

<b>Functional Genomics</b>					
<b>Module Code</b>	<b>Workload</b> 180 hrs.	<b>Credits</b> 6	<b>Semester</b> 2	<b>Frequency of Module</b> Each semester	<b>Duration</b> 1 Semester
<b>1</b>	<b>Module Components</b> a) Functional Genomics and Instrumental Analytics b) Bioinformatics	<b>Teaching Language</b> a) English b) English	<b>Contact Hours</b> a) 22,5 hrs. b) 22,5 hrs.	<b>Self Study</b> a) 67,5 hrs. b) 67,5 hrs.	<b>Class Size</b> a) 15 b) 15
<b>2</b>	<b>Learning Outcomes</b> After successful participation in the module the students ...  <b>Analysis (4)</b> ... 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  <b>Evaluation (6)</b> ... 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				
<b>3</b>	<b>Individual Component Content</b> 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.				
<b>4</b>	<b>Teaching Methods</b> a) Lecture b) Lecture				

<b>5</b>	<b>Prerequisites</b> The modules Molecular Diagnostics, Genomics, as well as Biometrics and Multiparameter Diagnostics should be successfully completed
<b>6</b>	<b>Methods of Assessment</b> a) Graded Assessment 1sbK (Written Exam) (3 LP) b) Graded Assessment 1K (Written Exam) (3 LP)
<b>7</b>	<b>Applicability of Module</b> Precision Medicine Diagnostics M.Sc. (PMD)
<b>8</b>	<b>Person Responsible for Module</b> Prof. Dr. Hans-Peter Deigner (Module Responsible) Prof. Dr. Hans-Peter Deigner (Lecturer)
<b>9</b>	<b>Reading List (Core Texts and Recommended Texts)</b> 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