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 622) 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 801) 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 641 and PIM 642 and PIM 741) or (PIM 742 and PIM 743 and PIM 744). Current and emerging issues in corporate finance, investments and financial modeling to supplement and enrich existing courses.

900 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.

901 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.

902 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.

911 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. Doctoral dissertation research.

FW—Fisheries and Wildlife

FISHERIES AND WILDLIFE

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.

105 Conservation of Freshwater Ecosystems
Fall. 3(3-0) R: Open only 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.

106 Introduction to Gender and Environmental Issues
Fall. 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.

107 Great Lakes: Biology and Management
Fall. 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.

111 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.

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.

2311 Principles of Fisheries and Wildlife Management
Fall. Spring. 3(3-0) Interdepartmental with Resource Development. Living aquatic resources of the Great Lakes: environmental history, biological resources and their management. Policy issues.

256 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.

257 Great Lakes: Biology and Management
Fall. Spring. 3(3-0) Interdepartmental with Resource Development. Living aquatic resources of the Great Lakes: environmental history, biological resources and their management. Policy issues.
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 Zoology. P.M: (BS 111) R: Not open to freshmen or sophomores. Survey of physiological adaptations of fish to physical, chemical, and biological factors affecting Limnological and Fisheries Techniques senses adaptations to diverse and extreme aquatic environments. Field and laboratory investigations of physical, chemical, and biological parameters of lakes and streams. Field trips required.

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 and 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 420 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.

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. 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. To 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. R: Not open to sophomores or juniors or seniors. 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. 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: ABE 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. RB: (BS 110) 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.

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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.

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 475)
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 and 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 and 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.