FISHERY RESOURCES (FISH)

FISH 1020 The Fish and Wildlife Professions (1 credit)
Cross-listed with WLF 1020
Orientation of students to the profession of fishery resources and wildlife resources: introduction to fish and wildlife faculty, review of fish and wildlife curriculum, awareness of career opportunities, employment procedures, associated job duties/responsibilities, job preparation, educational preparation, and management challenges in the Pacific Northwest. Typically Offered: Fall.

FISH 2000 (s) Seminar (1-16 credits, max 99)
Credit arranged

FISH 2030 (s) Workshop (1-16 credits, max 99)
Credit arranged

FISH 2040 (s) Special Topics (1-16 credits, max 99)
Credit arranged

FISH 2990 (s) Directed Study (1-16 credits, max 99)
Credit arranged

FISH 3140 Fish Ecology (3 credits)
Examination of physical, chemical, and biological factors that affect fish populations and communities, with emphasis on environmental stressors. Typically Offered: Fall.
Prereqs: FOR 2100, REM 2210, WLF 2200, or BIOL 3140. Cooperative: open to WSU degree-seeking students.

FISH 3150 Fish Ecology Field Techniques and Methods (2 credits)
Laboratory and field experience in fish ecology with emphasis on field techniques, laboratory experimentation, and habitat assessment. One weekend field trip and several day trips required. Typically Offered: Fall.
Prereqs: FOR 2100, NR 3210, or BIOL 3140

FISH 3980 (s) Renewable Natural Resources Internship (1-16 credits, max 99)
Credit arranged. Supervised field experience with an appropriate public or private agency. Required for cooperative education students. Graded Pass/Fail.
Prereqs: Permission of department

FISH 4000 (s) Seminar (1-16 credits, max 99)
Credit arranged

FISH 4030 (s) Workshop (1-16 credits, max 99)
Credit arranged

FISH 4040 (s) Special Topics (1-16 credits, max 99)
Credit arranged

FISH 4110 Fish Physiology (2 credits)
Joint-listed with FISH 5110
Physiology of fishes, their implications, and applications. Principles and methods used to study organ systems and physiological mechanisms of homeostatic regulation in fishes.
Prereqs: FISH 4810

FISH 4150 Limnology (4 credits)
Joint-listed with FISH 5350
Examination of physical, chemical, and biological characteristics of inland waters. Laboratory focus will be on sampling waterbodies in Idaho, equipment use, and analysis of samples. Part of the course is dedicated to a service-learning project to tackle a real-world problem in limnology. Two lectures and one 4-hour laboratory per week. Depending on the service-learning project, one 1-day weekend field trip may be required. Additional reading, and/or collation of service-learning reports, and/or written reports of assigned literature required for graduate credit. Typically Offered: Fall.
Prereqs: STAT 2510 and FOR 2100, REM 2210, WLF 2200, or BIOL 3140. Cooperative: open to WSU degree-seeking students.

FISH 4180 Fisheries Management (4 credits)
General Education: Capstone Experience
Techniques employed in sampling and application of principles toward managing recreational and commercial aquatic resources. Three lectures and one 3-hour lab per week; two weekend field trips. Typically Offered: Fall.
Prereqs: FISH 3140 and FISH 4810 and STAT 2510 Cooperative: open to WSU degree-seeking students.

FISH 4220 Concepts in Aquaculture (4 credits)
Concepts and methods of extensive and intensive aquaculture in warm water and cold water systems. Two field trips required (a one-day and a three-day field trip). Typically Offered: Spring. Prereqs or
Coreqs: FISH 4810 Cooperative: open to WSU degree-seeking students

FISH 4240 Fish Health Management (4 credits)
Epidemiology, prevention, diagnostics, and treatment of infections and non-infectious diseases of free-living and confined finfish and shellfish. Two field trips required (a one-day and a three-day field trip). Recommended Preparation: FISH 4220. Typically Offered: Spring.
Prereqs: BIOL 2500 Cooperative: open to WSU degree-seeking students.

FISH 4300 Riparian and River Ecology (3 credits)
Course focuses on the ecology of riverscapes; the structure, function and management of fluvial ecosystems; and the interrelationships between rivers and their riparian ecosystems. Course seeks to integrate aspects of hydrology, fluvial geomorphology, aquatic entomology, riparian habitat, fish communities and human impacts to provide a multidisciplinary understanding of riverscapes. At least two half-day field trips will be required. Special fee required. Typically Offered: Spring.
Prereqs: FOR 2100, REM 2210, WLF 2200, or BIOL 3140

FISH 4500 Ecology & Conservation of Freshwater Invertebrates (2 credits)
Joint-listed with FISH 5500
The course will survey the evolutionary origins and identification of major groups of invertebrates occurring in freshwaters; examine the key behavioral, morphological, and physiological traits possessed by freshwater invertebrates; identify the key ecological roles and influence of invertebrates in freshwater ecosystems and ecosystem services; and demonstrate how freshwater invertebrates can be used to monitor water quality and ecosystem condition. Typically Offered: Varies.
Prereqs: BIOL 1140 or ENT 3220 or Permission. Cooperative: open to WSU degree-seeking students.

