Descriptions — Finance and Insurance of Courses

493. Advanced Business Finance
   (AFA 493.) Spring, 4(4-0) F I 391, Senior.
   Advanced study of the financial management of business firms. Special emphasis is placed on arranging major financing from both applied and theoretical points of view. Areas covered include capital budgeting, valuation, financial structure, mergers, and working capital management as well as other financial topics. Cases are used.

494. Strategies for Speculative Markets
   Winter, 4(4-0) F I 391.
   Use of stock options, futures and other financial instruments in domestic and foreign markets. The general theory of hedging risk.

495. Special Problems
   Fall, Winter, Spring, Summer. 3 to 4 credits. Senior F I major, approval of department.
   Independent study of special topics in finance or insurance.

496. Computer Financial Models
   Spring, 4(4-0) F I 391, MFA 317 or STT 422 or STT 442.
   Solution of business financial problems through the use of personal computers and selected software programs.

817. Quantitative Applications in Accounting and Finance
   (AFA 817.) Winter, 4(4-0) MCT 833.
   Interdepartmental with the Department of Accounting.
   Application of quantitative techniques to accounting, finance, and control activities, especially involving the data requirements of managerial decision models.

818. Research Techniques in Accounting and Finance
   (AFA 818.) Spring, 4(4-0) MTH 113, STT 423.
   Interdepartmental with and administered by the Department of Accounting.
   Properties of time series in accounting and finance with emphasis on ARIMA model and transfer-function model development. Applications and potential research areas.

850. Risk Management and Insurance Concepts
   (AFA 850.) Winter, Summer, 4(4-0)
   Analysis of business exposures and risk management techniques. Risk meeting alternatives and their economic, legal, and social implications. The role of insurance and employees benefits in risk management.

855. Market Cost-Revenue Analysis
   (AFA 855.) Winter, 4(4-0) One course in accounting and one in marketing, Interdepartmental with and administered by the Department of Marketing and Transportation Administration.
   Analytical tools for use in planning and controlling marketing activities. Emphasis on the determination of factors causing marketing cost differences and the assignment of costs to those factors. Application of tools to determination of expenditure-revenue patterns and market potential.

870. Financial Markets
   Fall, 4(4-0) F I 888.
   Financial markets, rates, and flows. Major theoretical explanation and empirical evidence concerning financial market behavior.

871. Portfolio Theory and Capital Markets
   (AFA 871.) Fall, Spring, 4(4-0) ACC 839; F I 888.
   Theoretical and empirical development in portfolio analysis and capital markets. Included topics are implementation of the Markowitz and Sharpe portfolio models, development and implications of the capital asset pricing model, and empirical studies of capital markets.

872. Management and Financing of Corporate Assets
   (AFA 872.) Fall, Summer, 4(4-0) F I 871 or concurrently.
   Principles of decision analysis in management of current assets, estimation of requirements for short-term funds, and valuation of capital budgeting and merger proposals. Analysis of actual business cases is supplemented by selected readings.

873. Long Term Financial Policies
   (AFA 873.) Winter, Summer, 4(4-0) F I 871 or F I 872.
   Planning capital structure and the cost of capital. Examines fundamental considerations of raising capital, debt management, dividend policy and problems in public issues. Analysis of actual business cases is supplemented by selected readings.

874. Investment Strategy
   (AFA 874.) Spring, 4(4-0) F I 871 or concurrently, F I 872 or F I 873.
   Analysis of various theories and techniques available to achieve superior selection and management of securities. Review and evaluation of significant literature in security analysis and investment.

878. Bank Management
   (AFA 878.) Spring, 4(4-0) F I 888.
   Provides a comprehensive working knowledge of commercial bank management. Topics include capital adequacy, liquidity, public policy and bank failures, regulation, consumer protection, and other internal and external banking industry issues.

885. Financial Concepts and Analysis
   (AFA 885.) Fall, Winter, 4(4-0) ACC 839.
   Principles of managerial finance. Working capital management, capital budgeting and methods of financing aimed at maintaining liquidity and profitability are considered. Emphasis is on decision making.

889. Financial Decision Making
   (AFA 889.) Fall, Winter, Spring, Summer, 4(4-0) F I 886, ACC 840 or concurrently, MCT 833.
   Financial planning and control at corporate officer level. Investment decisions, growth and expansion strategies, dividend policy. Interaction of finance with other corporate functions, and of the firm with the financial community.

890. Special Problems
   Fall, Winter, Spring, Summer. 1 to 4 credits. Approval of department.
   Independent study of special topics in finance or insurance.

