Quantitative and Population Genetics And Evolution

Discipline	*Genetics*
Title of the course	*Quantitative and Population Genetics and Evolution*
Code	
Duration **Date start** **Date end**	*6 ECTS* *September* *December*
Course coordinator and contact details	*Valérie SCHURDI-LEVRAUD* *valerie.schurdi-levraud@u-bordeaux.fr*
Other contact person **Secretary**	*Pierre-François BERT* *pierre-françois.bert@ u-bordeaux.fr* *Florence Lartigaut* *Florence.lartigaut@u-bordeaux.fr*
Mode of delivery	*in-class face-to-face, seminars, flipped classroom (24 hours)* *Data and in silico study, work on dataset (22 hours)* *Professional seminars (6 hours)*
Level	*Master*
ECTScredit points	*52 h in-class* *128h personal work including distance-based, personal project preparation*
Language	*English*
Description[1]	*Students will be able to* *– calculate and explain genetic diversity estimates, alleles frequency* *- integrate theoretical and practical knowledge in detecting loci involved in quantitative traits* *– integrate advanced statistics, bioinformatics, highthrough-put phenotyping and genome data* *A project will be conducted on a dataset integrating population diversity analysis and population structure, linkage disequilibrium estimation and association genetics to detect loci involved quantitative traits in crops.* *Focus will be put on dataset work.* *Work on dataset will be co-coordinated with statistics and R teaching.*
Content	*- Population genetics and genetic diversity* *- Haplotype structure* *- Domestication and genetic consequences* *- Linkage disequilibrium* *- Genetic variance, estimating variance components, heritability* *- Genetic correlations*

	- Association genetics, genomic selection *- induced diversity TILLinG, natural diversity ecoTILLinG* *- Linking genetics, genomics and bioinformatics : from fine-mapping to gene cloning; genotyping by sequencing*
Methods	*Lectures, seminars, project containing data study*
Assessment procedures	*Assessment will be done by :* *– summative assessment* *- essay and group presentation of personal project* *Quality of the proposal, quality of the report and quality of presentation will be taken into account.* *- Data study and presentation*
Prerequisites	*– First year of Master in Biological science* *– Basis Statistics and R, basis genetics and genomics*
Other information	

Please note that the number of places available may be limited for certain classes.