321 Theory of Investments
Fall, Spring. 3(3-0) P:M: (FI 311) R: Open only to juniors or seniors in the Specialization in Actuarial Science and the Department of Economics Business cognate. Not open to students with credit in FI 312.
Theoretical analysis of common stocks, bonds, options and futures. Tradeoff between risk and return, market efficiency, efficient portfolios and CAPM. Cash flow evaluation and option evaluation.

413 Management of Financial Institutions
Fall, Spring, Summer. 3(3-0) P:M: (FI 311) R: Open only to students in the College of Business.
Management, decision-making and policy formulation for depository and non-depository financial institutions emphasizing commercial banking. Savings banks, credit unions and non-bank financial institutions including investment banks.

414 Advanced Business Finance (W)
Fall, Spring, Summer. 3(3-0) P:M: (FI 311 and FI 312) and completion of Tier I writing requirement. R: Open only to seniors in The Eli Broad College of Business.
Advanced financial management of business firms. Theoretical analysis and case applications. Capital budgeting, capital structure, valuation, risk management, mergers, and corporate restructuring.

425 Law and Economics
Fall. 3(3-0) Interdepartmental with Economics. Administered by Department of Economics. P:M: (EC 201 or EC 251H)
Application of economic analysis to the law. Property rights, takings, the Coase Theorem. The economics of regulation, crime and punishments, liability law, and public choice.

435 Securities Law and Regulation
Fall, Spring. 3(3-0) P:M: (FI 311 and GBL 395) R: Open only to juniors or seniors in the College of Business.
Basic coverage of the Securities Acts of 1993 and 1994. Registration requirements, exemptions from the law, theory of a sale, liability, shareholder suffrage, market manipulation, and international securities issues.

451 International Financial Management
Fall, Spring, Summer. 3(3-0) P:M: (FI 311) R: Open only to juniors or seniors in The Eli Broad College of Business. Not open to students in The School of Hospitality Business.
Financial management of multinational firms. Theoretical and applied aspects of international capital budgeting, capital structure, cash management, asset pricing, and risk management. Cross-cultural and ethical considerations.

455 Computer Applications in Financial Modeling
Fall, Spring, Summer. 3(3-0) P:M: (FI 311) and (MSC 317 or STT 422 or STT 442) R: Open only to students in the Finance major.
Development of computer spreadsheet-based models to analyze corporate financial strategies and valuation issues.

473 Debt and Money Markets
Fall. 3(3-0) P:M: (FI 311) R: Open only to students in the Eli Broad College of Business.
Role and nature of international debt and money markets. Corporate and government bond valuation, fixed income derivative instruments and bond portfolio management. Special role of "time" in debt and money markets.

478 Investment Strategies and Speculative Markets
Fall. 3(3-0) P:M: (FI 311 and FI 312) R: Open only to juniors or seniors in The Eli Broad College of Business. Not open to students in The School of Hospitality Business.
Pricing, trading strategies, hedging applications, and markets for forwards, futures, swaps, and options.

490 Independent Study
Fall, Spring, Summer. 1 to 3 credits. R: Open only to seniors. Approval of department.
Supervised independent study of special topics in finance.

491 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 311) R: Open only to juniors or seniors.
Current and emerging issues in finance to supplement and enrich existing courses.

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.

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 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)
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.

341 Writing Nature and the Nature of Writing
Fall. 3(3-0) Interdepartmental with Arts and Letters. Administered by College of 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, Summer. 4(2-4) Summer: KBS. 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.

416 Marine Ecosystem Management
Fall. 3(3-0) P:M: (FW 110 and ZOL 355)
Management of marine ecosystems and populations for ecological and socio-economic objectives; anthropogenic impacts, mitigation, and marine resource conservation strategies.

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) Summer: 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) Summer: KBS. 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
Spring of odd years. 3(3-0) Interdepartmental with Physiology. P:M: (BS 111 or LBS 145 or LBS 149H) R: Not open to freshmen or sophomores.
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 484 or concurrently) R: Open only to seniors in the Environmental Science minor.
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.

FOOD INDUSTRY MANAGEMENT FIM

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: FSM 200
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) P:M: (ABM 100 or concurrently or ABM 130 or concurrently) R: Open only to Food Industry Management majors.
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
Fall. 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: FSM 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, FSM 335
Management decision-making in food industry organizations (processors, wholesalers, retailers). Marketing and sales in response to customer and consumer needs. Distribution and merchandising systems in domestic and international contexts.

337 Labor and Personnel Management in the Agri-Food System
Fall. 3(3-0) Interdepartmental with Agribusiness Management. P:M: (ABM 100 or ABM 130) R: Open only to juniors or seniors. SA: FSM 325
Human resource management principles for farms, agribusinesses and food firms: planning, recruiting, training, scheduling, motivating, supervising and evaluating. Labor regulations, compensation and records.