**F O O D  S Y S T E M S**
**E C O N O M I C S  A N D  M A N A G E M E N T**

Department of Agricultural Economics
College of Agriculture and Natural Resources

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### 10. Introduction to Food Systems Management
Fall. 3(2-0) Interdepartmental with Animal Science. Administered by Animal Science.

- **ANIS 112**: R: Not open to freshmen.
- **ANIS 212**: Not open to freshmen or sophomores. Development of livestock and poultry interests and through market channels. Market structures, futures, options. Current issues. Field trip required.

### 20. Agribusiness and Food Sales (W)
Spring. 3(3-0)

- **FSM 200** or **MSC 302**: R: Not open to freshmen and sophomores. Completion of Tier I writing requirement.
- **FSM 200** or **MGT 302**: Not open to freshmen and sophomores. Labor force for agribusinesses: planning, recruiting, training, scheduling, motivating, supervising, and valuating. Labor regulations, compensation, and records.

### 30. Farm Business Management
Spring. 3(4-0)

- **FSM 200** or **MGT 302**: R: Not open to freshmen.
- **FSM 200**: Open only to juniors and seniors in College of Business and in programs for which MSC 335 is a catalog-listed requirement. Management decision-making in food industry organizations (processors, retailers, wholesalers, etc.). Marketing and sales in response to customer and consumer needs. Distribution and merchandising systems in domestic and international contexts.

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### 12. Financial Management in the Food System
Spring. 3(3-0)

- **ACC 201** or **ACC 230**: R: Not open to freshmen and sophomores. Financial statements. Capital budgeting of durable investments. Risk and return. Alternative methods to control capital asset services. Financial markets and credit institutions affecting agriculture.

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### 421. Public Policy Issues in Food and Agribusiness
Spring. 3(3-0)

- **P: EC 201, FSM 200**: R: Not open to freshmen and sophomores. Objectives, rationale, and consequences of public policy for food and agriculture. Analysis of economic implications for food and agribusinesses, farmers, consumers, and society.

### 429. Agribusiness Management (W)
Spring. 3(4-0)

- **P: FSM 200**: R: Open only to seniors and graduate students. Completion of Tier I writing requirement.
- **P: FSM 200**: R: Open only to juniors and seniors in College of Business and in programs for which MTA 439 is a catalog-listed requirement.
- **P: FSM 200** or **MGT 302** or **STT 201** or **STT 315**: R: Open only to freshmen and sophomores. Analysis of agribusiness management functions including planning, organizing, and controlling. Integration of production, marketing, and financial aspects of agribusinesses. Solutions to agribusiness management problems.

### 439. Food Business Analysis and Strategic Planning
Fall. 3(3-0) Interdepartmental with Marketing and Supply Chain Management. Administered by Marketing and Supply Chain Management.

- **P: MGT 205** or **FSM 200** or **STT 201** or **STT 315**: R: Open only to juniors and seniors in College of Business and in programs for which MTA 439 is a catalog-listed requirement.
- **P: MGT 205** or **MSC 302**: Not open to freshmen and sophomores. Principles and techniques of business analysis and strategic planning applied to food firms. Food trend forecasts, market potential, competition and cost analyses, business and strategic planning.

### 441. Commodity and Futures Marketing
Spring. 3(3-0)

- **P: FSM 200**, **EC 201**, **STT 201** or **STT 315**: R: Not open to freshmen and sophomores. Supply, demand and prices in commodity markets. Futures and options and their role in forward pricing. Agricultural and food markets.

### 443. Food Industry and Cooperative Marketing
Spring. 3(3-0)

- **P: FSM 200**: R: Not open to freshmen and sophomores. Multiple firm and cooperative marketing methods. Organization and operation of cooperatives, marketing orders, trade associations and other forms of group action in the food system.

### 469. Agricultural Development in Less Developed Countries
Fall. 3(3-0) Interdepartmental with Public Resource Management.

- **P: EC 201, FSM 260**: Recommended. R: Not open to freshmen and sophomores. Factors responsible for agricultural growth, as well as technical and institutional change. Sustainable strategies for increasing food production and rural incomes.

### 490. Independent and Supervised Study
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 7 credits in all enrollments for this course.

