

**812 Financial Management and Strategy**  
 Summer. 3(3-0) RB: undergraduate degree in Accounting R: Open only to Master of Science students in Accounting and Business Processes.

Financial planning and control using financial theory and management techniques. Analysis of financial markets and risks and how they affect short- and long-term investment and financing. Applications in domestic and international settings.

**841 Risk Management for Commercial and Public Entities**

Fall. 3(3-0) R: Open only to graduate students in the College of Business.

Analysis of exposures, risk management alternatives, and their social, legal and economic implications. Cost and benefit analysis of decisions.

**844 Corporate Financial Strategies**

Spring. 3(3-0) P:M: (MBA 822)

Managerial decision-making as it relates to key corporate financial strategic policies. Analysis through case studies.

**851 Introduction to Investments**

Fall, Spring. 3(3-0) RB: (FI 801) R: Open only to students in the Program in Professional Accounting and to MBA students.

Security risk and return concepts. Security analysis and concepts of market efficiency. Emphasis on equity investments. Bonds, options, futures, and international securities.

**852 Financial Markets and Strategies**

Spring. 3(3-0) RB: (FI 851) R: Open only to students in the Program in Professional Accounting and to MBA students.

Theories concerning domestic and international financial markets and instruments. Effects of risk and maturity on prices. Arrangement of business and portfolio risk and returns with options and futures.

**860 International Financial Management**

Fall. 3(3-0) RB: (FI 801) R: Open only to graduate students in Business.

Capital budgeting, capital structure decisions, cash management, foreign currency markets and exchange rate risk management. Ethical and tax considerations.

**862 Advanced Managerial Finance**

Fall, Spring. 3(3-0) RB: (FI 801) R: Open only to graduate students in Business.

Financial planning and control using financial theory and management techniques. Applications in international settings. Use of business cases.

**878 Bank Management**

Spring. 3(3-0) RB: (FI 801) R: Open only to graduate students in Business.

Nature, structure and management of commercial banks. Focus on products and services offered, risks, policies, and strategies. Applications in domestic and international settings.

**890 Independent Study**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in Business. Approval of department.

Faculty-guided research projects.

**891 Topics In Finance**

Fall of even years. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. P:M: (FI 801 or MBA 806) or (PIM 841 and PIM 842 and equivalent)

Current and emerging issues in corporate finance, investments and financial modeling to supplement and enrich existing courses.

**980 Theory of Finance**

Fall. 3(3-0) R: Open only to Ph.D. students in Business or approval of department.

Introduction to the financial theory of the firm. Theoretical models dealing with capital structure, cost of capital, dividend policy and leasing.

**981 Corporate Finance Theory**

Spring of odd years. 3(3-0) RB: (FI 980) R: Open only to Ph.D. students in Business.

Theoretical foundations. Recent empirical research in capital structure, dividend policy, and agency theory.

**982 Investment Theory**

Spring of even years. 3(3-0) RB: (FI 980) R: Open only to Ph.D. students in Business.

Market efficiency, stochastic processes, option pricing, efficient set mathematics, intertemporal asset pricing and arbitrage pricing theory.

**993 Finance Workshop**

Fall. 3(3-0) RB: (FI 980) R: Open only to Ph.D. students in Finance.

Critical evaluation of original research papers by faculty and students.

**999 Doctoral Dissertation Research**

Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to Ph.D. students in Finance and Insurance.

Doctoral dissertation research.

**110 Conservation and Management of Marine Resources**

Spring. 3(3-0)

Marine environment, resource distribution, and human impacts on selected marine commercial fisheries. Conflicts in management goals between government and industry. Management goals and techniques in preserving and conserving marine resource biodiversity.

**203 Resource Ecology**

Fall, Spring. 3(3-0)

Basic concepts of ecology which provide a foundation for examining environmental problems and their solutions.

**205 Principles of Fisheries and Wildlife Management**

Spring. 3(3-0)

Characteristics of the fish and wildlife resource. Ecological and societal factors influencing the management of fish and wildlife. Management techniques.

