DIRECTORY OF MODULES OFFERED IN ENGLISH LANGUAGE

COURSES OFFERED IN ENGLISH AT THE UNIVERSITY OF GÖTTINGEN
ACADEMIC YEAR 2017/2018

UNIVERSITY MEDICAL CENTER GÖTTINGEN

GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

A very warm welcome!

The University of Göttingen features an outstanding study environment for both exchange and full-degree students. All courses of study benefit from an excellent research-oriented environment formed by a broad network including five Max Planck Institutes, the German Primate Centre, the German Aerospace Centre and the Academy of Science and Humanities: the Göttingen Campus. An increasing number of lectures and courses are taught in the English language attracting more and more international students. This catalogue provides an impression of what is available.

This catalogue of courses taught in English varies from faculty to faculty and the courses available to you depend on whether you are an exchange student coming to Göttingen for a semester or an academic year, or whether you are a full degree student coming to Göttingen to complete an entire degree programme. You may take most courses in the programme you are enrolled in, however in a few cases restrictions may apply. Selecting courses from other subjects or other departments might require negotiations. If you have any questions, please contact the study advisor in charge of your subject.

Prior to their arrival in Göttingen exchange students have to set up a learning agreement. In some cases restrictions will apply, e.g. signing up for certain laboratory courses may not be possible. Generally exchange students are required to take at least half of the lectures and courses within their chosen subject.

Full degree students must first apply for a study place. Links to websites with application guidelines and deadlines are provided by some subjects/faculties. If not stated otherwise please visit:

http://www.uni-goettingen.de/en/3811.html

In any case, you are very welcome to browse through this catalogue to find/check out courses that suit your interests! For the complete course catalogue of the University of Göttingen see:

https://univz.uni-goettingen.de/qisserver/

We look forward to welcoming you in Göttingen!

Index by areas of study

I. University Medical Center Göttingen

http://www.med.uni-goettingen.de/index_en.html

Georg-August-Universität Göttingen **Module M.MM.003: Animal Experimental Course**	4 C 3 WLH

Learning outcome, core skills:	**Workload:**
The course includes a theoretical and practical part. The theoretical part includes: legislation, biology and husbandry of laboratory animals, microbiology and diseases, alternatives to animal use, anesthesia, analgesia, and experimental procedures. After participating in the practical part the students should be able to handle small laboratory animals (mouse, rat) according to the animal welfare act. The practical course contains handling, fixation, application and sampling techniques and euthanasia.	Attendance time: 42 h Self-study time: 78 h

Courses:	
1. Lecture "Introduction to laboratory animal science" (Block course)	1,5 WLH
2. Animal Experimental Course (Exercise)	1,5 WLH
Examination: Written examination (30 minutes) **Examination requirements:** The students should comprehend and reproduce the contents of the courses.	4 C

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Dipl.-Biol. Julia Hanni Steinbrecher
Course frequency: once a year	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 2
Maximum number of students: 20	

Georg-August-Universität Göttingen **Module M.MM.005: English for Scientists**	4 C 2 WLH

Learning outcome, core skills: In the course "English for Scientists" the students extend their knowledge of the English language in a scientific context at an advanced level. The emphasis in the course for Masters students is on the skills required in positions of responsibility and leadership. The participants will learn to communicate in international situations successfully and with self-confidence in both spoken and written English. After completing the module, the students will be familiar with the fundamentals of: formal writing for the purpose of acquiring research partners and sponsors, telephoning internationally, meetings, and the planning of a visit by international partners. Linguistic abilities will also be promoted by discussion of further relevant themes such as "leadership" and "cultural differences in business" in English.	**Workload:** Attendance time: 28 h Self-study time: 92 h

Course: English for Scientists (Seminar)	2 WLH
Examination: Written examination (60 minutes) **Examination requirements:** Composition of a research application in English. Carrying out telephone calls in English. Discussing confidently in English. Planning a visit by international partners.	4 C

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Mark Wigfall
Course frequency: once a year	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 2
Maximum number of students: 15	

Georg-August-Universität Göttingen **Module M.MM.101: Biomolecules and Pathogens**	24 C 23 WLH

Learning outcome, core skills: In the course of the module the students will aquire deepened molecular knowledge of the interplay between pathogens and the host defense, immunological diseases and pharmacological approaches to interfere with various disorders. The graduates know current immunological questions and methods, and are able to explain the mechanism and therapy of related diseases. They know the function and regulation of microbial virulence factors and understand their role in the pathogenesis of infectious diseases. In addition, they have extensive insight into the taxonomy and structure of viruses. The graduates know the principles of pharmacological research and current therapeutic strategies. They can apply concepts of pharmacology to practical examples and name effects of selected toxic substances. The graduates 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: "Biomolecules and Pathogens" (Lecture, Seminar)	8 WLH
Examination: Written examination (180 minutes) **Examination prerequisites:** Active participation in the seminar. **Examination requirements:** Deepened knowledge of clinically relevant pathogens and their mechanisms, basic concepts of immune responses and their failure, and current principles of pharmacological therapy of selected diseases.	12 C

