of genetic epidemiology, as there are aggregation, segregation, linkage and association analysis (with population stratification). The focus though is on the role of families in genetic epidemiology. Via approximately 4 "theory" classes, it will be explained how families contribute to heritability estimation and the relative contribution of nature versus nurture to trait variation.
	Learning outcomes of the learning unit :
	At the end of the course, students are 1) able to clean and prepare large-scale genomic data for association analysis and to perform an association analysis with related individuals;

		2) understand the impact of not adequately accounting for complex family-structure in the data; 3) have a basic understanding of the role of families in different analysis work flows within classic genetic epidemiology.
	Prerequisite knowledge and skills :	
		A background in biomedicine or informatics is a pro, but not essential.
	Planned learning activities and teaching methods :	
		The course is a project-driven one: assignments are given that, all together, constitute a project in genetic epidemiology. Approximately 4 theoretical sessions are organized, during which general aspects of genetic epidemiology are explained and particular aspects relevant for the project work are covered. In-between sessions may be organized to help out the students with the practical work (upon request).
	Mode of delivery (face-to-face ; distance-learning) :	
		Face-to-face.
	Recommended or required readings :	
		There is no mandatory textbook. Useful references will be given as the course progresses. All course material is posted on the websites http://www.montefiore.ulg.ac.be/~kvansteen/ (theory) http://www.montefiore.ulg.ac.be/~chaichoomp/CK/?Courses (practice)
	Assessment methods and criteria :	
		Students are assessed via project work, the defense of which serves as oral exam. This

		holds true for both examination sessions (i.e., in June and in August). Evaluation criteria are 1) the clarity of the presented work (slides / report), 2) accuracy, 3) originality and provided background information (with links to the theoretical course notes), 4) presentation skills, and 5) general understanding (assessed via questions-answers while discussing the presented work).
	Work placement(s) :	
	Organizational remarks :	
		Course language: English The course is organized in the second semester. The detailed calendar and announcements are available on the course website. Exams: oral, in June
	Contacts :	
		Kristel Van Steen - e-mail kristel.vansteen@ulg.ac.be Assistant: Kridsakorn Chaichoompu - e-mail kridsakorn.cha@gmail.com Preferred contact mode: e-mail (include GBIO0015 in the subject title) or personal contact, after a lecture or by appointment