1.10 Circular Bioeconomy (CiBio)

Responsible for the module:	Prof. Dr.-Ing. Anja Noke		
ECTS credits:	6 ECTS	**Total workload:**	180h
Use of the module in this degree programme:	Wahlpflichtmodul / elective	**Of which face-to-face studies:**	56h
Duration and frequency of the offer:	14 Dates in summer term/ in SoSe	**Of which self-study:**	124h
Use of the module in other degree programmes or scientific courses. Further education courses:			

Learning outcomes:

After completing the module, students are able to

- *recognise possibilities to use biomass for material and energy purposes and to integrate it into regional resource cycles*
- *identify and evaluate sustainable business practices in the sense of a circular economy through comparative observation*
- *select and evaluate biotechnical methods for the conversion of biomass and biogenic residues with enzymes and specialised production strains*
- *independently develop proposals for the biological optimisation of process sequences*
- *to evaluate the social, economic and ecological impacts of biomass use and to develop sustainable solutions*
- *to communicate and work in English in international, interdisciplinary teams and present results in different formats, e.g. as a pitch, poster or in a presentation.*

Teaching content:

- *Circular economy and sustainability strategies for companies*
- *Business models for a bio-based circular economy*
- *Identification and assessment of usable biomass sources: Main characteristics, recovery and processing*
- *Metabolism and growth of microorganisms as a basis for the conversion performance of microorganisms*
- *Microorganisms and enzymes in environmental protection, e.g. in paper, textile and plastics production*
- *Energy from biomass: biogas, biofuels, hydrogen, ethanol*
- *Bioeconomy in the food industry*
- *Biorefineries: Possibilities of an integrated and cascade use of biomass*

Language of instruction:	Englisch
Participation requirements:	
Preparation/Literature:	Current literature lists are handed out at the beginning of the semester.
Further information:	Course registration on AULIS required, learning materials are on AULIS.

Related courses

Title of the course	Lecturer	SWS	Teaching and learning methods	Forms, scope and duration of examinations
Part A: Technical Sessions	Prof. Dr.-Ing. Anja Noke	2	Seminar	Portfolio
Part B: Physical Mobility	Prof. Dr.-Ing. Anja Noke	1	Seminar	
Part C: Project	Prof. Dr.-Ing. Anja Noke	1	Project	