

Limnology - Ecology of Fishes
Zoology and Environmental Studies 510
Sample Syllabus

Course objectives: This course uses fishes as a vehicle to examine key biology and ecological topics, as well as societal issues such as natural resources management and human impacts on the environment. The course material includes freshwater and marine environments. Topics span multiple levels of ecological organization, from the level of individuals, populations, communities, ecosystems and landscapes. The course also emphasizes experiential learning and the scientific process. There are two field trips. Students conduct a creel survey on the Madison lakes and prepare group papers based on their results. Students travel to the Shedd Aquarium and carry out their own independent observational study, which is presented as a scientific paper. The course also involves a book report project.

Examples of lecture topics:

1. Fish evolution and systematics
2. Morphology and adaptations
3. Growth
4. Bioenergetics
5. Niche
6. Autecology
7. Reproduction
8. Social behavior
9. Fishes as predators
10. Parasites
11. Fishes as prey
12. Food webs and trophic cascades
13. Adaptive radiations
14. Australian fishes
15. Fishes of Wisconsin
16. Ancient fishes
17. Great Lakes
18. Lake Tanganyika
19. Tropical versus temperate fishes
20. Capture fisheries
21. Aquaculture
22. Fisheries management and models
23. Human dimensions of fisheries management
24. Tribal fisheries: walleye in Wisconsin
25. Fish biodiversity
26. Invasive species
27. Biotic homogenization
28. Threats and aquatic conservation
29. Mercury in fish
30. Climate change