**207 Great Lakes: Biology and Management**

Fall. 3(3-0) Interdepartmental with Resource Development.

Living aquatic resources of the Great Lakes: environmental history, biological resources and their management. Policy issues.

**211 Introduction to Gender and Environmental Issues**

Spring. 3(3-0) Interdepartmental with Forestry; Environmental Economics and Policy; Resource Development; Women's Studies. R: Not open to freshmen. SA: PRM 211

The concept of gender. Overview of environment and habitat. Historical gender roles in environmental management. Gender-based theoretical perspectives. Case studies on developing and developed countries. Environmental management with emphasis on fisheries, wildlife and wetlands. Women environmental professionals.

**275 Seafood Systems Management**

Spring. 3(3-0) Interdepartmental with Food Science; Animal Science.

Domestic and international perspectives on major aquatic foods. Cultural and nutritional value; wild harvest; aquaculture; processing technology; food handling and food safety.

**284 Natural History and Conservation in Michigan**

Fall. 3(2-3)

Identification, habitat requirements, and distribution of Michigan's flora and fauna. Interrelationships which influence natural resource use. Field trips required.

**324 Wildlife Biometry**

Spring. 3(2-3) P:M: (MTH 116 or MTH 114 or concurrently or LBS 117) RB: (ZOL 355)

Quantitative techniques to analyze and interpret fisheries and wildlife data.

**326 Introduction to Waste Management**

Fall. 3(3-0) Interdepartmental with Resource Development. Administered by Department of Resource Development. RB: (RD 200)

Waste management definitions, techniques, technologies, and strategies. Integrative approach to waste management as an environmental, social, and political subject.

## FISHERIES AND WILDLIFE

FW

### Department of Fisheries and Wildlife College of Agriculture and Natural Resources

**100 Introduction to Fisheries and Wildlife**

Fall, Spring. 3(2-2) R: Open only to freshmen or sophomores.

Fisheries and wildlife management, history, philosophy and careers; conservation ethics.

**109 Conservation of Freshwater Ecosystems**

Fall. 3(3-0) R: Not open to students in the Department of Fisheries and Wildlife. Not open to students with credit in FW 414 or FW 472 or ZOL 431.

Fundamentals of freshwater ecology emphasizing human impacts. Basic ecological principles of conservation and management. Applied problems: their symptoms, causes, and solutions.

