490. Independent Study
Fall, Spring, Summer. 1 to 3 credits.
R: Open only to seniors in Financial Administration.
Approval of department.
Supervised independent study of special topics in finance or insurance.
QA: FI 485

801. Managerial Finance
Fall, Spring. 3(3-0)
P: ACC 360. 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.
Short, intermediate- and long-term problems. Financial planning and control. Applications in domestic and international settings.
QP: ACC 389 QA: FI 889

821. Financial Management
Spring. 3(3-0)
P: ACC 911. R: Open only to MBA students in the Advanced Management Program.
QA: FI 889

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.
QA: FI 880

851. 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.
QP: FI 888 QA: FI 874

852. 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.
Theory concerning domestic and international financial markets and instruments. Effects of risk and maturity on prices. Arrangement of business and personal risk and returns with options and futures.
QP: FI 871 QA: FI 870

860. International Financial Management
Fall. 3(3-0)
P: FI 801. R: Open only to graduate students in Business.
Capital budgeting, capital structure decisions, cash management, market currency markets and exchange rate risk management. Ethical and tax considerations.
QP: FI 888

862. Advanced Managerial Finance
Fall, Spring. 3(3-0)
P: 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.
QP: FI 888 QA: FI 872, FI 873

865. 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.
QP: FI 888 QA: FI 817

878. 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.
QP: FI 888 QA: FI 878

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.
QA: FI 890

980. Theory of Finance
Fall. 3(3-0)
P: 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.
QA: FI 990

981. Corporate Finance Theory
Spring of even-numbered years. 3(3-0)
P: FI 980. R: Open only to Ph.D. students in Business.
Theoretical foundations and recent empirical research in capital structure, dividend policy, and agency theory.
QP: FI 990 QA: FI 991

982. Investment Theory
Spring of odd-numbered years. 3(3-0)
P: 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.
QP: FI 990 QA: FI 992

993. Finance Workshop
Fall. 3(3-0)
P: FI 980. R: Open only to Ph.D. students in Finance.
Critical evaluation of original research papers by faculty and students.
QP: FI 990

999. Doctoral Dissertation Research
Fall, 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.
QA: FI 999

FISHERIES AND WILDLIFE

Department of Fisheries and Wildlife
College of Agriculture and Natural Resources

100. Introduction to Fisheries and Wildlife
Fall. (1-0)
Fisheries and wildlife history, philosophy and management in the context of conservation ethics.
QA: FW 100

203. Resource Ecology
Fall. 3(3-0)
Basic concepts of ecology which provide a foundation for examining environmental problems and their solutions.
QP: BOT 201, NS 142 QA: P W 203

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.
QA: FW 205

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.

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.
QA: FW 402

324. Wildlife Biometry
Fall. 3(2-13)
P: MTH 116, ZOL 260.
Quantitative techniques to analyze and interpret fisheries and wildlife data.
QP: MTH 111, ZOL 330 QA: FW 340

329. Vertebrate Pest Control
Spring. 3(3-0)
P: BS 110.
The role of vertebrate animals as agents damaging to human interests. Damage evaluation. Damage control strategies and techniques.
QP: BS 212 QA: FW 330

364. Ecosystem Processes
Spring. 3(3-2)
P: CEM 141, FW 324.
Concepts of ecosystem structure and function developed from basic scientific laws and relationships.
QP: FW 340, ZOL 385, CEM 141 QA: FW 302

410. Upland Ecosystem Management
Spring. 3(2-0)
P: FOR 404 or ZOL 250.
Analysis and management of upland ecosystems to meet wildlife management and biodiversity objectives. Mitigation of human impact.
QP: BOT 450, FOR 304 QA: FW 410

412. Wetland Ecosystem Management
Fall. 3(3-0)
P: FW 364 or ZOL 350.
Ecosystem components and processes applied to wetland management. Mitigation of human impact.
QP: FW 392, FW 340 QA: FW 412

420. Stream and Aquatic Insect Ecology
Fall, 3(3-2) Interdepartmental with Entomology and Zoology.
P: RS 110, CEM 141.
Biological and environmental factors determining structure and function of stream and aquatic insect communities. Aquatic insect systematics.
QP: BS 212 QA: FW 478, ENT 420

424. Population Analysis and Management
Fall. 3(3-3)
P: FW 364.
Statistical, ecological and management concepts and methods needed to analyze and interpret demographic data and manage fish and wildlife populations.
QP: FW 340, ZOL 389 QA: FW 424

