Georg-August-Universität Göttingen **Module M.FES.315: Monitoring of Forests and Landscapes**	6 C 4 WLH

Learning outcome, core skills: Familiarize the students with the range of methods and techniques applied to forest monitoring in the preparation, planning, implementation and analysis phase. Objective is that the students are eventually in the position to carry out their own monitoring projects, and that they have the criteria to judge the quality of monitoring projects in general. Focus is on the target-oriented planning and the definition of the most appropriate sampling design and plot design that guarantees the generation of high-quality information for the decision makers in forestry. Remote sensing integration is addressed and is in more detail the subject of an other lecture module.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: M.FES.315.C **Monitoring of Forests and Landscapes** (Lecture, Exercise) *Contents*: Forest monitoring is a forestry discipline that aims at the comprehensive and objective characterization of the forests as a production system and/or as an ecological system in a defined geographic area, in terms of status quo and changes. Forest inventories are the core element of monitoring and they generate data and information required by foresters, forest politicians and forest researchers to support decision making. The course module "Monitoring of forest resources" intends to familiarize the students with the range of methods and techniques applied to forest inventories in the preparation, planning, implementation and analysis phase. Objective is that the students are eventually in the position to carry out their own monitoring projects of forests and related resources, and that they know the criteria to judge the quality of monitoring projects in general. Focus is on the target-oriented planning and the definition of the most appropriate sampling design and plot design that guarantees the generation of high-quality information for the decision makers in forestry. An important focus is here the random error sources and approaches to limit their impact on the results. That includes comprehensive presentation of statistical sampling. Examples of small and large area inventories and monitoring are presented and critically analysed. The important remote sensing applications for forest monitoring are not dealt with in detail in this module, as this topic is covered in other modules; but the relevance of integrated inventories (combining field sampling and remote sensing) is addressed. The development of forest inventories towards integrated "landscape inventories", "multi-resource inventories", "tree inventories" is also addressed of this course. Prerequisites: Sound basic knowledge in the disciplines of "Forest Mensuration" and in "descriptive statistics".	4 WLH

Examination: Written exam (120 minutes) M.FES.315.Mp: Monitoring of Forests and Landscapes	6 C

Examination requirements: In the module „Monitoring of Forest Resources", the students should know and be able to manage and understand all topics that were covered in the lectures and labs. This includes:	

- the relevance of data sources and data quality;
- the relevance of methodological soundness in planning, implementing and analyzing forest inventory data;
- the basic principles of in planning, implementing and analyzing forest inventory data;
- important options of sampling and plot design and its characteristics (including application examples and calculation of estimates);
- the critical reading of forest inventory reports;
- the role of forest inventories when monitoring the "resource forest" and the "ecosystem forest";
- the role of forest inventory and forest monitoring in decision processes at stand-, enterprise-, national and global level.

And, of course, calculation skills in producing sample based estimates are equally relevant.

Admission requirements:	Recommended previous knowledge:
none	Required is a good command of forest mensuration, descriptive statistics, basic sampling statistics and cartography (along what is commonly covered in Bachelor study programs).
Language: English	**Person responsible for module:** Prof. Dr. Christoph Kleinn
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	