## Fisheries and Wildlife—FW

- 328 Vertebrate Pest Control**  
Spring. 3(3-0) RB: (BS 110)  
Role of vertebrate animals as agents damaging to human interests. Damage evaluation. Damage control strategies and techniques.
- 341 Writing Nature and the Nature of Writing**  
Fall. 3(3-0) Interdepartmental with Arts and Letters. Administered by Arts and Letters. P:M: Completion of Tier I writing requirement.  
Writing- and reading-intensive course focusing on the language of scientists, poets, essayists, naturalists, environmentalists, and biologists, and on their various responses to and representations of the natural environment.
- 364 Ecological Problem Solving**  
Spring. 3(2-2) P:M: (MTH 124 or concurrently or MTH 132 or concurrently) and (FW 324 and ZOL 355) or (BE 230)  
Application of ecological concepts and models to problems in natural resource and ecosystem management.
- 369 Introduction to Zoo and Aquarium Science**  
Spring. 3(3-0) Interdepartmental with Zoology; Landscape Architecture; Veterinary Medicine. Administered by Department of Zoology. P:M: (BS 110 or LBS 144 or LBS 148H)  
Fundamentals of zoo and aquarium operations including research, interpretation, design, nutrition, captive breeding, conservation, ethics and management.
- 370 Introduction to Zoogeography**  
Fall. 3(3-0) Interdepartmental with Zoology; Geography. Administered by Department of Zoology. P:M: (ZOL 355)  
Patterns of geographical distribution of animals and the ecological and historical processes leading to these patterns.
- 404 Women and the Law in the United States**  
Fall of odd years. Spring of odd years. 3(3-0) Interdepartmental with Women's Studies. Administered by Women's Studies Program. RB: (WS 201 or WS 202 or WS 203) R: Not open to freshmen or sophomores.  
Law in the United States as a vehicle for structuring and maintaining women's social roles, and for social change.
- 410 Upland Ecosystem Management**  
Spring. 3(2-3) P:M: (ZOL 355 or FOR 404) and completion of Tier I writing requirement. RB: (FW 364) for students in FW major.  
Analysis and management of upland ecosystems to meet wildlife management and biodiversity objectives. Mitigation of human impact.
- 412 Wetland Ecosystem Management**  
Fall. 3(3-0) P:M: (ZOL 355) and completion of Tier I writing requirement. RB: (FW 364) for students in FW major.  
Ecosystem components and processes applied to wetland management. Mitigation of human impact.
- 413 Wildlife Research and Management Techniques**  
Fall. 4(2-4) Summer: 4 credits. Given only at W.K. Kellogg Biological Station. RB: (FW 324 and FW 410 and FW 412 or concurrently)  
Field techniques used in collecting, analyzing, and communicating data on wild animal populations and their habitats. Experiential learning methods.
- 414 Aquatic Ecosystem Management**  
Fall. 3(3-0) P:M: (ZOL 355) and completion of Tier I writing requirement. RB: (FW 364) for students in FW major.  
Management of aquatic habitats and populations for ecological and socioeconomic objectives; human impacts on aquatic ecosystems.
- 419 Applications of Geographic Information Systems to Natural Resources Management**  
Spring. 4(2-4) Interdepartmental with Forestry; Geography; Park, Recreation and Tourism Resources; Resource Development; Biosystems Engineering. RB: (GEO 221)  
The application of geographic information systems, remote sensing, and global positioning systems to integrated planning and management for fish, wildlife, and related resources.
- 420 Stream Ecology**  
Fall. 3(3-0) Interdepartmental with Zoology. P:M: (BS 110) RB: (CEM 141 and ZOL 355)  
Biological and environmental factors determining structure and function of stream ecosystems.
- 422 Aquatic Entomology**  
Fall of odd years. 3(2-3) Interdepartmental with Entomology; Zoology. Administered by Department of Entomology. P:M: (BS 110) SA: ENT 420  
Biology, ecology and systematics of aquatic insects in streams, rivers and lakes. Field trips and aquatic insect collection required.
- 424 Population Analysis and Management**  