FISH 4510 Freshwater Invertebrate Field Methods (2 credits)
Joint-listed with FISH 5510
The course will survey the systematics and identification of freshwater invertebrates and demonstrate how freshwater invertebrates can be used to monitor water quality and ecosystem condition. Students will collect and identify freshwater invertebrates from habitats surrounding Moscow, Idaho during an intensive field course. The course will occur on one weekend in February and five days of Spring Break. The course has two required field trips. Typically Offered: Varies.
Prereqs: BIOL 1140 or ENT 3220 or Permission
Coreqs: FISH 4500 Cooperative: open to WSU degree-seeking students

FISH 4730 ECB Senior Presentation (1 credit)
General Education: Capstone Experience
Cross-listed with FOR 4730, FSP 4730
, NRS 4730, REM 4730, WLF 4730. Reporting and presenting the senior project (thesis or internship); taken after or concurrently with REM 4970. Serves as the senior capstone course for Ecology and Conservation Biology (ECB).
Prereqs: Instructor Permission

FISH 4810 Ichthyology (4 credits)
Anatomy, systematics, physiology, behavior, genetics, and zoogeography of fishes. Three lectures and one 3-hour lab per week. Course has two required field trips. Typically Offered: Spring.
Prereqs: BIOL 1140 and BIOL 1150, and BIOL 2130 or instructor permission

FISH 4830 Senior Project Presentation (1 credit)
Cross-listed with WLF 4830
Reporting and presenting the senior project (thesis or internship); taken after or concurrently with WLF 4850 or WLF 4970.

FISH 4850 Ecology and Conservation Biology Senior Project (1-3 credits, max 3)
Cross-listed with NRS 4850, WLF 4850
Scholarly work; learning objectives include development and formal proposal of a specific project and conducting the project or research with the guidance of a faculty mentor.

FISH 4950 (s) Fisheries Seminar (1 credit)
General Education: Capstone Experience
Discuss integrating biological, social, political, economic, and philosophic aspects of problems in managing fishery resources. Typically Offered: Spring.
Prereqs: Senior standing

FISH 4970 Senior Thesis (1-3 credits, max 6)
Preparation of thesis, exhibition, video, computer program, multimedia program, or other creative presentation based on research conducted under the guidance of a faculty mentor.
Prereqs: Cumulative GPA of at least 3. 2 in all college courses, completion of at least 90 credits, and permission of a faculty mentor.

FISH 4980 (s) Internship (1-16 credits, max 99)
Credit arranged. The internship serves to provide hands-on experience for students interested in fisheries and aquaculture.
Prereqs: Instructor permission

FISH 4990 (s) Directed Study (1-16 credits, max 99)
Credit arranged. For the individual student; conferences, library, field, or lab work.
Prereqs: Senior standing, GPA 2. 5, and Permission

FISH 5000 Master's Research and Thesis (1-16 credits, max 99)
Credit arranged

FISH 5010 (s) Seminar (1-16 credits, max 99)
Credit arranged. Major philosophy, management, and research problems of wildlands; presentation of individual studies on assigned topics. Graded Pass/Fail.
Prereqs: Permission

FISH 5020 (s) Directed Study (1-16 credits, max 99)
Credit arranged

FISH 5030 (s) Workshop (1-16 credits, max 99)
Credit arranged. Selected topics in the conservation and management of fish and aquatic systems. Typically Offered: Varies.
Prereqs: Permission Cooperative: open to WSU degree-seeking students.

FISH 5040 (s) Special Topics (1-16 credits, max 99)
Credit arranged. New selected topics in the conservation and management of fish and aquatic systems. Cooperative: open to WSU degree-seeking students.

FISH 5100 Advanced Fish and Wildlife Management (3 credits)
Contemporary management of fish and wildlife populations in North America. Guiding principles, relevant laws and policies, social and political aspects, select issues, and the policy interface of biological systems with governmental and social institutions. Typically Offered: Varies. Cooperative: open to WSU degree-seeking students.

FISH 5110 Fish Physiology (2 credits)
Joint-listed with FISH 4110
Physiology of fishes, their implications, and applications. Principles and methods used to study organ systems and physiological mechanisms of homeostatic regulation in fishes.

