

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. Bioassessment 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.

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: 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.

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: FSM 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.

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) 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.

- 415 Human Resource Management: Changes and Challenges**
Spring. 3(3-0) P:M: (ABM 100 or EC 201 or EC 202 or EEP 201) R: Open only to juniors or seniors.

Human resource management strategies used in food industries. Changing demographics and labor force issues. Diversity, labor markets, regulations, employer policies, job analysis and staffing, compensation and benefits, motivation, performance appraisal, food labor unions, and cases.

- 422 Vertical Coordination in the Agri-Food System**

Fall. 3(3-0) Interdepartmental with Agribusiness Management. Administered by Department of Agricultural Economics. P:M: (ABM 100 and EC 201) R: Open only to juniors or seniors. SA: FSM 443

Analysis of vertical coordination in the industrialized agri-food system. Agricultural cooperatives, contracts, marketing orders, and trade associations. Analysis of imperfect competition and methods of conducting business. Interaction with legal systems and government.

- 424 Information and Market Intelligence in the Agri-Food Industry**

Spring. 3(3-0) Interdepartmental with Agribusiness Management. P:M: (FIM 220 or concurrently and EC 201)

Researching agri-food issues, food industry business environments, and agri-food industry trends. Information gathering. Electronic library reference sources. Synthesis of data and information into market intelligence.

- 427 Global Agri-Food Industries and Markets**
Fall. 3(3-0) Interdepartmental with Agribusiness Management. Administered by Department of Agricultural Economics. P:M: (FIM 220 or ABM 225)

Strategic understanding of the international agri-food system. Analysis of global production, marketing, and consumption. Knowledge of changing conditions in international industries and markets. Global trends and opportunities.

- 439 Food Business Analysis and Strategic Planning (W)**

Fall. 3(4-0) Interdepartmental with Marketing and Supply Chain Management. P:M: (FIM 220) and completion of Tier I writing requirement. R: Open only to juniors or seniors SA: ML 439, MTA 439

Principles and techniques of business analysis and strategic planning applied to food firms. Food trend forecasts, market potential, competition and cost analyses, and business and strategic planning.

- 480 International Studies in Food Industry Management**

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Not open to freshmen. Approval of department; application required.

Study and travel experience emphasizing contemporary problems affecting food and agribusiness systems in world, national, and local communities.

- 490 Independent Study in Food Industry Management**

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: (ABM 100) R: Open only to sophomores or juniors or seniors in the Food Industry Management major. Approval of department: Application required. Students are limited to a combined total of 6 credits in ABM 490 and FIM 490. SA: FSM 490

Independent supervised study in topics in food industry management.

- 493 Professional Internship in Food Industry Management**

Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: (ABM 100) R: Open only to juniors or seniors in the Food Industry Management major. 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 experience in the food industry.

- 275 Seafood Systems Management**

Spring. 3(3-0) Interdepartmental with Fisheries and Wildlife; Animal Science. Administered by Department of Fisheries and Wildlife.

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

- 320 Muscle Foods**

Spring. 3(2-3) Interdepartmental with Animal Science. Administered by Department of Animal Science. P:M: (ANS 210 or FSC 211 or HNF 150)

Structure of muscle. Meat technology and merchandising concepts.

- 325 Food Processing: Unit Operations**

Fall, Spring. 4(2-6) P:M: (ANS 210 or FSC 211) and completion of Tier I writing requirement. SA: FSC 229, FSC 339

Principles, technologies, and applications in conversion of raw products into high quality foods. Unit operations: thermal processing, irradiation, freezing, membrane fractionation, enzyme technologies, dehydration and refrigeration. Field trip required.

- 329 Fundamentals of Food Engineering**

Spring. 3(3-0) Interdepartmental with Biosystems Engineering. Administered by Department of Biosystems and Agricultural Engineering. P:M: (FSC 325) and (MTH 126 or LBS 118) and (PHY 231 or LBS 271) RB: (FSC 211) SA: FE 329

Unit operations in food industry: fluid mechanics, heat transfer, rate processes, refrigeration, freezing, and dehydration. Thermal process calculations.

- 342 Food Safety and Hazard Analysis Critical Control Point Program**

Fall. 3(3-0) RB: (FSC 211 or concurrently or HNF 150 or concurrently or HNF 311 or concurrently) or a prior or concurrent basic course in microbiology, chemistry or biological sciences. SA: FSC 442

Sources of microbiological, chemical and physical hazards; minimizing microbial growth and survival; good manufacturing, cleaning and sanitation practices; Hazard Analysis Critical Control Point Programs in food processing and food service.

- 401 Food Chemistry**

Fall. 3(3-0) P:M: (BMB 200 or CEM 352 or BMB 401 or concurrently) R: Not open to freshmen or sophomores.

Organic and biological reactions of food constituents. Chemical changes in foods during processing and storage affecting texture, color, flavor, stability, and nutritive qualities.

- 402 Food Chemistry Laboratory**

Fall. 1(0-3) P:M: (FSC 401 or concurrently) and completion of Tier I writing requirement.

Chemical changes in food constituents which affect stability of food products and properties such as color, flavor and texture.

- 420 Quality Assurance**

Fall. 2(2-0) P:M: (STT 200 or STT 201 or STT 231 or STT 315 or STT 351) and (FSC 211 or concurrently or ANS 210 or concurrently or HRT 204 or concurrently) R: Open only to juniors or seniors or graduate students in the Department of Food Science and Human Nutrition or in the Food Processing and Technology Specialization.

Theory and application of quality assurance programs for food processing industries.

FOOD SCIENCE FSC

Department of Food Science and Human Nutrition College of Agriculture and Natural Resources

- 120 What's for Dinner: Science on Your Plate**
Fall, Spring. 1(2-0) Not open to students with credit in FSC 229.

Relationship between science and food. Current issues and future challenges in food science. Impact of technology, government, consumers and the media.

- 150 Introduction to Human Nutrition**

Fall, Spring, Summer. 3(3-0) Interdepartmental with Human Nutrition and Foods. Administered by Department of Food Science and Human Nutrition.

Nutrition needs in life stages from a human ecological perspective. Domestic and international factors affecting the availability of a safe, nutritious food supply. Relationships of food choices to health and disease.

- 211 Principles of Food Science**

Fall, Spring. 3(3-0)

Scientific principles, historical perspective, and current status of technology related to food composition, safety, toxicology, processing, preservation, and distribution.