

Course MANAGEMENT OF AQUATIC SYSTEMS

Basic Information

Starting date	From October 1st till February 1st, 1 semester (16 weeks)
Study credits	3 ECTS credits
Duration	108 hours
Language of instruction	English
Academic requirements	<ul style="list-style-type: none">– BSc degree in Biology, Physics, Biophysics, Chemistry , Biochemistry, Environmental Sciences or equivalent (transcript of records),– good command of English (certificate or other official document)

Course Description

During the course the following topic will be covered:

- General aspects of aquatic ecosystems: world–wide distribution, exploitation, food chains, respond to natural and anthropogenic impact;
- The estimation of water quality and the prediction of ecosystems' properties by using mathematical modeling techniques;
- Water quality monitoring and biotests;
- Ecological management and decision-making principles;
- Physical and biological methods of water quality estimation of lakes;
- Waste effluents treatment;
- Integrated control of water resources.

Course Objectives

- To provide a detailed understanding of relations between physical, biological and ecological mechanisms in management of aquatic ecosystems.
- To learn to use integrated control and mathematical modeling techniques for controlling and monitoring aquatic ecosystems.

Learning Outcomes of the Course

By the end of the course, students will be:

- understanding how aquatic ecosystems respond to the natural and anthropogenic impact,
- experienced in ecological management and the basics of decision-making principles,

- able to formulate goals and objectives in aquatic ecosystems management,
- able to choose appropriate approaches to achieve goals and objectives,
- able to analyze and draw conclusions.

Course Components

The course consists of three components:

Lectures – 8 hours

Seminars – 24 hours

Self-study time – 76 hours

Lecturer and Contact Information



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Siberian Branch of the Russian Academy of Science,
Associated Professor at School of Fundamental Biology and
Biotechnology, Siberian Federal University

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Assessment

The final score is calculated according to the following proportion:

20% – test,

50% – individual task,

30% – participation during class

Core reading

Michael R. Templeton and David Butler. Introduction to Wastewater Treatment. 2013
ISBN: 978-87-7681-843-2

A Handbook for Integrated Water Resources Management in Basins. 2009. Global Water Partnership (GWP) and the International Network of Basin Organizations (INBO). ISBN: 978-91-85321-72-8

Walter K. Dodds and Matt R Whiles. Freshwater Ecology, Second Edition: Concepts and Environmental Applications of Limnology (Aquatic Ecology). 2010. ISBN-13:978-0123747242

Introduction to Integrated Water Recourse management. On-line course at

<http://dev.ourworld.unu.edu/international-network-on-water-environment-and-health/introduction-to-iwrm/modules-1/index.html>