Fall. 4(3-2) P:M: (ZOL 355) and (FW 324 or STT 201 or STT 231 or STT 421) and (MTH 124 or MTH 132 or LBS 118)  
Statistical, ecological and management concepts and methods needed to analyze and interpret demographic data and manage fish and wildlife populations.
- 431 Comparative Limnology**  
Summer. 4(2-6) Given only at W.K. Kellogg Biological Station. Interdepartmental with Zoology; Plant Biology. Administered by Department of Zoology. P:M: (CEM 141 or CEM 151) and (ZOL 355) Not open to students with credit in FW 472.  
Physical, chemical, and biological aspects of lakes and streams. Introduction to freshwater biology, and population and community ecology.
- 434 Human Dimensions of Fisheries and Wildlife Management**  
Spring. 3(2-2) P:M: (FW 424) and (FW 410 or FW 412 or FW 414) R: Open only to seniors in the Department of Fisheries and Wildlife.  
Sociological implications of public policy and planning processes in fisheries and wildlife management.
- 443 Restoration Ecology**  
Spring. 3(2-2) Interdepartmental with Biosystems Engineering; Zoology. RB: (CSS 210 or BE 230) and (FOR 404 or FW 364 or ZOL 355)  
Principles of ecological restoration of disturbed or damaged ecosystems. Design, implementation, and presentation of restoration plans. Field trips required.
- 444 Conservation Biology**  
Fall. 3(3-0) Interdepartmental with Zoology. P:M: (ZOL 355 or FOR 404) and completion of Tier I writing requirement.  
Ecological theories and methodologies to manage species, communities and genetic diversity on a local and global scale.
- 452 Watershed Concepts**  
Fall, Spring, Summer. 3(3-0) Interdepartmental with Resource Development; Biosystems Engineering; Crop and Soil Sciences; Forestry. Administered by Department of Resource Development. P:M: (RD 324 and ZOL 355) RB: organic chemistry  
Watershed hydrology and management. The hydrologic cycle, water quality, aquatic ecosystems and social systems. Laws and institutions for managing water resources.
- 462 Ecology and Management of Invertebrates**  
Spring. 4(3-3) P:M: (BS 110) RB: (ZOL 355)  
Ecology, conservation, and management of selected non-insect invertebrate species including commercially important, exotic, non-game, and selected threatened and endangered species.
- 464 Natural Resource Economics and Social Science (W)**  
Fall. 3(2-2) Interdepartmental with Forestry; Park, Recreation and Tourism Resources; Resource Development. Administered by Department of Forestry. P:M: (EC 201 or EC 202) and completion of Tier I writing requirement. R: Not open to freshmen or sophomores.  
Application of economic and social science principles and techniques to production and consumption of natural resources. Benefit-cost analysis. Regional impact analysis. Social impact assessment.
- 466 Natural Resources Planning and Policy**  
Spring. 3(2-2) Interdepartmental with Forestry; Park, Recreation and Tourism Resources; Resource Development. Administered by Department of Forestry. R: Open only to seniors or graduate students in the Department of Forestry or Department of Fisheries and Wildlife or Department of Park, Recreation and Tourism Resources or Department of Resource Development.  
Scientific, environmental, social, and institutional factors affecting planning and policy-making. Focus on ecosystem-based planning and policy issues through development of a multiple-use plan. Case studies.
- 469 Biomonitoring of Streams and Rivers**  
Summer of even years. 3(2-3) Given only at W.K. Kellogg Biological Station. Interdepartmental with Entomology. Administered by Department of Entomology. P:M: (BS 110)  
Practical field and lab rapid bioassessment methodologies used to sample and assess the biota of streams and rivers. Sampling and identification of fish, macroinvertebrates and other biota will be emphasized.
- 471 Ichthyology**  
Fall. 4(3-3) Interdepartmental with Zoology. P:M: (BS 110) and completion of Tier I writing requirement.  
Fish morphology, physiology. Development, behavior, evolution and ecology. World fishes with emphasis on freshwater fishes.

