Module	Module Component	Goal	Language of instruction	Study programme	Semester	Period of time	Mandatory or elective module	Teaching Form	Credits
Innovative Forest Management Methods		Students get to know innovative methods in forest management. This in-cludes new approaches in wood mensuration and wood logistics as well as the conceptual background, basic types and fields of application of forest growth and yield models. Students shall be enabled to apply these tools in theory and practice.	English	Forest Information Technology (M.Sc.)	3.	23.10.-03.11.	elective		
Data and Statistics in Forestry	Forestry data structures and spatial data models • Environmental spatial data analysis	Students know the theoretical fundamentals of data concepts and are able to plan and to implement databases for spatial data processing. They define and describe the important data structures and data types involved in the creation of spatial data models and identify the processing techniques required by different types of data. They are able to perform conversions and information retrieval from complex data sources. The students perform statistical analyses of environmental spatial data. They know the advantages and disadvantages of different sampling strategies and monitoring concepts. Students are able to select appropriate statistical procedures and tests to find structures and relations in the data and to justify statements.	English	Forest Information Technology (M.Sc.)	1.	30.10.-17.11.23	mandatory		
Forest Inventory & Tree monitoring		Students are able to conceptualize and implement systematic collection of data and information for assessment or analysis of forest resource	English	Forest Information Technology (M.Sc.)	1.	04.12.-15.12.23	elective		

Approaches and tools for research & monitoring with geodata and remote sensing		Students are aware of the principal methods and innovative technical tools for estimating, quantifying, calculating and mapping the baseline of different carbon pools and to monitor carbon stock changes related to various forest and land management measures. After the course, students have a solid foundation of principal concepts of biomass and carbon quantification and their specific cycles. Students know about the advantages applying remote sensing and modelling techniques for the spatial assessment and modelling of forest biomass at different scales. Students will learn about different carbon parametrization, quantification or simulation models for forest biomass on a landscape level and discuss methods to quantify forest biomass and estimate the forest carbon stock and their uncertainty.	English	Forest Information Technology (M.Sc.)	1.	20.11.-01.12.	elective		
Project management		Students acquire in-depth knowledge of projects, their planning and implementation, of different planning and implementation methods and instruments. Applying: Students are able to plan and implement projects using both classic and nature conservation-specific project planning tools. They can take different roles in project planning and execution. They define important tasks of their own lives as projects and to carry them out in an appropriately structured and organised manner. Analysing and evaluating: Students can assess and reflect on project success and ways for improvement.	English	Forest Information Technology (M.Sc.)	1.	04.12.-15.12.23	elective		
Applied Programming in Forestry		Students deploy algorithms conceptually and implement them using a programming language. Students use computer programming techniques to analyze datasets from practical applications in environmental science and forestry. They develop programs that handle different data types and structures, perform calculations and represent the results visually.	English	Forest Information Technology (M.Sc.)	1.	08.01.-26.01.24	mandatory		
Adaptive Ecosystem Management	Based on the principles and instruments of adaptive management as well as ecosystem based strategies, the students will gain the knowledge to propose ecosystem-base strategies for selected areas.		English	International Forest Ecosystem Management (B.Sc.)	3.	20.11.-01.12.23	mandatory	Lecture, Seminar, Practical exercise	
Fundamentals of systems functionality and change	Students are enabled to understand emergent properties and unpredictable dynamics of complex systems (including both natural and social systems and their interactions) and the key attributes required for sustainable functioning. They can conduct exemplary analyses of selected systems' components and functionality and critically discuss analogies and homologies of social and ecological systems.		English	Global Change Management (M.Sc.)	1.	23.10.-17.11.23	mandatory	Lecture, Seminar, Practical exercise	
Drivers of stress to systems functionality	Students will be enabled to systemically understand and analyse human activities (“drivers of stress”) that directly lead to stresses on biological and social systems. To this end, at the completion of this module component, students will have learned approaches to terminological classifications, taking the drivers of stress as an example. They have applied basic knowledge of risk management to the development of future scenarios and the identification of risks and blind spots. Finally, they have practiced prioritisation of problems by assessing the criticality and strategic relevance of drivers of stress.		English	Global Change Management (M.Sc.)	1.	18.12.-22.12.23 & 08.01.-26.01.24	mandatory	Lecture, Seminar, Practical exercise	

