FINANCE AND INSURANCE

Department of Finance and Insurance
The Eli Broad College of Business and The Eli Broad Graduate School of Management

11. Financial Management
Fall, Spring, Summer. 3(3-0)
- ACC 202 or ACC 230 or ACC 251H or HRI 302. R: Open only to juniors and seniors.
- Financial management of the firm’s assets and financing requirements. Analysis of financial statements, financial markets, risk, valuation, long-term and short-term financing and investment. International and ethical applications.

12. Introduction to Investments
Fall, Spring, Summer. 3(3-0)

13. Principles of Risk Management and Insurance
Fall, Spring. 3(3-0)

14. Management of Financial Institutions
Fall, Spring. 3(3-0)
- P: FI 311. Management, decision-making and policy formulation for depository and non-depository financial institutions. Emphasis on commercial banking, with attention also to S&Ls, credit unions and non-bank financial institutions.

15. Advanced Business Finance (W)
Fall, Spring. 3(3-0)
- P: FI 312, FI 413 or concurrently. R: Open only to seniors in the College of Business. Completion of Tier I writing requirement.
- Advanced financial management of business firms. Theoretical and case applications that integrate capital budgeting, valuation, capital structure, mergers, international business finance, working capital management and ethical considerations.

16. Life and Health Insurance
Spring. 3(3-0)
- P: STT 315, FI 311. Economics of life and health insurance in the United States, with international comparisons. Actuarial models, underwriting, marketing, and taxation. Diversity issues such as gender-based underwriting and the financial impact of AIDS.

17. International Financial Management
Fall, Spring. 3(3-0)
- P: FI 311; ML 310 or EC 340. Financial management of multinational firms. Theoretical and applied aspects of international capital budgeting, capital structure, cash management, and exchange-rate risk. Ethical considerations.

Fall, Spring, Summer. 3(3-0)
- P: FI 311; ML 317 or STT 422 or STT 442. Application of personal and mainframe computers and software to corporate, personal and international financial analysis.

19. Investment Strategies and Speculative Markets
Fall, Spring. 3(3-0)

20. Independent Study
Fall, Spring, Summer. 1 to 3 credits.
- R: Open only to seniors. Supervised independent study of special topics in finance or insurance.

21. Managerial Finance
Fall, Spring. 3(3-0)
- P: ACC 800. R: Open only to students in the Program in Professional Accounting, to MBA students, and to students in programs for which FI 801 is a catalog-listed requirement.

22. Financial Management
Spring. 3(3-0)

23. Risk Management for Commercial and Public Entities
Fall. 3(3-0)
- R: Open only to 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.

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

25. Financial Markets and Strategies
Spring. 3(3-0)
- P: 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.

Fall. 3(3-0)
- P: FI 801. R: Open only to students in Business.
- Capital budgeting, capital structure decisions, cash management, foreign currency markets and exchange rate risk management. Ethical and tax considerations.

27. Advanced Managerial Finance
Fall. 3(3-0)
- P: FI 801. 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.

28. Financial Decision Models
Fall. 3(3-0)
- Interdepartmental with Accounting.
- P: FI 801. R: Open only to students in M.B.A. programs and to students in Program in Professional Accounting. Development and application of computerized financial models in finance and accounting, and in control activities. Use of financial planning software on personal and mainframe computers. Use of models in case analysis.

29. Bank Management
Spring. 3(3-0)
- P: 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.

30. 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.

31. 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.

32. Corporate Finance Theory
Spring. 3(3-0)
- P: FI 890. R: Open only to Ph.D. students in Business.
- Theoretical foundations. Recent empirical research in capital structure, dividend policy, and agency theory.

33. Investment Theory
Spring of even-numbered years. 3(3-0)
- P: FI 890. 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.

34. Finance Workshop
Fall. 3(3-0)
- P: FI 890. R: Open only to Ph.D. students in Finance.
- Critical evaluation of original research papers by faculty and students.

35. 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.

FISHERIES AND WILDLIFE

Department of Fisheries and Wildlife
College of Agriculture and Natural Resources

100. Introduction to Fisheries and Wildlife
Fall. 3(3-0)
- Fisheries and wildlife history, philosophy and management in the context of conservation ethics.
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  
 Spring. 3(3-0) Interdepartmental with Resource Development.  
 Living aquatic resources of the Great Lakes: environmental history, biological resources and their management. Policy issues.

210. Introduction to Gender and Environmental Issues  
 Spring. 3(3-0) Interdepartmental with Resource Development.  

284. Natural History and Conservation in Michigan  
 Fall. 3(3-0)  
 R: Not open to freshmen. Identification, habitat requirements, and distribution of Michigan’s flora and fauna. Interrelationships which influence natural resource use. Field trips required.