990. Seminar in Financial Management
   Theory
   Fall, 4(4-0) Doctoral candidates with approval of department.
   The theoretical finance of the firm. Theoretical models dealing with capital structure, cost of capital, and dividend policy.

991. Seminar in Capital Markets
   (AFA 991.) Winter, 5(5-0) F I 990.

992. Seminar in Selected Finance Topics
   Spring, 4(4-0) F I 991.
   Study and research in finance topics selected from areas of interest to the instructor and doctoral candidates.

999. Doctoral Dissertation Research
   Fall, Winter, Spring, Summer. 1 to 5 credits. May reenroll for a maximum of 36 credits. Approval of department.

FISHERIES AND WILDLIFE

College of Agriculture and Natural Resources

100. Introduction to Fisheries and Wildlife
   Fall. 1(1-0) Freshmen Fisheries and Wildlife Majors.
   Fisheries and wildlife as a profession. Academic and nonacademic needs to meet professional objectives, using current management problems as a focus for discussion.

203. Resource Ecology
   (IDC 200.) Fall, Winter, Spring, Summer. 3(3-0) Interdepartmental with the departments of Forestry, Geography, Resource Development, and Zoology.
   Basic concepts of ecology which are the unifying basis for resource management, conservation policy and the analysis of environmental quality. Extensive use of guest lecturers.

301. Fish and Wildlife of North America
   Winter. 5(3-0) B S 212 or approval of department.
   Comparative study of fish and wildlife groups in North America, their significant life history stages, morphology, migrations, habitats and populations. Common species are identified in the laboratory.

302. Ecosystem Processes
   Spring, 3(3-0) CHEM 141, PHY 238, B S 212, CSS 210, GLG 201, MTH 109 or MTH 111.
   Concepts of ecosystem structure and function developed from basic scientific laws and relationships.

305. Principles of Fisheries and Wildlife Management
   Winter. 3(3-0) IDC 200 or approval of department. Not open to majors in fisheries-limnology or wildlife-ecology options.
   Ecological concepts in management. Effects of regulations, refuge stocking, species introduction, habitat manipulation, artificial feeding, genetic improvement, land use and control of predators, diseases and competitors on the productivity of fish and game.
328. Vertebrate Pest Control
Winter. 3(3-0) B S 212 or approval of department.
Role of vertebrate animals as agents damaging to human interests; the concepts of damage control; damage control techniques, optional field trip.

340. Wildlife Biometry
Winter. 4(3-2) MTH 111, six credits in fisheries and wildlife.
Survey of statistical formulas, methods and applications of statistics to problems in fisheries and wildlife.

374. Biological Oceanography
Winter. 3(3-0) B S 212 or approval of department.
Biogeography and physiography of Michigan's flora and fauna which influence natural resource use. Includes techniques of teaching about the environment. Field trips required.

402. Environmental Conservation Education
Fall. 4(3-2) Education majors or approval of department.
Nature, distribution, identification, and interrelationships of Michigan's flora and fauna which influence natural resource use. Includes techniques of teaching about the environment. Field trips required.

404. Fisheries and Wildlife Problems
Fall, Winter, Spring. 3 to 5 credits. May reenroll for a maximum of 12 credits. 3(3-0); 4(3-2) credits of fisheries and wildlife; approval of department.
To give undergraduate majors an opportunity to study special topics in fisheries and wildlife.

410. Upland Wildlife Management
Fall. 3(3-0) F W 302 or FOR 304, FOR 307, F W 473.
Upland wildlife management based on upland ecological processes. Assessment and management of habitat. Mitigation of human impact.

412. Wetland Ecosystem Management
Fall. 3(3-0) F W 302, F W 340.
Ecosystem components and processes applied to wetland management. Mitigation of human impact.

413. Upland and Wetland Ecosystem Laboratory
Fall. 2(0-6) F W 410 or 6 credits or 6(3-0) or 4(3-2) concurrently.
Wildlife habitat analysis and management in upland and wetland ecosystems. Field trips required.

420. Biology of Animal Parasites
Summer. 6 credits. B S 212 or approval of department. Given at W. K. Kellogg Biological Station. Interdepartmental with the departments of Microbiology and Public Health, and Zoology. Administered by the Department of Microbiology and Public Health.
Parasites of animals by protozoa, helminths and arthropods with emphasis on the interrelationships of host-parasite associations with the natural environments. Approved through Spring 1986.

424. Wildlife Population Analyses
Spring. 4(3-2) BOT 450 or ZOL 389, or concurrently.
Population measurement; reproductive and survival rates, sex and age determination; handling and marking methods. Field trips.

