

M 4.9 Bioeconomy (BE)				
Module Coordinator:	Prof. Dr.-Ing. Anja Noke			
ECTS credits:	6 ECTS	Total workload:	180 hours	
Use of the module in this degree program:	Elective module “ ” in the 4th semester	Of which in-person study:	60 hours	
Duration and frequency of the course:	14 sessions in the summer semester	Of which self-study:	120 hours	
Use of the module in other degree programs or academic continuing education programs:				
Learning Outcomes:				
Knowledge and Understanding				
<ul style="list-style-type: none"> ▪ <i>Students are familiar with the key possibilities for the material and energy use of renewable raw materials and biogenic residues</i> 				
Application, use, and generation of knowledge				
<ul style="list-style-type: none"> ▪ <i>Students can select and evaluate biotechnological methods for the conversion of biomass and biogenic residues using enzymes, specialized production strains, and mixed microbial cultures</i> ▪ <i>Students can independently develop proposals for the biological and process engineering optimization of process flows</i> 				
Communication and Co-operation				
<ul style="list-style-type: none"> ▪ <i>Students are able to recognize the social and ecological impacts of biomass utilization and to develop and discuss sustainable solutions as part of a team.</i> 				
Scientific Self-Concept or Professionalism				
<ul style="list-style-type: none"> ▪ <i>For students, finding, understanding, critically evaluating, and comparing scientific papers becomes part of their professional identity.</i> 				
Course Content:				
<i>Please list the core subject-specific, methodological, practical, and/or interdisciplinary content.</i>				
<ul style="list-style-type: none"> ▪ <i>Biomass as a Resource of the Bioeconomy: Potential, Availability, Processing</i> ▪ <i>Food security and nutrition in the context of the bioeconomy</i> ▪ <i>Material and energy use of biomass</i> ▪ <i>Fundamentals of biotechnology, bioreactors</i> ▪ <i>Bioconversion of biogenic residues and renewable raw materials</i> ▪ <i>Processes for the production of biogas, bioethanol, biogenic synthetic fuels, and bioplastics</i> ▪ <i>Methods for assessing sustainability in the bioeconomy</i> 				
Language of instruction:	German or English (if there are non-German-speaking participants)			
Prerequisites:	None			
Preparation/Reading:	<i>Current reading lists will be distributed at the beginning of the semester.</i>			
Further information:	<i>Course materials will be made available in Aulis.</i>			
Related courses				
Course title	Instructor	SWS	Teaching and Learning formats	Exam formats, scope, duration
Bioeconomy	Prof. Dr.-Ing. Noke	3	Seminar	Portfolio (PL)
Bioeconomy Practicum	Prof. Dr.-Ing. Noke	1	Lab	
Bachelor's only: Module-based exercise	Prof. Dr.-Ing. Noke	(1)	Guided self-study	