851 Introduction to Investments
Fall, Spring. 3(3-0) P:M: (MBA 822) R: Open only to MBA students or approval of department. Security risk and return concepts. Portfolio analysis and concepts of market efficiency. Equity investments, bonds, options, futures, and international securities.

852 Financial Markets and Strategies
Spring. 3(3-0) P:M: (MBA 822 and FI 851) R: Open only to MBA students or approval of department. Theories of 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.

853 Debt and Money Instruments and Markets
Fall. 3(3-0) P:M: (MBA 822 and FI 851) R: Open to MBA students or approval of department. Fixed-income security markets. Valuation of instruments traded.

857 Security Analysis
Fall, Spring. 3(3-0) P:M: (MBA 822 and FI 851) R: Open only to MBA students or approval of department. Fundamental analysis of individual stocks. Discounted cash flow valuation, relative valuation, special situations. Portfolio implications.

860 International Financial Management
Fall. 3(3-0) P:M: (MBA 822) R: Open only to MBA students or approval of department. Cross-border capital budgeting, capital structure, cash management, corporate governance, foreign currency and Eurocurrency markets, and currency risk management.

862 Advanced Managerial Finance
Spring. 3(3-0) P:M: (MBA 822) R: Open only to MBA students or approval of department. Financial planning and control using financial theory and management techniques. Applications in international settings. Business cases.

863 Corporate Governance and Restructuring
Fall. 3(3-0) P:M: (MBA 822) RB: (FI 851) R: MBA Students or approval of department. Corporate governance and restructuring. Corporate control and governance, mergers and acquisitions, corporate divestitures, financial distress and bankruptcy. International comparisons and real-world cases.

878 Bank Management
Spring. 3(3-0) P:M: (MBA 822) R: Open only to MBA students or approval of department. Nature, structure, and management of commercial banks. 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. RB: (MBA 822) R: Open only to graduate students in Business. Approval of department. Faculty-guided research projects.

FINANCE—FI

901 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 822) or (PIM 841 and PIM 842) Current and emerging issues in corporate finance, investments, and financial modeling to supplement and enrich existing courses.

910 Theory of Finance
Fall (3-0) R: Open only to Ph.D. students in Business or approval of department. Introduction to the theoretical aspects of the firm. Theoretical models dealing with capital structure, cost of capital, dividend policy and leasing.

911 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.

920 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.

931 Fixed Income Markets
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.

910 Conservation and Management of Marine Resources
Spring. 3(3-0) R: Open only to MBA students or approval of department. 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.

980 Introduction to Science, Technology, the Environment and Public Policy
Fall. 3(3-0) R: Open only to MBA students or approval of department. Relation of science and technology to ethics and public policy. Environmental law and public policy. Managing fish, water and wildlife resources at state, national, and international levels. Science and technology in developing countries. Impacts of military technology on environmental policy.

981 Resource Ecology
Fall. Spring. 3(3-0) R: Open only to masters students in Business or approval of department. Basic concepts of ecology which provide a foundation for examining environmental problems and their solutions.

982 Principles of Fisheries and Wildlife Management
Spring. 3(3-0) R: Open only to Ph.D. students in Fisheries and Wildlife. Characteristics of the fish and wildlife resource. Ecological and societal factors influencing the management of fish and wildlife. Management techniques.

983 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.

984 Outdoor Preparedness for Natural Resource Professionals
Spring. 3(3-0) R: Open only to freshmen. SA: PRM 211 Basic outdoor preparedness. Psychology of becoming lost or an accident victim. Basic wilderness and sea survival. Wilderness accident management. Backcountry and coastal navigation.

985 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.
Domestic and international perspectives on major aquatic foods, Cultural and nutritional value; wild harvest, aquaculture; processing technology; food handling and food safety.

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

Quantitative techniques to analyze and interpret fisheries and wildlife data.

