

<b>Module Name</b>	<b>Module Code</b>
Fieldtrip Hydrobiology Poland	EMAEF023-01a
<b>Module Coordinator</b>	
Prof. Dr. Nicola Fohrer	
<b>Organizer</b>	
Institute for Natural Resource Conservation - Hydrology and Water Resources Management	
<b>Faculty</b>	
Faculty of Agricultural and Nutritional Sciences	
<b>Examination Office</b>	
Faculty of Agricultural and Nutritional Sciences - Examination Office	

<b>ECTS Credits</b>	6
<b>Evaluation</b>	Graded
<b>Duration</b>	one semester
<b>Frequency</b>	Only takes place during summer semesters
<b>Workload per ECTS Credit</b>	30 hours
<b>Total Workload</b>	180 hours
<b>Contact Time</b>	60 hours
<b>Independent Study</b>	120 hours
<b>Teaching Language</b>	German

<b>Module Courses</b>			
<b>Course Type</b>	<b>Course Name</b>	<b>Compul- sory/Optional</b>	<b>SWS</b>
Practical exercise	Hydrobiology, Practical Exercise	Compulsory	2
Field trip	Hydrobiology, excursion	Compulsory	2

<b>Examination(s)</b>				
<b>Examination Name</b>	<b>Type of Examination</b>	<b>Evaluation</b>	<b>Compulsory / Optional</b>	<b>Weighting</b>
Protocol: Fieldtrip Hydrobiology Poland	Protocol	Graded	Compulsory	100
<b>Further Information on the Examination(s)</b>				
1.+2. period in summer semester 1. period in winter semester Examiner: Prof. Dr. Fohrer/Dr. Wu QIS: 74501 with number of Examination 74510				

**Course Content**

Any alterations in the way the catchment basin is used, for instance caused by urbanization, the development of industry or agricultural intensification, lead to the deterioration of the quality of surface waters. Monitoring of water quality is, then, the basic method of controlling the water environment. In the diagnosis of the condition of water ecosystem the indices based on physico-chemical and biological parameters (f. e. phytoplankton, periphyton, hydromacrophytes, benthic macroinvertebrates) will be used. In case of eutrophic lakes with permanent domination of cyanobacteria achieving and maintaining the satisfactory quality of waters is often associated with restoration. The evaluation of the water ecosystem affected by restoration will be made by students on the example of Lake Durowskie in the middle of the vegetation period. The following problem tasks for students were chosen: The evaluation of the ecological condition of the lake in connection with macrophyte-based indices. Taxonomic composition, the number of and biomass of the phytoplankton.

Diatom index of periphyton.

The composition and biomass of benthic macroinvertebrates. Spatial variability of physico-chemical indices according to the depth and horizontal changes (temperature, oxygen, the pH level, and electrolytic conductivity).

**Learning Outcome**

Students are to learn how to diagnose the inland waters independently (for example a lake or a river) taking into account their biological and physico-chemical parameters. What is more, students will also be able to use the acquired theoretical knowledge in practice (i.e. in nature resources management like restoration, water protection, biomanipulation) and they will learn how to present the results obtained during the field research orally and in writing.

**Reading List**

- Ciecierska H. 2008. Macrophyte-based indices of the ecological state of lakes. Dissertations and Monographs 139, Wyd. UWM.
- Schaumburg, J., Schmedtje, U., Schranz, Ch., Köpf, B., Schneider, S., Stelzer, D., Hofmann, G., 2005. Instruction Protokoll for the ecological Assessment of Lakes for Implementation of the EU Water Framework Directive: Macrophytes and Phytobenthos. Bavarian Water Management Agency. München. 1–44.
- Schiefele, S., Schreiner, C., 1991. The use of diatoms for monitoring nutrient enrichment, acidification and impact of salt in rivers in Germany and Austria. W: Whitton, B.A., Rott, E., Friedrich, G. (red.): Use of Algae for Monitoring Rivers. Institut für Botanik. Universität Innsbruck. s. 103–110.
- Schoenfelder, I., Gelbrecht, J., Schoenfelder, J., Steinberg, C.E.W., 2002. Relationships between littoral diatoms and their chemical environment in northeastern German lakes and rivers. *J. Phycol.* 38:66–82.
- Wetzel R. G. 2001. *Limnology. Lake and River Ecosystems*. Third Edition. Oxford Academic Press, 767pp

Use	Compulsory / Optional	Semester
Master, 1-Subject, Agricultural Sciences, Specialisation Agricultural Economics, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Agribusiness, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Crop Sciences, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Animal Sciences, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Environmental Sciences, (Version 2017)	Optional	-
Master, 1-Subject, Environmental Management, Double-Degree-Agreement with Adam-Mickiewicz-University, Polen (UAM), (Version 2020)	Optional	-
Master, 1-Subject, Environmental Management, Double-Degree-Agreement with Irkutsk State University, Russland (ISU), (Version 2020)	Optional	-
Master, 1-Subject, Environmental Management, (Version 2020)	Optional	-
Master, 1-Subject, Nutritional and Food Science, (Version 2013)	Optional	-
Master, 1-Subject, Nutritional and Consumer Economics, (Version 2017)	Optional	-