285. Wildlife Biometry  
 Fall. 3(2-3)  
 P: MTH 116, ZOL 250. 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 Resource Development. P: RD 201, RD 320. R: Not open to freshmen.  
 Waste management definitions, techniques, technologies, and strategies. Integrative approach to waste management as an environmental, social, and political subject.

328. Vertebrate Pest Control  
 Spring. 3(0-0)  
 P: BS 110. Role of vertebrate animals as agents damaging to human interests. Damage evaluation. Damage control strategies and techniques.

354. Ecosystem Processes  
 Spring. 3(3-0)  
 P: CEM 141, FW 324. Concepts of ecosystem structure and function developed from basic scientific laws and relationships.

410. Upland Ecosystem Management  
 Spring. 4(3-3)  
 P: FOR 404 or ZOL 250. 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: FW 364 or ZOL 250. Ecosystem components and processes applied to wetland management. Mitigation of human impact.

420. Stream and Aquatic Insect Ecology  
 Fall. 4(3-3) Interdepartmental with Entomology and Zoology.  
 P: BS 110, CEM 141. Biological and environmental factors determining structure and function of stream and aquatic insect communities. Aquatic insect systematics.

424. Population Analysis and Management  
 Fall. 4(0-3)  
 P: FW 364. 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 credits. Given only at W.K. Kellogg Biological Station. Interdepartmental with Zoology, Botany and Plant Pathology. Administered by Zoology. P: CEM 141 or CEM 151; ZOL 250. R: Not open to students with credit in FW 472. Not open to seniors with credit in FW 472. Physical, chemical, and biological aspects of lakes and streams. Introduction to freshwater biology, population and community ecology.

444. Conservation Biology  
 Fall. 3(3-0) Interdepartmental with Zoology.  
 P: BS 110. Ecological theories and methodologies to manage species, communities and genetic diversity on a local and global scale.

465. Ecological Risk Assessment  
 Spring of odd-numbered years. 3(3-0) Interdepartmental with Resource Development. P: CEM 143, CEM 161, ZOL 265; FW 324 or STT 200 or STT 201.  
 Ecotoxicology. Monitoring and modeling the fate of toxins in ecosystems. Dose response relationships. State and federal regulations related to environmental contaminants.

471. Ichthyology  
 Fall. 3(3-3) Interdepartmental with Zoology. P: ZOL 228. Fish morphology, physiology, development, behavior, evolution and ecology. World fishes with emphasis on freshwater fishes.

477. Pest Management I: Pesticides in Management Systems  
 Fall. 3(3-0) Interdepartmental with Entomology, Horticulture, and Crop and Soil Sciences. Administered by Entomology. P: CEM 143, BOT 405. R: Open to students with credit in ZOL 431. R: Not open to students with credit in ZOL 451. Ecology of lakes with emphasis on interacting physical, chemical, and biological factors affecting their structure and function.

479. Fishery and Limnological Techniques  
 Fall. 3(1-6) Interdepartmental with Zoology. P: FW 472 or concurrently. Field and laboratory investigations of physical, chemical, and biological parameters of lakes and streams.

481. Aquaculture  
 Spring. 3(3-0)  
 P: ANS 318 or FW 364 or ZOL 250. Propagation and rearing of aquatic organisms used for food, bait and recreational fisheries management. Culture principles and techniques for important aquatic species. Commercial potential.

487. Pest Management I: Pesticides in Management Systems  
 Fall. 3(3-0) Interdepartmental with Entomology, Horticulture, and Crop and Soil Sciences. Administered by Entomology. P: CEM 143; BOT 405 or CSS 402, ENT 404 or ENT 470 or ENT 472 or CSS 402. Chemistry, efficient use, environmental fate, and legal aspects of pesticides.

488. Pest Management II: Biological Components of Management Systems  
 Spring. 3(3-3) Interdepartmental with Entomology, Horticulture, Crop and Soil Sciences, and Forestry. Administered by Entomology. P: ENT 404 or ENT 470 or BOT 455 or CSS 402 or FW 528. Principles of host plant resistance and biological control and their relationship to the design of agroecosystems. Classification of insect biological control agents.

497. Fisheries Management  
 Spring. 3(2-2)  
 P: FW 424. Manipulation of aquatic populations and their habitats to achieve societal goals for fishery resources. Management of human impact and biotic diversity.
484. Environmental Education
Spring. 3(3-0)
P: AEC 101 or FRH 320 or RD 261 or TE 150. R: Not open to freshmen and sophomores.
Methods, materials and theory for teaching environmental education in formal and informal educational settings.

490. Independent Studies of Fisheries and Wildlife Problems
Fall, Spring, Summer, 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course.
P: BS 110. R: Not open to freshmen and sophomores. Approval of department and application required.
Special topics in fisheries and wildlife.

510. Human Dimensions Research in Fisheries and Wildlife
Fall of even-numbered 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.

