Georg-August-Universität Göttingen **Module M.CoBi.501: Bioinformatics and its areas of application**	8 C 7 WLH

Learning outcome, core skills: The students will acquire knowledge on a diverse range of topics - both applied as well as purely bioinformatical. For this, there will be research-oriented lectures. On the applied side, these topics prominently feature - but are not limited to - the different types of "omics"-approaches available to answer biological questions (genomics, transcriptomics, phylogenomics, metabolomics, proteomics, CHIP-Seq, comparative genomics, phenomics etc). They will learn about feasibility and different approaches to data analysis. Furthermore, students will learn about the digitization of the biological sciences, featuring aspescts such as machine readable phenotypic annotation of morphology, phenotypic database, biological image analysis and more. Finally, the students will acquire knowledge on algorithmic and statistical aspects of bioinformatics, featuring the latest developments and challenges in the development of new bioinformatic tools for life sciences.	**Workload:** Attendance time: 98 h Self-study time: 142 h

Course: M.CoBi.501.Lec **Bioinformatics and its areas of application** (Lecture) *Contents*: This course provides an appetizer of the various applications and uses of bioinformatics - especially those represented by research on Göttingen Campus.	3 WLH
Course: M.CoBi.501.Lec-B **IMPRS Genome Science** (Lecture)	2 WLH

Course: M.CoBi.501.Ex **Industry excursion** (Excursion) *Contents*: excursion to companies that make use of bioinformatics/computational biology (and hire bioinformaticians and computational biologists)	2 WLH

Examination: Term Paper (max. 10 pages), not graded M.CoBi.501.Mp: Bioinformatics and its areas of application **Examination requirements:** Students show that they gained an overview of the diversity of areas of application for algorithmic and applied bioinformatics - including tools for computational biology to solve biological questions - as well as in depth knowledge on a topic of choice for the essay.	8 C

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Jan de Vries
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1
Maximum number of students:	

30	