

General Information			
Course name and code	Functional genomics ÚBEV/FG/14	ECTS Credits	5
		Semester	2nd (Summer) Master & Doctoral Degree
Aims			
<p>Functional genomics attempts to answer questions about the function of DNA at the levels of genes, RNA transcripts, and proteins. A key characteristic of functional genomics studies is their genome-wide approach to these questions, generally involving high-throughput methods rather than a more traditional “gene-by-gene” approach. The outcome of this course will be understanding of the approaches and methods used in functional genomics and their application in research as well as in practice.</p>			
Contents			
<p>Introduction to functional genomics. Genome and functional genomics: sequenced model organisms, conceptual and methodological input of genome sequencing, structural vs. functional genome annotation. Genome-wide reverse genetics: techniques to create collections of genome-wide mutants and their use in functional genomics. Transcriptomics: methods to obtain transcriptome data, data analysis, data mining. Proteomics: methods to obtain proteome data, quantitative vs. qualitative proteomics, data analysis, data mining, protein networks. Metabolomics: methods to obtain metabolomic data, quantitative vs. qualitative metabolomics, data analysis, data mining. Biological databases and other resources for functional genome analysis. A real-case applications of the functional genomics.</p>			
Evaluation			
Oral examination.			
Bibliography			
Internet sources, PowerPoint Presentation.			