Module Name	Introduction to Biological Oceanography	
Module Number	MNF-bioc-101	
Person in Charge	Prof. Dr. Ute Hentschel Humeida Phone: +49-(0)431-600-4480, E-mail: uhentschel@geomar.de	
Semester / Duration	1. semester / one semester	**Status**
Regular Cycle	annual in winter semester	Compulsory
Study Programme	Master of Science in Biological Oceanography	
Classes	**Class Title (Teaching Form)** **Lecturers**	**Contact Time / Group Size**
	Introduction to Biological Oceanography (Lecture) Prof. Dr. Martin Wahl Prof. Dr. Ulrich Sommer Prof. Dr. Ulf Riebesell Prof. Dr. Ute Hentschel Humeida Prof. Dr. Anja Engel Dr. Frank Melzner	3 hrs per week / 40 students
Credit Points / Workload	6 ECTS / 180 hours	
Prerequisites	A bachelor's degree in a biological discipline.	
Completion Module	MNF-bioc-102	
Following Module	MNF-bioc-201	
Educational Objectives	On completion of this module students should be able to discuss and link key concepts in biological oceanography and fish ecology. They should have an understanding of the importance of functional groups of organisms both in shaping the food web including nekton as well as in elemental fluxes. Students should have enough knowledge to able to read and critically judge current literature on the topics covered.	
Content of Teaching	This module will provide a broad overview of the functioning of marine ecosystems and the interactions between organismal groups that determine the cycling of bio-reactive elements in the ocean. Topics to be covered include: Physicochemical conditions in the ocean: large and small scale heterogeneity. Functional groups: micro-organisms, phytoplankton, zooplankton, benthos animals, algae, fishes, sea birds, mammals. Ecophysiology: light and photosynthesis, physiology of picoplankton, primary production, nutrients, microbial loop. Populations and communities: distribution, growth, age structure and demography, interactions, food webs. Biogeochemical cycles: classification of elements and their residence times, sources and sinks of elements, linking c to N, Si, P and Fe, microbiology of C-, N- and S-cycle. Diversity: patterns, significance and loss. Global Change: ocean acidification, global warming and "The Future Ocean".	
Examination	A written and graded examination will cover all topics of this module.	
Literature	Sommer, U. 2005: Biologische Meereskunde; 2. Auflage, Springer Berlin. Lalli, C.M. & Parsons, T.R. 1993. Biological Oceanography: An Introduction. Open University, Pergamon Press. Additional current literature and lecture notes will be distributed during the semester.	
Additional Information	None.	