Genomics

Module Code	Workload	Credits	Semester	Frequency of Module	Duration
	180 hrs.	6	1	Each semester	1 Semester

1	Module Components	Teaching Language	Contact Hours	Self Study	Class Size
	a) Molecular Human Genetics	a) English	a) 22,5 hrs.	a) 67,5 hrs.	a) 15
	b) Molecular Mechanisms	b) English	b) 22,5 hrs.	b) 67,5 hrs.	b) 15

2 Learning Outcomes

After successful participation in the module the students ...

Comprehension (2)
... Characterisation of patterns of inheritance in man
... Understanding of human genetic diseases

Application (3)
... Perform of diagnostical methods to analyse genetic diseases
... Characterisation of genetic causes of human tumors

Analysis (4)
... Gene therapy: Estimation of chances and risks
... Evaluation of diagnostic results

Synthesis (5)
... Analysis and interpretation of modifications in human genomes
... Reasonable application of gene therapeutical approaches

Evaluation (6)
... Correlation of genesis and diagnosis of human genetic diseases
... Application of disease specific therapies

3 Individual Component Content

a) Human genome, inheritance patterns, genetic diseases, mutations and polymorphisms, genetic diagnostics and consulting, monogenetic, polygenetic and multifactorial diseases (syndromes), methods of diagnostics in human genetics, rare genetic diseases and therapeutical approaches, gene therapy, viral and non-viral gene shuttling

b) Origin and therapy of human tumors, single nucleotide polymorphisms, pharmacogenetics, genetics and effects of pharmaceuticals, epigenetics, signal transduction

4	**Teaching Methods** a) Seminar b) Seminar
5	**Prerequisites** Knowledge in biology, molecular biology and biochemistry
6	**Methods of Assessment** a) Graded Assessment 1sbPN (Presentation) (3 LP) b) Graded Assessment 1K (Written Exam) (3 LP)
7	**Applicability of Module** Precision Medicine Diagnostics M.Sc. (PMD)
8	**Person Responsible for Module** Prof. Dr. Ulrike Salat (Module Responsible) Robert Lukowski (Lecturer) Sebastian Raimundo (Lecturer) Prof. Dr. Ulrike Salat (Lecturer)
9	**Reading List (Core Texts and Recommended Texts)** a) Tariverdian, Buselmaier: Humangenetik (Springer Verlag) b) Alberts et al.: Molecular Biology of the Cell (Garland Science)