- 472 Limnology**  
Spring. 3(3-0) Interdepartmental with Zoology. P:M: (CEM 141 and ZOL 355) Not open to students with credit in BOT 431 or FW 431 or ZOL 431.  
Ecology of lakes with emphasis on interacting physical, chemical, and biological factors affecting their structure and function.
- 473 Environmental Fish Physiology**  
Fall of even years. 3(3-0) Interdepartmental with Physiology. P:M: (BS 111) R: Not open to freshmen or sophomores.  
Survey of physiological adaptations of fish to environmental factors; bioenergetics, homeostasis, senses adaptations to diverse and extreme aquatic environments.
- 474 Limnological and Fisheries Techniques**  
Fall. 3(1-6) Interdepartmental with Zoology. P:M: (FW 472 or FW 414 or concurrently)  
Field and laboratory investigations of physical, chemical, and biological parameters of lakes and streams. Field trips required.
- 475 Aquaculture**  
Spring. 3(3-0) Interdepartmental with Animal Science. RB: (ANS 313 or ZOL 355)  
Propagation and rearing of aquatic organisms used for food, bait and recreational fisheries management. Culture principles and techniques for important aquatic species. Commercial potential.
- 477 Pest Management I: Pesticides in Management Systems**  
Fall. 3(3-0) Interdepartmental with Entomology; Crop and Soil Sciences; Horticulture. Administered by Department of Entomology. RB: (CEM 143 or CEM 251) and (BOT 405 and CSS 402) and (ENT 404 or ENT 470 or FW 328)  
Chemistry, efficient use, and environmental fate of pesticides. Legal and social aspects of pesticide use.
- 478 Pest Management II: Biological Components of Management Systems (W)**  
Spring of even years. 3(2-3) Interdepartmental with Entomology; Crop and Soil Sciences; Forestry; Horticulture. Administered by Department of Entomology. P:M: (ENT 404 or ENT 470 or PLP 405 or CSS 402 or FW 328) and completion of Tier I writing requirement.  
Principles of host plant resistance and biological control and their relationship to the design of agroecosystems. Classification of insect biological control agents.
- 479 Fisheries Management**  
Spring. 3(2-2) P:M: (FW 424) and (FW 414 or FW 472)  
Manipulation of aquatic populations and their habitats to achieve societal goals for fishery resources. Management of human impact and biotic diversity.
- 480 International Studies in Fisheries and Wildlife**  
Summer. 3 to 6 credits. A student may earn a maximum of 12 credits in all enrollments for this course. RB: (ZOL 355) R: Not open to freshmen; Approval of department, application required.  
Fisheries and wildlife ecology and management study in regions beyond the United States. Ecological, economic, social, and cultural influences on fisheries and wildlife resources.
- 484 Environmental Education**  
Spring. 3(2-2) P:M: (AEE 101 or AEE 110 or PRR 351 or RD 300 or TE 150) R: Not open to freshmen or sophomores.  
Methods, materials and theory for teaching environmental education in formal and non-formal educational settings. Field trips required.
- 485 Environmental Science Senior Seminar**  
Spring. 1(2-0) P:M: (FW 203 and FW 284 and AEE 314) R: Open only to seniors in the Environmental Science minor. C: FW 484 concurrently.  
Ecological principles, population growth, resource utilization and lifestyle choices.
- 489 Seminar in Zoo and Aquarium Science**  
Fall, Spring. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. Interdepartmental with Zoology; Park, Recreation and Tourism Resources. Administered by Department of Zoology. R: Approval of department.  
Scientific writing and oral presentations related to zoo and aquarium studies.
- 490 Independent Study in Fisheries and Wildlife**  
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. RB: (BS 110) R: Not open to freshmen or sophomores. Approval of department; application required.  
Supervised individual research and study in fisheries and wildlife.