434. Wildlife Resource Policy and Management
Winter. 4(3-2) F W 410, F W 412, F W 424.
The impact of public policy on wildlife management. Objectives of and approaches to wildlife management. Planning, implementing, and evaluating wildlife management programs.

450. Natural Resource Administration
Winter. 4(4-0) Seniors; not open to forestry majors.
Interdepartmental with Agriculture and Natural Resources and the departments of Forestry, Park and Recreation Resources, and Resource Development. Administered by the Department of Forestry.

455. Natural Resource Economics
Fall. 4(4-0) Approval of department.
Interdepartmental with Agriculture and Natural Resources and the departments of Forestry, Park and Recreation Resources, and Resource Development. Administered by the Department of Forestry.
Basic economic and political principles and techniques that govern the production and consumption of forest land products, including basic forest valuation procedures.

471. Ichthyology
Spring. 3(3-3) F W 301 or ZOL 307 or ZOL 428. Interdepartmental with the Department of Zoology.
Classification and natural history of fishes. Emphasis on food, game, and forage fishes.

473. Fishery Biology and Management
Fall. 5(3-4) F W 473.
Biological principles and characteristics of fishes with special reference to distribution and natural history, and application of this knowledge to problems of obtaining maximum return from fishery resources.

475. Fish Culture
Spring. 3(3-0) F W 473.
Artificial propagation of freshwater fish including hatchery management, nutritional and environmental requirements, disease and parasite control and intensive fishery management. Utilization of hatchery stock in fishery management.

476. Limnology
Winter. 3(3-0) CEM 141B, CEM 161; BOT 450 or ZOL 389. Students may not receive credit in both F W 316 and F W 476. Interdepartmental with the Department of Zoology.
Ecology of lakes and streams with special reference to physical, chemical and biological factors affecting their productivity.

477. Limnological Methods
Winter. 3(3-0) F W 476 concurrently.
ENT 301, ENT 302 recommended. Interdepartmental with the Department of Zoology.
Methods and instruments of limnological field investigation on lakes and streams.

478. Stream Ecology
Fall. 3(3-0) ENT 420, ZOL 389 or BOT 450 or F W 473 or approval of department. Students may not receive credit in both F W 478 and ENT 421. Interdepartmental with the departments of Entomology and Zoology. Biological, chemical, physical, and geological processes which determine the structure and function of stream ecosystems.

484. Outdoor Environmental Education
Fall. 4(3-2) Juniors or approval of department.
Using the outdoors as a teaching laboratory for ecological studies of plant and animal communities. Designed primarily for secondary teachers.

485. Environmental Conservation Program Design
Winter. 2(0-6) F W 476 concurrently; may not receive credit in both F W 478 and ENT 421. Interdepartmental with the departments of Entomology and Zoology.
Materials and methods for integrating environmental conservation into educational programs in schools, nature centers, youth groups and communities.

501. Seminar in Fisheries and Wildlife
Fall. 4(1-1) or 6(1-1) May reenroll for a maximum of 9 credits. Approval of department.
Graduate problems and current developments of importance.

502. Advanced Topics
Fall, Winter, Spring. 1 to 6 credits. May reenroll for a maximum of 15 credits. Approval of department.
Study of selected advanced topics in detail and depth.

510. Human Dimensions of Fish and Wildlife Management
Fall of even-numbered years. 3(3-0) Seniors or approval of department.
Methods of surveying, educating, and involving the public to achieve fish and wildlife management goals. Human dimensions research. Case studies of current management issues.

530. Environmental Requirements of Fish
Winter of odd-numbered years. 3(3-0) Approval of department.
Adaptations and responses of fish to environmental changes; research methods for evaluating environmental limitations and effects of pollutants on fish growth, reproduction and survival. Applications for developing water quality criteria.

531. Aquatic Toxicology
Spring of odd-numbered years. 3(3-0) F W 830 or approval of department.
Acute and chronic toxicity of compounds and elements on aquatic organisms. Monitoring and predicting structural and functional changes: biochemical, histological, physiological, organismal, behavioral, populational, community, ecosystem.

560. Wildlife Nutrition
Winter of odd-numbered years. 4(3-2) Approval of department.
Application of nutritional concepts to wildlife management. Design of nutritional investigations including methods of sampling and analysis. Improvement of the nutritional status of wildlife habitat.
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Descriptions — Fisheries & Wildlife of Courses

871. Ecology of Fishes
   Summer of even-numbered years. 3 credits. Approval of department. Given at the W. K. Kellogg Biological Station. Interdepartmental with and administered by the Department of Zoology.

