

Title of module	Advanced Practical in the Focal Point Programme: "Molecular Medicine" VZ: 185881 "DNA diagnostics"		
Credit points	7.5 (of 15)	Available in semester(s)	2
Hours per week	9	Compact course	<input type="checkbox"/>
Lecturer(s)	J.T. Epplen		
Teaching methods	A five-week all-day practical lab course with a compulsory seminar presentation. Please note: A second Advanced Practical will have to be performed in the same semester to earn the full complement of 15 credits		
Evaluation of learning progress	Active participation, feedback during independently performed experiments, project discussions with the supervisor		
Mode of examination	Assessment of experimental skills during the practical (50%), a written project report (40%), and a seminar presentation of experimental results (10%).		
Learning objectives	During the course the student will acquire intimate knowledge of state-of-the-art molecular genetic techniques from DNA preparation, DNA typing, test result and statistical evaluation in order to develop relevant skills that are necessary to perform a small-scale research project in DNA diagnostics.		
Soft skills	Skills in genomic DNA preparation and quantification/ quality control, handling of PCR robots and DHPLC equipment, data evaluation, statistical methods; training in designing scientific experiments and data evaluation. Seminar presentation of experimental data obtained during practical		

Contents of module

Rational design of a circumscribed DNA research project

Principles of genomic DNA preparation and probe handling

Photometric and gel electrophoretic analytical methods for DNA evaluation

DNA variation typing via PCR-DHPLC analysis and PCR-RFLP analyses as well as DNA sequence analyses using different technologies

Quality control and statistical evaluation of the DNA typing data