- **P: FSM 200; MSC 335 or FSM 330**: R: Open only to FSM majors. Approval of department. Application required. In-depth independent study of topics and issues affecting the food system. Complementary to previous coursework, adapted to career aspirations.

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### 101. Michigan's Forests
Spring. 3(3-0)

Ecological, social and economic roles of Michigan's forests in historical and contemporary context. Geographic similarities and differences in forest resources.

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### 304. Wood Technology
Fall. 4(3-2)

306. **Forest Biometry**  
*Spring.* 4 credits.  
P: FOR 204, FOR 267, MTH 124 or MTH 132. R: Not open to freshmen and sophomores.  
Describing location and area of forest resources. Quantification of site, stand, and tree characteristics. Sampling and inventory. Predicting growth and yield.  

310. **Foundations of Forest Conservation**  
*Spring.* 2(3-0)  

404. **Forest and Agricultural Ecology**  
*Fall.* 4(3-3) Interdepartmental with Crop and Soil Sciences.  
P: CSS 216, BOT 105 or BS 110  
Structure and function of ecosystems managed for crop and food production. Productivity, nutrient cycling, community dynamics as affected by management intensity and natural disturbance. Dynamics of managed versus natural ecosystems.  

406. **Silviculture**  
*Spring.* 4(3-3)  
P: FOR 204, FOR 494. R: Not open to freshmen and sophomores.  

408. **Forest Management**  
*Spring.* 4(3-3)  
P: FOR 206, FOR 406  
Management of forests for timber production in a multiple-use context. Yield projections, harvest scheduling, management prescriptions, project analysis and administration.  

409. **Forest Hydrology**  
*Spring.* 3(2-2) Interdepartmental with Crop and Soil Sciences, and Resource Development  
P: CSS 210, MTH 116. R: Not open to freshmen and sophomores.  
Science and technology of the hydrologic cycle and water resources in forest, wildland, wetland, and rural watersheds.  

410. **Forest Conservation Thesis (W)**  
*Fall, Spring.* 3(0)  
P: FOR 310  
R: Open only to seniors in the Forestry major.  
Selecting, researching, and evaluating a forest conservation issue and communicating findings in a thesis and a departmental seminar.  

419. **Geographical Information Systems in Natural Resource Management**  
*Spring.* 4 credits. Interdepartmental with Fisheries and Wildlife; Geography; Resource Development; Agricultural Engineering; and Park, Recreation and Tourism Resources. Administered by Fisheries and Wildlife.  
P: GEO 231.  
Application of geographic information systems, remote sensing, and global positioning systems to integrated planning and management for fish, wildlife, and related resources.  

420. **Forestry Field Studies**  
*Spring.* 3 credits. Offered only at the Huron-Manistee National Forest  
P: FOR 305, FOR 404, FOR 496, or concurrently, R: Open only to juniors or seniors in the College of Agriculture and Natural Resources.  
Ecological and silvicultural assessments and planning for multiple uses of forest lands. Forest management concepts including soils, biometry, harvesting and protection.  

422. **Woody Plant Genetics**  
*Fall.* 3(2-2)  
P: BOT 201  
Applications of plant breeding and genetic principles to improve tree species and to preserve biotical diversity in forest ecosystems for human benefit.  

430. **Law and Resources**  
*Fall.* 3(3-0) Interdepartmental with Resource Development and Public Resource Management. Administered by Resource Development  
P: RD 500; EC 201 or GBL 495  
Legal principles applied to natural resource use. Sovereignty, property rights, land and water use, jurisdiction, public trust doctrine, fish and game law, mineral rights, and eminent domain. Case and statutory law analysis.  

431. **Plant Breeding and Biotechnology**  
*Spring.* 4(3-3) Interdepartmental with Crop and Soil Sciences, and Horticulture. Administered by Crop and Soil Sciences  
P: CSS 256  
Plant improvement by genetic manipulation. Genetic variability in plants. Traditional and biotechnological means of creating and disseminating recombinant genotypes and cultivars.  

450. **Forestry in International Development**  
*Fall.* 3(2-3) Interdepartmental with Sociology.  
P: FOR 404  
Open only to seniors and graduate students. Biophysical, social and economic factors influencing development of plantations of farm, village and community level forestry and agroforestry projects.  