872. Fish Communities and Aquatic Ecosystems
   Winter of even-numbered years. 3(3-0) Approval of department.
   Processes by which fish influence the structure and function of aquatic ecosystems.

873. Ecology and Management of Stream Fish
   Winter of odd-numbered years. 3(4-0) F W 376, ZOL 389 or BOT 450, or F W 476 or concurrently.
   Flowing water habitat as it affects fish, with influences of climate, vegetation, land use, water withdrawal, damping, channel alteration and fishery management.

874. Advanced Biological Limnology
   Fall of odd-numbered years. 3(4-0) F W 477, or approval of department.
   Historical and current contributions to concepts of community structure, energy flow and materials cycling in aquatic eco-systems.

875. Chemical Limnology
   Winter. 4(3-3) F W 478, F W 477 or approval of department.
   Application of analytical chemistry concepts and technologies to fundamental chemical mechanisms in natural and polluted water systems. Special consideration given to selected heterogeneous equilibria.

876. Applied Limnology
   Spring. 3(3-0) F W 874 or F W 875 or approval of department.
   Aquatic ecology: qualitative relationship between physical, chemical and biological parameters in polluted and unpolluted lakes and streams.

877. Fish Population Dynamics
   Winter of odd-numbered years. 3(3-0) Approval of department.
   Quantitative analysis of fish populations; rates of change and their underlying causes.

878. Dynamics of Aquatic Contaminants
   Spring of even-numbered years. 4(2-4) F W 476, F W 477 or approval of department.
   Movement of contaminants through aquatic ecosystems. Chemical and physical processes controlling decomposition and disposition of contaminants. Relationship of chemical form to bioavailability and toxicity. Statistical and deterministic predictive simulation models.

897. Ecosystem Ecology
   Fall. 3(4-0) ZOL 388 or BOT 450. Interdepartmental with and administered by the Department of Zoology.
   Concepts of ecosystem structure, energy flow, and nutrient cycling in representative terrestrial and aquatic ecosystems.

899. Master's Thesis Research
   Fall, Winter, Spring, Summer. Variable credit. Approval of department.

940. Quantitative Wildlife Ecology
   Fall of odd-numbered years. 3(3-0) Approval of department.
   Fundamentals of population demographics. Rates of increase, dynamic and static life tables, logistic theory, the Leslie matrix model, age specific and time specific parameters. Current hypotheses on mechanisms promoting population stability.

999. Doctoral Dissertation Research
   Fall, Winter, Spring, Summer. Variable credit. Approval of department.

FOOD SCIENCE AND HUMAN NUTRITION

College of Agriculture and Natural Resources
College of Human Ecology

Food Science

101. Food and Society (N)
   Fall, Winter, Spring. 3(3-0) Interdepartmental with Human Nutrition and Foods. Analysis of the scientific, social and environmental aspects of food in determining the quality of human life. Introduction into the principles of food preservation and safety.

205. Food Laws and Regulations
   Spring. 3(3-0) Interdepartmental with Human Nutrition and Foods.
   Food laws and regulations that govern food processing and food service systems; procedures involved in adopting and enforcing food laws and regulations.

211. Introduction to Food Science
   Winter, Spring. 3(3-0) CEM 141B.
   Modern food processing, word food problems, and the basic characteristics of processed foods.

256. Meats, Poultry and Fishery Products I
   (242.) Fall. 3(3-2) Interdepartmental with the Department of Animal Science.
   Principles of evaluation and nutritive value. Identification of grades and cuts of beef, pork, lamb and poultry products.

300. Dairy Products
   Spring. 3(2-2) CEM 143 or approval of department.
   Chemical and physical properties of milk and milk products. Survey of dairy products and the technologies involved in their manufacture.

310. Food Safety and Microbiology
   Fall. 4(3-3) CEM 145 or concurrently or approval of department.
   Chemical changes in foods that affect the texture, color, flavor, odor, stability, and nutritive quality during processing and storage.

400. Milk Processing Technology
   Fall. 4(3-3) CEM 241 or approval of department.
   The fluid milk industry. Composition, quality, sanitation, nutritive value, processing, packaging and distribution of milk and milk products.

401. Industrial Food Fermentations
   Fall. 3(3-0) FSC 440 and organic chemistry or approval of department.
   Physical, microbiological and chemical procedures in utilizing microbial cultures in controlled fermentations of foods and food constituents.

402. Chemistry and Technology of Lipids
   Winter. 3(3-0) One term organic chemistry.
   Chemical and physical properties of edible fats and oils. Refining and processing of lipids into margarine, butter, shortening and salad oils. Chemical methods for analysis of lipids.