- 491 Special Topics in Fisheries and Wildlife**  
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. R: Not open to freshmen or sophomores. Approval of department; application required.  
Selected topics of current interest and importance in fisheries and wildlife.
- 493 Professional Internship in Fisheries and Wildlife**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: (FW 100 or FW 203 or FW 205) R: Open only to sophomores or juniors or seniors. Approval of department; application required. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CSS 493, EEP 493, FIM 493, FW 493, HRT 493, PKG 493, PLP 493, PRR 493, and RD 493.  
Supervised professional experiences in agencies and businesses related to fisheries and wildlife professions.
- 498 Internship in Zoo and Aquarium Science**  
Fall, Spring, Summer. 3 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. Interdepartmental with Zoology; Landscape Architecture. Administered by Department of Zoology. R: Open only to juniors or seniors. Approval of department.  
Application of zoological experience in a zoo or aquarium setting outside the university.
- 810 Human Dimensions Research in Fisheries and Wildlife**  
Fall of even years. 3(3-0)  
Methods of surveying, educating and involving the public to achieve fish and wildlife management goals. Review of human dimensions research and current case studies.
- 811 Fisheries and Wildlife Laws and Regulation**  
Fall of odd years. 3(3-0) R: Open only to graduate students or to seniors with approval of department.  
Legal and regulatory systems related to fisheries and wildlife management. State, federal and international laws, policies and agencies. Nongovernmental organizations. Conservation of biodiversity and endangered species.
- 824 Analysis of Wildlife Populations**  
Spring of even years. 3(2-3)  
Statistical and ecological concepts, methods and computer techniques needed to analyze and interpret demographic data from fish and wildlife studies.
- 826 Ecology and Management of Waterfowl**  
Fall of even years. 3(2-3) RB: (FW 412 and FW 424)  
Physiological, behavioral, and population characteristics of waterfowl. Current issues and management.
- 828 Conservation and Genetics**  
Fall of even years. 3(2-2) Interdepartmental with Plant Biology; Zoology. RB: (ZOL 341 or CSS 350 or ANS 314)  
Population and evolutionary genetic principles applied to ecology, conservation, and management of fish and wildlife at the individual, population, and species level.
- 830 Wetlands Law and Policy**  
Spring of odd years. 3(3-0) Interdepartmental with Resource Development; Agricultural Economics; Forestry. Administered by Department of Resource Development. RB: (RD 801) Prior exposure to environmental and natural resource economics, management, policy, or law. An ability to do legal and other library-based research.  
Origin and development of wetlands law and policy. Wetland functions, mitigation, and banking. Legal, economic, political, and administrative perspectives. Cases, statutes and regulations.
- 835 Biogeography**  
Spring of odd years. 3(3-0) Interdepartmental with Geography; Zoology; Plant Biology. RB: Courses in evolution and ecology at undergraduate level.  
Geographical distributions of plants and animals; biogeographic realms. Ecological and evolutionary mechanisms determining distributional patterns. Application of biogeography to conservation problems.
- 842 Population Genetics, Genealogy and Genomics**  
Fall. 3(3-0) Interdepartmental with Forestry; Animal Science; Crop and Soil Sciences; Genetics; Horticulture. Administered by Department of Forestry. RB: Pre-calculus, basic genetics  
Population genetic processes underlying patterns of molecular genetic variation. Genealogical approaches to the study of genomic diversity, phylogenetic reconstruction, and molecular ecology.