Fundamentals of Measurements and Modelling	The students get to know different automated measurement methods in the environmental sector. They are able to identify and discuss the data origins and to assess the data quality of a measurement. They process data in environmental modelling and apply the building methodology behind mathematical models in environmental science, forestry and ecology.	English	Global Change Management (M.Sc.)	1.	20.11.-01.12.23	elective		
Earth System Analysis	Students are enabled to understand the theoretical fundamentals of global climate change and cross-scale impacts within their regional context. On the example of recent and ongoing projects they will learn about solutions, strategies and management options, considering the importance of stakeholders' uncertainty and risk perceptions and different decision-making contexts.	English	Global Change Management (M.Sc.)	1.	20.11.-01.12.23	elective		
Carbon sequestration and accounting	Students understand the carbon cycle with special reference to forests, soils and forest. products. They are qualified to develop and critically reflect forest growth scenarios and have acquired basic knowledge of the purpose and the implementation of life cycle analysis (LCA), product carbon footprints (PCF) and corporate carbon footprints (CCF).	English	Global Change Management (M.Sc.)	1.	04.12.-15.12.23	elective	Lecture, Practical exercise	6
Academic writing and presenting	Students are enabled to apply the fundamentals of effective scientific writing, visualisation of scienfitic results as well as oral presenting.	English	Global Change Management (M.Sc.)	1.	04.12.-15.12.23	mandatory	Lecture, Seminar, Practical exercise	
Future management systems I	Students get an overview of important silvicultural basics, site / ecological conditions and silvicultural methods. Building on this, students gain knowledge of different, property-dependent forest management strategies for the provision of multifunctional ecosystem services. Basic knowledge and theoretical background of forest growth modelling are acquired. Practical examples of application are developed and evaluated with the help of growth simulations. Results and strategy recommendations will be discussed and evaluated in a forest management and society context.	English	Forestry Systems Transformation (M.Sc.)	1	30.10.-17.11.23	mandatory	Lecture, Seminar, Practical exercise	
Assessment tools and methods: Forest 4.0 / Parametrization and spatial assessment of biomass	Students are aware of the principal methods and innovative technical tools for estimating, quantifying, calculating and mapping the baseline of different carbon pools and to monitor carbon stock changes related to various forest and land management measures. After the course, students have a solid foundation of principal concepts of biomass and carbon quantification and their specific cycles. Students know about the advantages applying remote sensing and modelling techniques for the spatial assessment and modelling of forest biomass at different scales. Students will learn about different carbon parametrization, quantification or simulation models for forest biomass on a landscape level and discuss methods to quantify forest biomass and estimate the forest carbon stock and their uncertainty.	English	Forestry Systems Transformation (M.Sc.)	1	17.11.-01.12.2023	elective		
Forest governance and policy I	Students get to know social and political sciences theories and concepts of environmental-/forest governance and policy. They learn about social structures, institutions and actors as a basis for elaborating and reflecting on topics such as collaboration, protest behaviour and policy action. Students become familiar with examples from environmental protection, forest management, biodiversity and nature conservation, to improve their understanding of policy and social systems and their specific functioning and interactions.	English	Forestry Systems Transformation (M.Sc.)	1	08.01.-26.01.24	mandatory		
Approaches and tools for research and monitoring with empirical social reasearch		English	Biosphere Reserves Management (M.Sc.)	1	20.11.-01.12.23	elective		

Project management & innovation			English	Biosphere Reserves Management (M.Sc.)	1	04.12.-15.12.23	mandatory		
Political, legal and international aspects related to UNESCO Biosphere Reserves			English	Biosphere Reserves Management (M.Sc.)	1	08.01.-26.01.24	mandatory		
Rohstoff Holz und Holzsortierung			German	Forstwirtschaft (B.Sc.)	3.	20.11.-01.12.23	elective	Lecture, Exercise	6