Georg-August-Universität Göttingen **Module M.MED.0001: Linear Models and their Mathematical Foundations**	9 C 6 WLH

Learning outcome, core skills: The students learn to: • master the fundamental methods for data analysis in case of multiple samples, • conduct an analysis of variance using statistical software, • interpret the results.	**Workload:** Attendance time: 84 h Self-study time: 186 h

Course: M.MED.0001.Lec **Linear Models and their Mathematical Foundations** (Lecture) *Contents*: • Tests for multiple samples, • multivariate normal distribution, • distribution of quadratic forms, • linear regression models, • ANOVA models, • ordinary and generalized least squares estimators, • formulation of hypotheses, • F-test, • confidence intervals for model parameters, • singular models, • factorial designs, • asymptotic methods.	4 WLH
Course: M.MED.0001.Ex **Linear Models and their Mathematical Foundations** (Exercise)	2 WLH
Examination: Written examination (90 minutes) or oral examination (approx. 20 minutes) M.MED.0001.Mp: Linear Models and their Mathematical Foundations **Examination prerequisites:** Achievement of at least 50% of the exercise points **Examination requirements:** In the examination, the students show that for the given problem they can formulate an adequate linear model, estimate its parameters and test hypotheses using a statistical software package. Moreover, they can interpret the results and critically assess them. The examination consists (to the same extent) of both the Lectures and Exercises.	9 C

Admission requirements: none	**Recommended previous knowledge:** Mathematical foundations of applied statistics
Language: English	**Person responsible for module:** Prof. Dr. Tim Friede
Course frequency:	**Duration:**

once a year	1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1
Maximum number of students: 30	

Additional notes and regulations:
The actual examination type will be published at the beginning of the semester.