## Fisheries and Wildlife—FW

- 852 Systems Modeling and Simulation**  
Fall of even years. 3(3-0) Interdepartmental with Biosystems Engineering; Forestry; Resource Development. RB: (STT 422 or STT 442 or STT 464 or GEO 463)  
General systems theory and concepts. Modeling and simulation methods. Applications of systems approach and techniques to natural resource management, and to ecological and agricultural research.
- 853 Applied Systems Modeling and Simulation for Natural Resource Management**  
Spring of odd years. 3(2-2) Interdepartmental with Biosystems Engineering; Forestry; Resource Development; Zoology. RB: (FW 820 or BE 486 or ZOL 851) or approval of department. R: Open only to seniors and graduate students  
Mathematical models for evaluating resource management strategies. Stochastic and deterministic simulation for optimization. System control structures. Team modeling approach.
- 854 Adaptive Management of Natural Resource Systems**  
Fall of odd years. 3(2-2) RB: (ZOL 355) and (FW 434)  
Principles and practices of adaptive environmental assessment and management. Applications to ecosystem and natural resource management.
- 858 Gender, Justice and Environmental Change : Issues and Concepts**  
Spring of odd years. 3(3-0) Interdepartmental with Anthropology; Forestry; Resource Development; Sociology. RB: Background in social science, environmental science, or natural resources.  
Issues and concepts related to gender, ecology, and environmental studies. Key debates and theoretical approaches to addressing environmental issues from a gender and social justice perspective. Gender and environment issues and processes from a global perspective.
- 859 Gender, Justice, and Environmental Change: Methods and Application**  
Spring of even years. 3(3-0) Interdepartmental with Anthropology; Forestry; Resource Development; Sociology. Administered by Department of Anthropology. RB: Background in social science, environmental science, or natural resources.  
Methods and case studies related to gender, ecology, and environmental studies. Methodological and fieldwork issues from a feminist perspective and in international/intercultural contexts. Qualitative and quantitative methods for integrating social and environmental data.
- 860 Wildlife Nutrition**  
Fall of odd years. 3(2-2) R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, and Natural Science.  
Nutritional ecology of wild species. Techniques for analyzing and improving nutritional qualities.
- 870 Techniques of Analyzing Unbalanced Research Data**  
Spring. 4(4-0) Interdepartmental with Animal Science; Crop and Soil Sciences; Forestry; Horticulture. Administered by Department of Animal Science. RB: (STT 464) R: Open only to graduate students in the College of Agriculture and Natural Resources. SA: ANS 943 Not open to students with credit in ANS 943.  
Linear model techniques to analyze biological research data characterized by missing and unequal number of observations in classes. Simultaneous consideration of multiple factors. Prediction of breeding values and estimation of population parameters from variance and covariance components.
- 873 Plankton Biology**  
Spring of odd years. 3(2-3) RB: (FW 472)  
Biology of plankton organisms in freshwater and marine systems. Field and laboratory methods. Individual research projects. Field trips required.
- 874 Advanced Fisheries Ecology and Food Web Management**  
Spring of odd years. 3(3-0) RB: (ZOL 355) and (FW 472) and (FW 479)  
Application of food web theory to fisheries management. Evaluation of abiotic and biotic mechanisms as they affect aquatic community structure and food web dynamics.
- 875 Advanced Aquaculture**  
Fall of odd years. 3(3-0) RB: (FW 475)  
Adaptations and responses of aquatic organisms to environmental change in aquaculture systems. Research methods and applications for aquaculture planning and management decisions.
- 877 Fish Population Dynamics**  
Fall of even years. 3(2-2) R: Open only to graduate students in the College of Agriculture and Natural Resources or College of Natural Science.  
Quantitative analysis of fish populations. Evaluation, causes, and impacts of the rates of change in survival, growth, reproduction, and recruitment for fish populations and their yield.
- 879 Advanced Limnology**  
Spring of even years. 3(3-0) RB: (FW 472 or ZOL 431)  
Theory and management of streams, rivers, lakes, reservoirs, and other deepwater habitats from ecosystem and landscape perspectives.
- 884 Outreach in Fisheries, Wildlife and Natural Resources Management**  
Spring of odd years. 3(3-0) Interdepartmental with ANR Education and Communication Systems. RB: Previous course in communications recommended.  
Theory, research, practice and current issues in using outreach in fisheries, wildlife and natural resource management.
- 891 Advanced Topics**  
Fall, Spring, Summer. 2 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course.  
In depth study of advanced topics in fisheries and wildlife.
- 892 Biodiversity**  
Spring. 2(2-0) A student may earn a maximum of 4 credits in all enrollments for this course. Interdepartmental with Zoology. Administered by Department of Zoology. RB: (ZOL 250)  
Status of world biota and factors in the decline and extinction of major groups of plants and animals. Theory and design of natural reserves. Assessment and ecological meaning of diversity. Management for global and local diversity.
- 893 Seminar in Fisheries and Wildlife**  
Fall, Spring. 1(1-0) A student may earn a maximum of 7 credits in all enrollments for this course.  
Study and research in advanced problems and current development in fisheries and wildlife.
- 897 Ecosystem Ecology**  
Spring. 4(4-0) Interdepartmental with Zoology; Plant Biology. Administered by Department of Zoology.  
Structure and function of natural ecosystems. Succession, food web analysis, energy flow, nutrient cycling, and effects of human activities on ecosystems. Global environmental change. Ecosystem management and restoration.
- 898 Master's Research**  
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 10 credits in all enrollments for this course. R: Open only to graduate students in the Fisheries and Wildlife major.  
Master's degree Plan B research paper.
- 899 Master's Thesis Research**  
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to graduate students in the Fisheries and Wildlife major.  
Master's thesis research.
- 976 Multivariate Methods in Agriculture and Natural Resources**  
Spring. 4(4-0) Interdepartmental with Forestry; Animal Science. Administered by Department of Forestry. RB: (STT 422 and MTH 314) R: Open only to graduate students in the College of Agriculture and Natural Resources and in the Interdepartmental Graduate Specializations in Ecology and Evolutionary Biology.  
Application of multivariate methods to research problems. Hotelling's T-test, profile analysis, discriminant analysis, canonical correlation, principal components, principal coordinates, correspondence analysis, and cluster analysis.
- 999 Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to Doctoral level graduate students in Fisheries and Wildlife.  
Doctoral dissertation research.