Spring. 3(2-3) P:M: (MTH 103 or MTH 116 or LBS 117 or MTH 124 or concurrently or MTH 132 or concurrently or LBS 118 or concurrently or MTH 152H or concurrently) RB: (ZOL 355)

Application of ecological concepts and models to problems in natural resource and ecosystem management.

Spring. 3(3-0) Interdepartmental with Writing, Rhetoric and American Cultures. Administered by Department of Writing, Rhetoric and American Cultures. P:M: Completion of Tier I writing requirement. SA: AL 341 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.

Spring. 3(2-2) P:M: (MTH 124 or concurrently or MTH 132 or concurrently or LBS 118 or concurrently) and (FW 324 or STT 201 or STT 231 or STT 421) and (ZOL 355 or BE 230)

Fundamentals of zoo and aquarium operations including research, interpretation, design, nutrition, captive breeding, conservation, ethics and management.

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)

Application of geographic information systems, remote sensing, and global positioning systems to integrated planning and management for fish, wildlife, and related resources.

Spring. 3(3-0) Interdepartmental with Zoology. P:M: (BS 110 or LBS 144 or LBS 148H) RB: (CEM 141 or ZOL 355)

Biological and environmental factors determining structure and function of stream ecosystems.

Fall of odd years. 3(3-0) 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.

Fall. 3(3-0) P:M: (ZOL 355 or FOR 404) and completion of Tier I writing requirement. RB: (FW 364) for students in FW major.

Field techniques used in collecting, analyzing, and communicating data on wild animal populations and their habitats.

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.

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.

Spring. 3(2-2) Interdepartmental with Bio-systems Engineering; Zoology; RB: (CSS 210 or BE 230) and (FOR 404 or FW 384 or ZOL 355)

Principles of ecological restoration of disturbed or damaged ecosystems. Design, implementation, and presentation of restoration plans. Field trips required.

Fall. 3(3-0) Interdepartmental with Zoology. P:M: (ZOL 355 or FOR 404) and completion of Tier I writing requirement.
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 CS 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(3-3) Interdepartmental with Resource Development; Agricultural Economics; Forestry. Administered by Department of Community, Agriculture, Recreation and Resource Studies. 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


850 Applied Multivariate Statistical Methods
Fall. 4(3-2) Interdepartmental with Statistics and Probability. RB: (STT 422 or concurrently and MTH 314) SA: FOR 976
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.

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 484 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.

857 Theoretical Ecology
Spring of even years. 3(2-2) Interdepartmental with Zoology; Plant Biology. RB: One course in ecology and calculus. Programming experience helpful.

Theoretical ecology of animal behavior, population dynamics, and multispecies communities. Basic mathematical approaches and use of modeling software to perform mathematical functions and develop models.

858 Gender, Justice and Environmental Change: Methods and Concepts
Spring of odd years. 3(3-0) Interdepartmental with Anthropology; Forestry; Resource Development; Sociology; Geography. 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(3-3) Interdepartmental with Anthropology; Forestry; Resource Development; Sociology; Geography. 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 methodological issues from a feminist perspective in international and 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 Agricultural and Natural Resources, and Natural Science.
Nutritional ecology of wild species. Techniques for analyzing and improving nutritional qualities.

869 Community and Conservation
Fall of even years. Summer of even years. 3 credits. Interdepartmental with Sociology; Resource Development. Administered by Department of Sociology. RB: Social Science methods, social science theory and environmental coursework.
Use of experiential, participatory, field-based mode of inquiry to develop understanding of social and cultural issues associated with conservation. Understanding of different social positions and perspectives.

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)
Theoretical and management of streams, rivers, lakes, reservoirs, and other deepwater habitats from ecosystem and landscape perspectives.
Fisheries and Wildlife—FW

881 Building and Implementing Watershed Management Plans
Fall, Spring, Summer. 3(3-0) Fall: Virtual University. Spring: Virtual University. Summer: Virtual University. Interdepartmental with Resource Development; Forestry. Administered by Department of Community, Agriculture, Recreation and Resource Studies. RB: (RD 324 and ZOL 355 and RD 452) Not open to students with credit in RD 824. Problem definition. Data collection. Public consultation. Program evaluation. Case studies include watershed planning in the Great Lakes region.