514. Environmental Chemodynamics
Spring of even-numbered years. 4(4-0)
Chemical and environmental factors controlling the distribution of organic and inorganic chemicals in air, water and soil. Monitoring.

517. Ecology and Evolution in Aquatic Systems
Summer. 4 credits. Given only at W.K. Kellogg Biological Station. Interdepartmental with Zoology, and Botany and Plant Pathology, Administered by Zoology.
P: ZOL 250 or ZOL 431.
Experimental field studies of population and community ecology of freshwater lakes and streams. Emphasis on interactions among species and between biotic and abiotic factors.

524. Analysis of Wildlife Populations
Spring of even-numbered years. 3(3-0)
Statistical and ecological concepts, methods and computer techniques needed to analyze and interpret demographic data from fish and wildlife studies.

526. Ecology and Management of Waterfowl
Fall of even-numbered years. 3(2-3)
P: FW 412, FW 424.
Physiological, behavioral, and population characteristics of waterfowl. Current issues and management.

528. Conservation and Genetics
Fall of odd-numbered years. 3(3-0)
P: ZOL 341 or CSS 359 or ANS 314.
Population genetic principles applied to ecology and management of fish and wildlife.

821. Aquatic Toxicology
Spring of odd-numbered years. 4(3-2)
R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, Engineering, Human Medicine, Natural Science, Osteopathic Medicine, and Veterinary Medicine.
Techniques for assessing acute and chronic effects of toxicants on biochemical, physiological, organismal, population, community and ecosystem levels of organization.

860. Wildlife Nutrition
Fall of odd-numbered 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.

872. Fishery Habitat Analysis and Management
Spring of odd-numbered years. 3(3-0)
R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, Engineering, and Natural Science.
Fish habitat use, Analysis and manipulation of habitats to enhance fish production in freshwater ecosystems.

875. Advanced Aquaculture
Fall of odd-numbered years. 3(3-0)
P: FW 475. R: Open only to seniors and graduate students.
Adaptations and responses of aquatic organisms to environmental change in aquaculture systems. Research methods and applications for aquaculture planning and management decisions.

876. Applied Limnology
Spring of even-numbered years. 3(3-0)
R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, Engineering, and Natural Science.
Applied aquatic ecology. Quantitative relationships between physical, chemical, and biological parameters in polluted and unpolluted lakes.

877. Fish Population Dynamics
Fall of even-numbered years. 3(3-0)
R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, and 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.

878. Dynamics of Trace Contaminants in Aquatic Systems
Spring of even-numbered years. 3(3-0)
R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, Engineering, Human Medicine, Natural Science, Osteopathic Medicine, and Veterinary Medicine.
Chemical and environmental parameters controlling movement and disposition of trace contaminants in aquatic environments. Fate models.

879. Advanced Limnology
Spring of odd-numbered years. 3(3-0)
R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, Engineering, and Natural Science.
Physical, chemical, and biological processes affecting productivity of aquatic ecosystems.

891. Advanced Topics
Fall, Spring, Summer. 2 to 4 credits. A student may earn at least 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 Zoology.
P: 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. 3(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. Community and Ecosystem Ecology
Spring. 4(4-0) Interdepartmental with Zoology, and Botany and Plant Pathology, Administered by Zoology.
R: Open only to students in Interdepartmental Graduate Specializations in Ecology and Evolutionary Biology.
Structure and function of natural communities and ecosystems. Community analysis along environmental gradients. Succession, food web analysis, energy flow, nutrient cycling, and effects of human activities on ecosystems.

898. Master's Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 16 credits in all enrollments for this course.
R: Open only to graduate students in Fisheries and Wildlife.
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 Fisheries and Wildlife.

943. Techniques of Analyzing Unbalanced Research Data
Spring. 4(4-0) Interdepartmental with Animal Science, Forestry, Crop and Soil Sciences, and Horticulture, Administered by Animal Science.
P: STT 464. R: Open only to graduate students in the College of Agriculture and Natural Resources.
Linear model techniques to analyze research data characterized by missing and unequal number of observations in classes. Simultaneous consideration of multiple factors. Estimable comparisons. Hypothesis testing. Computational strategies. Variance and covariance components. Breeding values.

976. Multivariate Methods in Agriculture and Natural Resources
Spring. 4(4-0) Interdepartmental with Forestry and Animal Science, Administered by Forestry.
P: STT 422, 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.

FOOD ENGINEERING FE
Department of Agricultural Engineering
College of Agriculture and Natural Resources
College of Engineering

329. Fundamentals of Food Engineering
Spring. 3(3-0) Interdepartmental with Food Science.
P: PSCI 111, MTH 124, PHY 231. R: Not open to freshmen and sophomores.
Unit operations in food industry: fluid mechanics, heat transfer, rate processes, refrigeration, freezing, and dehydration. Thermal process calculations.