Georg-August-Universität Göttingen **Module M.MM.103: The Disease-Affected Organism**	24 C 23 WLH

Learning outcome, core skills: After successfully finishing this module the students should be familiar with molecular aspects of urological diseases including urological tumors and prostate cancer and with mechanisms playing a role in different kidney diseases like polycystic kidney disease, diabetic nephropathy as well as with mechanisms leading to renal fibrosis. Moreover, the students should be familiar with mechanisms playing a role in neurodegenerative diseases resulting from protein misfolding like Alzheimer's and Parkinson's disease and other prionopathies. Understanding molecular mechanisms of motor neuronal diseases, cerebral vascular diseases and neuronal autoimmune diseases is a further goal of this module. In molecular cardiology the student become familiar with mechanisms of different forms of heart failure, mechanisms of arrhythmia and myocarditis and the role of stem cells in tissue regeneration. In pharmacology, this knowledge is supplemented with pharmacotherapeutic strategies in the treatment of hypertension, heart failure, arrhythmia, the metabolic syndrome and of thromboembolic events. An outlook on potential future therapies of cardiovascular diseases is given including gene therapy, stem-cell based therapies and tissue engineering. The students have the ability to work under supervision on a small defined scientific project using experimental methods, and to analyze and interpret the obtained data. They are able to present their results in a seminar, and to discuss and document them in written form similar to a scientific publication.	**Workload:** Attendance time: 322 h Self-study time: 398 h

Course: "The Disease-Affected Organism" (Lecture, Seminar)	8 WLH
Examination: Written examination (180 minutes) **Examination prerequisites:** Regular attendance at the seminar. **Examination requirements:** Profound knowledge on molecular mechanisms of the in the module discussed diseases in the fields of urology, nephrology, neurology, neuropathology and cardiology Basic knowledge of signs and symptoms of the respective diseases Knowledge in options of pharmacotherapeutical strategies in cardiovascular diseases.	12 C

Course: "Lab Rotation" (Practical course)	15 WLH
Examination: Presentation (approx. 30 min.) with written draft (max. 20 pages) **Examination prerequisites:** Regular attendance at the lab rotation. **Examination requirements:** In the presentation the student has to demonstrate that she/he has gained deeper insights in the molecular mechanism of a certain disease by working on a respective scientific question. Suitable methods and the obtained results should be critically discussed. In the written report, which should follow the format of a thesis, the necessary introduction, material and methods and the results has to be concisely described and in the discussion carefully set in the literature context.	12 C

Admission requirements: Bachelor’s degree in a related study program or successfully passed first exam in human medicine.	**Recommended previous knowledge:** Basic lectures in pharmacology, physiology, nephrology, cardiology, neurology and neuropathology.
Language: English	**Person responsible for module:** Prof. Dr. Susanne Lutz
Course frequency: once a year	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 2
Maximum number of students: 30	