882 Watershed Assessments and Tools
Fall, Spring, Summer. 3(3-0) Fall: Virtual University. Spring: Virtual University. Summer: Virtual University. Interdepartmental with Resource Development; Forestry. Administered by Department of Community, Agriculture, Recreation and Resource Studies. RB: (RD 452 and RD 881) Techniques for assessing and predicting physical, chemical, biological, and socioeconomic conditions within a watershed. Water quality monitoring. Bio-assessment protocols. Pollutant loading models.

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.

885 Leadership in Natural Resources and Environmental Management
Fall. 3(3-0) Interdepartmental with Forestry; Park, Recreation and Tourism Resources; Agricultural Economics. Theory and practice of leadership in natural resource and environmental management. Integration across disciplinary and jurisdictional divisions.

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.

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.

FOOD INDUSTRY MANAGEMENT

Department of Agricultural Economics
College of Agriculture and Natural Resources

100 Decision-making in the Agri-Food System
Fall, Spring. 3(3-0) Interdepartmental with Agribusiness Management. Administered by Department of Agricultural Economics. SA: FIM 220 Organization and operation of the agri-food system. Economic analysis of agri-food firms and consumers. Management functions and decision-making of agri-food firms.

210 Professional Seminar in Food Industry Management
Spring. 1(1-0) R: Open only to students in the Food Industry Management major, the Food Industry Management Specialization, or the Retailing major. Industry trends in food industry management. Verbal, written, and visual communication techniques applied to professional situations, including professional development and career planning.

220 Food Product Marketing
Spring. 3(3-0) P:M. (ABM 100 or concurrently) Structure of the food marketing system including food processors, manufacturers, retailers and food service. Impact of consumer behavior and buying patterns. International food product marketing. Strategic planning in food marketing.

222 Agribusiness and Food Industry Sales (W)
Fall, Spring. 3(3-0) Interdepartmental with Agribusiness Management. Administered by Department of Agricultural Economics. P:M: (ABM 100 or ABM 130 or EC 201 or EC 202) and completion of Tier I writing requirement. R: Open only to sophomores or juniors or seniors. SA: FIM 320 Selling processes and activities within agribusiness and food firms. Principles and techniques of sales. Operation of sales organizations.

335 Food Marketing Management
Spring. 3(3-0) P:M. (FIM 220 or MSC 300) and (MSC 303) SA: ML 335, MTA 335, FIM 335 Management decision-making in food industry organizations (processors, retailers). Marketing and sales in response to customer and consumer needs. Distribution and merchandising systems in domestic and international contexts.

351 Retail Management
Fall, Spring, Summer. 3(3-0) Interdepartmental with Marketing and Supply Chain Management. Administered by Department of Marketing and Supply Chain Management. P:M: (MSC 300 or MSC 327) R: Open only to juniors or seniors in the Eli Broad College of Business or the Food Industry Management or Merchandising Management major. SA: ML 351, MTA 351 Domestic and international retailing structure, environment, and development. Managerial strategy. Locational, purchasing, organizational, personnel and promotional techniques. Retail budgeting and control. Social and ethical considerations.

400 Public Policy Issues in the Agri-Food System
Spring. 3(3-0) Interdepartmental with Agribusiness Management. Administered by Department of Agricultural Economics. P:M: (ABM 100) R: Open only to juniors or seniors. SA: FIM 421 Objectives, alternatives and consequences of public policy in the agri-food system. Analysis of economic implications for food and agribusiness firms, farmers, consumers and society.

410 Advanced Professional Seminar in Food Industry Management
Fall. 1(1-0) P:M: (FIM 210) R: Open only to juniors or seniors in the Food Industry Management major, the Food Industry Management Specialization, or the Retailing major. Advanced professional problems and reestablishment of career planning in the agri-food system. Industry trends, career alternatives, and job search strategies. Enhanced verbal, written, and visual communication techniques.