434. Human Dimensions of Fisheries and Wildlife Management
Spring. 3(3-0)
P: FW 324. R: Not open to freshmen and sophomores.
Sociological implications of public policy and planning processes in fisheries and wildlife management resources.
QP: FW 410, FW 412, FW 413 QA: FW 434

444. Conservation Biology
Fall. 3(3-0) Interdepartmental with Zoology.
P: RS 110.
Ecological theories and methodologies to manage species, communities and genetic diversity on a local and global scale.
QP: BS 212

A-63
471. Ichthyology  
Fall. 3(2-3) Interdepartmental with Zoology.  
P: ZOL 228.  
Fish morphology, physiology. Development, behavior, evolution and ecology. World fishes with emphasis on freshwater fishes.  
QF: FW 301, ZOL 307, ZOL 428 QA: FW 471, ZOL 471

472. Limnology  
Fall. 3(3-0) Interdepartmental with Zoology.  
P: CEM 141, ZOL 250. R: Not open to students with credit in ZOL 431.  
Ecology of lakes with emphasis on interacting physical, chemical, and biological factors affecting their structure and function.  
QF: CEM 141, ZOL 339 QA: FW 476

474. 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.  
QF: FW 476 QA: FW 477, FW 473

475. Aquaculture  
Spring. 3(0-0)  
P: ANS 313 or FW 364 or ZOL 250.  
Propagating and raising of aquatic organisms used for food, bait and recreational fisheries management.  
Culture principles and techniques for important aquatic species. Commercial potential.  
QF: ANS 333A, ANS 333B or FW 392 or ZOL 389 QA: FW 475

476. 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.  
QF: FW 412, FW 424 QA: FW 829

478. Conservation and Genetics  
Fall of odd-numbered years. 3(3-0)  
P: ZOL 341 or ZOL 314.  
Population genetic principles applied to ecology and management of fish and wildlife.  
QF: ZOL 441 or CSS 300 or ZOL 314 QA: FW 828

481. Aquatic Toxology  
Spring of even-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, organizational, population, community and ecosystem levels of organization.  
QA: FW 831

560. 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.  
QA: FW 860

572. Fishery Habitat Analysis and Management  
Spring of even-numbered years. 3(0-0)  
R: Open only to seniors and graduate students.  
Adaptations and responses of aquatic organisms to environmental change in aquatic systems. Research methods and applications for aquaculture planning and management decisions.  
QF: FW 475

576. Advanced Aquaculture  
Fall of odd-numbered years. 3(3-0)  
P: FW 475. R: Open only to seniors and graduate students.  
Methods and adaptations of aquatic organisms to environmental change in aquatic systems. Research methods and applications for aquaculture planning and management decisions.  
QF: FW 475 QA: FW 484

578. Fish Population Dynamics  
Fall of even-numbered years. 3(3-0)  
QF: FW 477 QA: FW 477

579. Advanced 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.  
Physical, chemical, and biological processes affecting productivity of aquatic ecosystems.  
QF: FW 477 QA: FW 874, FW 875

891. Advanced Topics  
Fall, Spring. 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.  
QA: FW 802

893. Seminar in Fisheries and Wildlife  
Fall, Spring. 1 to 6 credits.  
A student may earn a maximum of 9 credits in all enrollments for this course.  
R: Open only to graduate students in Fisheries and Wildlife.  
Master's degree Plan B research paper.  
R: Not open to students with credit in ZOL 431 QA: FW 801

899. Doctoral Dissertation Research  
Fall, Spring. 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.  
QA: FW 899

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

329. Fundamentals of Food Engineering  
Spring. 3(4-0) Interdepartmental with Food Science.  
P: FSC 211, 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.  
QF: PHY 287, FSC 211, MTH 109 or MTH 111 QA: ATM 326, FSC 430

481. Food Process Engineering I  
Fall. 3(0-0)  
P: CHE 311 or CE 321 or ME 332. R: Open only to majors in College of Engineering.  
Rheological behavior of fluid and semi-solid foods. Applications in mixing, extrusion, and dehydration.  
QA: CHE 343 or CE 321 or ME 332 QA: FE 475

483. Food Dehydration  
Spring. 3(0-0)  
P: CHE 321 or ME 410. R: Open only to majors in College of Engineering.  
Dehydration of food and agricultural products. Bin, belt, rotary, spray, microwave, and solar drying of food products.  
QA: AE 392, CHE 343 QA: FE 433