451. **Cellular and Molecular Principles and Techniques for Plant Sciences**  
*Spring.* 4(2-6) Interdepartmental with Crop and Soil Sciences, and Horticulture. Administered by Crop and Soil Sciences  
P: CSS 350 or ZOL 341  
Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology, transformation, cell tissue, and organ culture in relation to plant improvement.  

459. **Arboriculture**  
*Fall.* 3(2)  
P: BOT 105, FOR 204, or HRT 211  
R: Not open to freshmen and sophomores.  
Tree selection and planting to fit climatic, space and edaphic conditions. Diagnosing tree abnormalities. Cultural practices used in the care and maintenance of shade and ornamental trees. Field trip required.  

451. **Urban Forestry**  
*Spring.* 3(3-0)  
P: FOR 204 or HRT 211  
R: Not open to freshmen and sophomores.  
Trees in improving the urban environment. Principles of urban forest management; legal, economic, organizational, and cultural. Street tree planning and inventory systems. Utility forestry and commercial arboriculture. Field trips required.  

464. **Natural Resource Economics and Social Science (W)**  
*Fall.* 3(2-2) Interdepartmental with Park, Recreation and Tourism Resources; Fisheries and Wildlife; and Resource Development.  
P: EC 201 or EC 203  

466. **Natural Resources Planning and Policy**  
*Spring.* 3(2-2) Interdepartmental with Fisheries and Wildlife; Park, Recreation and Tourism Resources; and Resource Development.  
R: Open only to seniors and graduate students in Forestry, Fisheries and Wildlife, Park, Recreation and Tourism Resources; and Resource Development. Approval of department; application required. 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.  

468. **Biotechnology in Agriculture: Applications and Ethical Issues**  
*Spring.* 3(3-0) Interdepartmental with Horticulture, Philosophy, and Crop and Soil Sciences. Administered by Horticulture.  
P: ENT 404 or ENT 470 or BOT 405 or CSS 402 or FW 328. R: Completion of Tier I writing requirement. Principles of host plant resistance and biological control and their relationship to the design of agroecosystems.  

478. **Pest Management II: Biological Components of Management Systems (W)**  
*Spring.* of odd-numbered years. 3 credits. Interdepartmental with Entomology, Horticulture, Crop and Soil Sciences, and Fisheries and Wildlife. Administered by Entomology.  
P: ENT 404 or ENT 470 or BOT 405 or CSS 402 or FW 328.  
R: 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.  

480. **Woody Plant Physiology**  
*Spring.* 3(0) Interdepartmental with Horticulture.  
P: BOT 301. R: Not open to freshmen and sophomores.  
Physiological, social and economic factors influencing development, implementation of farm, village and community level forestry and agroforestry projects.  

486. **Biotechnology in International Development**  
P: CSS 350 or ZOL 341  
Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology, transformation, cell tissue, and organ culture in relation to plant improvement.  

490. **Independent Study in Forest and Wood Science**  
*Fall, Spring, Summer.* 1-3 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
P: Open only to seniors and graduate students. Approval of department. Special problems course for students qualified for advanced study in some phase of forestry or wood science.  

801. **Forestry Research**  
*Fall.* 1(0-0)  
R: Open only to junior and senior students in Forestry.  
The philosophy, nature, and procedures of research in forest science.  

802. **Research Processes in Natural Resources**  
*Fall.* 3(3-0) Interdepartmental with Resource Development. Administered by Resource Development. Research planning and implementation. Structure of research organizations. Applications of research results.  

804. **Forest Ecology**  
*Spring.* of even-numbered years. 3 credits.  
P: FOR 404.  

A-78
R: Approval of Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.

976. **Multivariate Methods in Agriculture and Natural Resources**
Spring: 4(4-0) Interdepartmental with Animal Science, and Fisheries and Wildlife.
P: STT 422, MTH 314. 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 $T^2$-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 90 credits in all enrollments for this course.
R: Open only to Ph.D. students in Forestry.

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**FRENCH**

**FRN**

**Department of Romance and Classical Languages**

**College of Arts and Letters**

101. **Elementary French I**
Fall, Spring. 4(4-0)
P: FRN 101 or designated score on French placement test. R: Not open to students with credit in FRN 150.
Further practice in using and understanding French to develop listening, speaking, reading, and writing skills. Pronunciation, grammar, vocabulary, and cultural topics.

