Title of module	Advanced Practical in the Focal Point Programme: "Molecular Medicine" VZ: 185881 **"Virology"**

Credit points	7.5 (of 15)	***Available in semester(s)***	2
Hours per week	9	***Compact course***	☒

Lecturer(s)	M. Tenbusch and collaborators
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 an oral presentation of experimental results (10%).
Learning objectives	After completion of the course students will have an advanced knowledge of independent lab research. Students gain insides in recent research topics in the field of virology and/or immunology.
Soft skills	Teamworking and collaboration, presentation skills, reading of original research papers, writing a comprehensive project report

Contents of module	This practical course is an individual five-week course based on individual arrangement. The student will be supervised by a graduate student or postdoc in the lab and will work on a small, independent research project within the overall research activities of the group. This could involve work on the topics: molecular biology of HIV, vaccine development against infectious disease (RSV, Influenza A, HIV) or immune regulation. The following methods will be employed in the Lab: Molecular biological techniques: PCR, qRT-PCR (virus quantification), Ligation, Transformation, Plasmid purification, RNA purification Cell culture: Passaging of permanent cell lines, transient transfection, adenovirus infection, vector purification, lentiviral vector production + infection, FACS-Analysis of transduced cells, virus-like particle production Protein biochemical methods: SDS-PAGE, Western Blot, His_{tag}-purification, ultrazentifugation, Immunological methods: Antibody-ELISA, Intracellular cytokine staining, RSV or Influenza neutralization assays, Antibody-binding assay, tetramer assay, *in vivo* cytotoxicity assay, analysis of different immune cells (e.g. B-cells, regulatory T-cells)