FISH 5150 Large River Fisheries (2 credits)
Management issues and problems in large river fisheries in North America and globally; importance of flood plains; ecological bases for management actions in large rivers; river fisheries in the context of multiple use of large rivers. Typically Offered: Varies. Cooperative: open to WSU degree-seeking students.

FISH 5250 Aquaculture in Relation to Wild Fish Populations (2 credits)
Historical and current relationships between wildness and domestication as it relates to fisheries management and aquaculture in mitigation and industry. Interactions between wild and hatchery-reared fishes, including salmon. Typically Offered: Varies. Cooperative: open to WSU degree-seeking students.

FISH 5260 Climate Effects & Cons Manage (2 credits)
Climate change and the conservation and management of populations and ecosystems. This graduate seminar will examine the current understanding of climate controls on ecosystems, likely scenarios for climate change in coming years, effects on fish and wildlife communities and populations and policy discussions as they relate to conservation and management using analysis of primary literature, and oral and written assignments. Typically Offered: Varies.
Prereqs: Previous coursework in ecology or Permission. Cooperative: open to WSU degree-seeking students.

FISH 5300 Stream Ecology (3 credits)
Structure and function of running water ecosystems; principles of population, community, and ecosystem ecology in streams and rivers. Three 1-day field trips required. Typically Offered: Varies.

FISH 5350 Limnology (4 credits)
Joint-listed with FISH 4150
Examination of physical, chemical, and biological characteristics of inland waters. Laboratory focus will be on sampling waterbodies in Idaho, equipment use, and analysis of samples. Part of the course is dedicated to a service-learning project to tackle a real-world problem in limnology. Two lectures and one 4-hour laboratory per week. Depending on the service-learning project, one 1-day weekend field trip may be required. Additional reading, and/or collation of service-learning reports, and/or written reports of assigned literature required for graduate credit. Typically Offered: Fall. Cooperative: open to WSU degree-seeking students.

FISH 5400 Wetland Restoration (3 credits)
This web-based course contains modules covering wetland science, restoration ecology, freshwater restoration, coastal restoration, and monitoring/maintenance. The emphasis is on the science of wetland ecosystems and the applied ecology/practice of restoration, with additional consideration of cultural and socio-political contexts. Extensive readings, an assignment, and a study guide are required for each module. Students apply their learning in and contribute relevant professional experience to weekly online discussions. Students are also responsible for obtaining documentation of at least one wetland restoration site in their region and conducting a site visit in order to evaluate the success of the restoration project. A final exam (re-design of a failed restoration project) is administered online, with partial credit earned through discussion with an interdisciplinary team of classmates and the remaining credit earned through individual analysis and synthesis. Typically Offered: Summer.
Prereqs: BIOL 1140 and BIOL 1150; and FOR 2100 or BIOL 3140 or Permission

FISH 5500 Ecology & Conservation of Freshwater Invertebrates (2 credits)
Joint-listed with FISH 4500
The course will survey the evolutionary origins and identification of major groups of invertebrates occurring in freshwaters; examine the key behavioral, morphological, and physiological traits possessed by freshwater invertebrates; identify the key ecological roles and influence of invertebrates in freshwater ecosystems and ecosystem services; and demonstrate how freshwater invertebrates can be used to monitor water quality and ecosystem condition. Typically Offered: Varies. Cooperative: open to WSU degree-seeking students.

FISH 5510 Freshwater Invertebrate Field Methods (2 credits)
Joint-listed with FISH 4510
The course will survey the systematics and identification of freshwater invertebrates and demonstrate how freshwater invertebrates can be used to monitor water quality and ecosystem condition. Students will collect and identify freshwater invertebrates from habitats surrounding Moscow, Idaho during an intensive field course. The course will occur on one weekend in February and five days of Spring Break. The course has two required field trips. Typically Offered: Varies.
Coreqs: FISH 4500 Cooperative: open to WSU degree-seeking students

FISH 5600 Advanced Fisheries Techniques (3 credits)
This course focuses on sampling techniques and designs, length structure and body condition indices, age and growth of fishes, mortality estimation, and age-structured population models used in the management of exploited fish populations. Typically Offered: Spring (Odd Years).
Prereqs: STAT 4310; instructor permission required Cooperative: open to WSU degree-seeking students.

FISH 5980 (s) Internship (1-16 credits, max 99)
Credit arranged

FISH 5990 (s) Non-thesis Master's Research (1-16 credits, max 99)
Credit arranged. Research not directly related to a thesis or dissertation.
Prereqs: Permission

FISH 6000 Doctoral Research and Dissertation (1-45 credits, max 99)
Credit arranged