Course: Praktikum (Practical course)	15 WLH
Examination: Presentation (ca. 30 Min.) with written draft (max. 20 pages) **Examination requirements:** Practical application of typical experimental methods to elucidate molecular, cellular and pathophysiological processes, and conclusive presentation of the obtained research results.	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 microbiology, virology, immunology and pharmacology.
Language: English	**Person responsible for module:** Prof. Dr. rer. nat. Holger Reichardt
Course frequency: once a year	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 2

Maximum number of students: 30	

Georg-August-Universität Göttingen **Module M.MM.102: From cells to disease mechanism**	24 C 24 WLH

Learning outcome, core skills: After successfully finishing this module the students should be familiar with molecular processes within the cell and corresponding aspects associated with pathological changes and pathological tissues. They are able to describe qualitatively genetic and metabolic diseases as well as inflammatory and cancerous processes. The students are familiar with tools, concepts and methods of cell biology, pathology, human genetics and molecular/experimental oncology and thus be able to describe causes and consequences of changes within genetic and cellular processes by using typical examples. Furthermore, fundamental mechanisms in pathology, genetics and cell biology are deduced. In addition, under qualified supervision students aquire the ability to perform experimental work within the lab covering a clear cut issue. The results of this practical course will be presented within the corresponding scientific group and written down in corresponding scientific style.	**Workload:** Attendance time: 336 h Self-study time: 384 h

Course: "From cells to disease mechanism" (Lecture, Seminar)	9 WLH
Examination: Written examination (180 minutes) **Examination prerequisites:** Active participation within the seminar. **Examination requirements:** Knowledge about fundamental mechanisms in gene regulation, extended knowledge about principles in cell communications and intracellular signaling processes, mechanisms of feedback/-forward regulatory circuits in cell signaling, Hallmarks of cancer, criteria of cell transformation in in vitro und in vivo assays, models of tumor develoment and therapy, tools to investigate cancer cells, current concepts in cancer therapy, tumor associated viruses and their mode of action, tumorsuppressor genes and oncogenes: modern concepts and mode of action, mechanisms, regulation of cell cycle phases, cell cycle check-points, posttranslational modifications as ubiquitination and phosphorylation, regulation of mitosis and chromosome segregation, genetic instability in cancer and chromsomal aberrations (examples, formation and detection/diagnosis), general pathology of inflammation and tumor pathology, the stem cell concept, concepts about the evolution of immune related genes, genetics of inflammatory reactions/ diseases and analysis of prehistorical DNA in the context of concepts of Anthroplogy, selected topic of molecular and translational oncology and hematological neoplasias, knowledge about current methods to analyse DNA, proteome analysis for molecular medicine.	12 C

Course: Praktikum (Practical course)	15 WLH
Examination: Presentation (ca. 30 Min.) with written draft (max. 20 pages) **Examination requirements:** Characteristic tools, concepts and methods to analyse molecular processes within cells and in vivo models , use methods of diagnostics, coherent and conclusive presentation of experimental data establishd within the lab rotation.	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 oncology, biochemistry, pathology, cell biology, molekular biology, dermatology und human genetics.
Language: English	**Person responsible for module:** Prof. Dr. Dieter Kube
Course frequency: once a year	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 2
Maximum number of students: 30	

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 nephrophathy 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:** aktiv participation within 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 pharmcotherapeutical strategies in cardiovascular diseases	12 C

Course: Praktikum (Practical course)	15 WLH
Examination: Presentation (ca. 30 Min.) with written draft (max. 20 Seiten) **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 pharmakology, physiology, nephrology, cardiology, neurology und 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	

Georg-August-Universität Göttingen **Module M.MM.104: Current Topics in Molecular Medicine**	4 C 3 WLH

Learning outcome, core skills: After completion of the module, the participant is capable of communicating his own scientific projects to a broader audience of scientists. Furthermore, she/he is capable of introducing such an audience to a general topic of molecular medicine. She/He can summarize primary scientific literature and review articles in an overview talk. The participants will be capable of following seminar talks about a topic that they are not immediately familiar with. They are asking meaningful questions and have become able to discuss methodological approaches and scientific conclusions in a critical and constructive manner.	**Workload:** Attendance time: 42 h Self-study time: 78 h

Course: Current Topics in Molecular Medicine (Seminar)	3 WLH
Examination: Oral Presentation (approx. 30 minutes) **Examination requirements:** The seminar talk must be understandable and clearly structured. It should reflect broad knowledge regarding the scientific background. The questions behind the project should be derived from this background. Methods and results should be outlined understandably, and the conclusions should be presented in a way that the audience can follow. The participants are also required to actively contribute to the discussion, to ask questions, and to evaluate the above-mentioned aspects of the presentation.	4 C

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. med. Matthias Dobbelstein
Course frequency: once a year	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 2
Maximum number of students: 20	