ENV-321

Aquatic ecosystems

Battin Tom Ian

Cursus	Sem.	Type
Environmental Sciences and Engineering	BA6	Opt.
HES - SIE	E	Opt.

Language of teaching	English
Credits	3
Session	Summer
Semester	Spring
Exam	Written
Workload	90h
Weeks	14
Hours	**3 weekly**
Lecture	2 weekly
Project	1 weekly
Number of positions	

Summary

Inland waters are now being recognized are major players of global biogeochemical cycles. They also provide essential ecosystem services such as fresh water and fish, and link continental processes with atmospheric and marine processes. The understanding of the structure and function of inland water

Content

1. Introduction and a brief history of the freshwater science
2. The physical basis of lotic and lentic ecosystems
3. Nutrient cycling in inland waters and the connection to marine anoxia
4. Ecosystem metabolism
5. Inland waters and the global carbon cycle
6. Biodiversity dynamics and metacommunity ecology
7. The relationship between biodiversity and ecosystem functions and services

Keywords

Inland waters, streams, rivers, lakes, wetlands, groundwater, ecosystem ecology, biogeochemistry

Learning Outcomes

By the end of the course, the student must be able to:

- Argue why inland waters matter for global societal and environmental issues
- Assess / Evaluate the basic hydrodynamics and hydraulics for ecosystem processes in inland waters
- Analyze the link between biogeochemical processes in inland waters and the coastal ocean
- Derive an understanding of aquatic ecosystem functions from biodiversity patterns
- Describe key mechanisms of metacommunity ecology
- Assess / Evaluate ecosystem metabolism in inland waters

Teaching methods

Power point presentations

Expected student activities

Interactions and discussions with teachers
Feedback and respond to questions
Feedback in an appropriate manner on the content and its presentation

Assessment methods

Final written exam (100%)

Supervision

Office hours	Yes
Assistants	Yes
Forum	No

Resources

Moodle Link

- https://go.epfl.ch/ENV-321