Functional Genomics

Kennnummer	Workload	Credits/LP	Studiensemester	Häufigkeit des Angebots	Dauer
	180 Std.	6	2	Jedes Semester	1 Semester

1	Lehrveranstaltungen	Sprache	Kontaktzeit	Selbststudium	Geplante Gruppengröße
	a) Functional Genomics and Instrumental Analytics b) Bioinformatics	a) English b) English	a) 22,5 Std. b) 22,5 Std.	a) 67,5 Std. b) 67,5 Std.	a) 15 b) 15

2 Lernergebnisse/Kompetenzen

After successful participation in the module the students ...

Analyse (4)
... solve theoretical and practical problems in the field of 1) functional genomics and 2) systems biology
... methods of bioinformatic analysis
... identification and quantification of biopolymers like DNA, RNA as well as endogenous metabolites
... select an area of application, identify implementation problems and present an approach to solve potential problems

Evaluation / Bewertung (6)
... describe and evaluate technologies of instrumental analytics
... select and execute required technologies and approaches for a given analysis
... design a problem-solving approach for applications in diagnosis and therapy control based on methods of functional genomics

3 Inhalte

a) Methods and analytical approaches in transcriptomics, proteomics, metabolomics and pharmacogenomics; current instrumental methods in sequencing, hybridization and mass spectrometry.

b) Applications and data analysis to characterize biological systems and particular biological conditions like diseases and disease stages. Applications in patient stratification, therapy controlling and diagnosis with a focus on individualized therapy as well as case studies.

4 Lehrformen

a) Vorlesung

b) Vorlesung

5	**Teilnahmevoraussetzungen** The modules Molecular Diagnostics, Genomics, as well as Biometrics and Multiparameter Diagnostics should be successfully completed
6	**Prüfungsformen** a) Prüfungsleistung 1sbK (Klausur) (3 LP) b) Prüfungsleistung 1K (Klausur) (3 LP)
7	**Verwendung des Moduls** Precision Medicine Diagnostics M.Sc. (PMD)
8	**Modulbeauftragte/r und hauptamtlich Lehrende** Prof. Dr. Hans-Peter Deigner (Modulverantwortliche/r) Prof. Dr. Hans-Peter Deigner (Dozent/in)
9	**Literatur** a) Jonathan Pevsner (2009), Bioinformatics and Functional Genomics, Wiley, 2. Aufl. Michael Kaufmann and Claudia Klinger (Eds.) (2012), Functional Genomics: Methods and Protocols, Humana Press, 2. Aufl. b) Edda Klipp et al. (2009), Systems Biology, Wiley-VCH. Eberhard Voit (2012), A First Course in Systems Biology, Garland Science