102. **Elementary French II**
Fall, Spring. 4(4-0)
P: FRN 102 or FRN 150 or designated score on French placement test.
Intermediate-level review and development of aural comprehension, speaking, reading, and writing skills. Topics in the cultures of the French-speaking world.

103. **Second-Year French I**
Fall, Spring. 4(4-0)
P: FRN 102 or FRN 150 or designated score on French placement test.
Further review and development of aural comprehension, speaking, reading, and writing skills. Topics in the cultures of the French-speaking world.

104. **Second-Year French II**
Fall, Spring. 4(4-0)
P: FRN 201.
FRENCH

115. **Review of Elementary French**
Fall, Spring. 3(3-1)
R: Open to students with high school credit in French and designated score on French placement test. Not open to students with credit in FRN 101 or FRN 102.
Review of college first-year French for students who had the language in high school and who need to strengthen communication skills, vocabulary, grammar, and pronunciation before study at the 200 level.

120. **Survey of French Literature I**
Fall, Spring. 3(3-0)
P: FRN 200, FRN 240.
French literature from the Middle Ages to the Enlightenment.

121. **Survey of French Literature II**
Spring. 3(3-0)
P: FRN 200, FRN 240.
French literature from the Enlightenment to the present.

122. **Advanced Studies in French Language**
Fall. 3(3-0)
P: FRN 200, LIN 200 or LIN 401 or ROM 401.
Translation, stylistics, composition, creative writing, prescriptive grammar.

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320. **Grammar and Composition (W)**
Fall, Spring. 3(3-0)
P: FRN 202 or designated score on French placement test. R: Completion of Tier I writing requirement. Systematic review of grammar. Extensive writing in French.

330. **French Phonetics**
Fall, Spring. 3(3-0)
P: FRN 202 or designated score on French placement test.
Analysis of French pronunciation for listening and speaking.

340. **Introduction to Reading French Literature (W)**
Fall, Spring. 3(3-0)
P: FRN 202 or designated score on French placement test. R: Completion of Tier I writing requirement. Close reading and interpretation of French drama, poetry, fiction, and other prose forms.

350. **The Contemporary French Scene**
Fall. 3(3-0)
P: FRN 200, FRN 240.
Institutions, history, arts, and major sociopolitical issues of France and its former colonies from 1945 to the present, with an emphasis on the Fifth Republic; class conducted in French.

351. **French Literature in English Translation**
Spring of even-numbered years. 3(3-0)
R: Not open to freshmen.
Representative works and themes of French literature.

400. **Reading French for Graduate Students**
Spring. 3(3-0)
P: Not open to freshmen and sophomores.
Intensive study of French for graduate students needing a reading knowledge of the language.

410. **Survey of French Literature I**
Fall. 3(3-0)
P: FRN 200, FRN 240.
French literature from the Middle Ages to the Enlightenment.

420. **Survey of French Literature II**
Spring. 3(3-0)
P: FRN 200, FRN 240.
French literature from the Enlightenment to the present.

425. **Advanced Studies in French Language**
Fall. 3(3-0)
P: FRN 200, LIN 200 or LIN 401 or ROM 401.
Translation, stylistics, composition, creative writing, prescriptive grammar.

430. **French Linguistics**
Spring. 3(3-0)
A student may earn a maximum of 6 credits in all enrollments for this course.
P: FRN 200, FRN 330; LIN 401 or ROM 401. R: Approval of department.
Key issues in French linguistics and contrastive structures of French and English.

440. **Francophone Cultures and Civilizations**
Spring. 3(3-0)
P: FRN 200.
Social, political, intellectual, and artistic life of France and the French-speaking world in relation to the French language, literature, and other cultural media.

450. **French Literature of the Middle Ages**
Fall of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Major currents of the Middle Ages as reflected in the writings of representative authors of the period.

455. **French Literature of the 16th Century**
Spring of odd-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of the Renaissance and Reformation.

460. **French Literature of the 17th Century**
Fall of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of the Baroque and classical periods.

465. **French Literature of the 18th Century**
Spring of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of the French Enlightenment.

470. **French Literature of the 19th Century**
Fall of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of nineteenth-century France.

475. **French Literature of the 20th Century**
Spring of odd-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Major works of French literature from the twentieth-century to the present.

480. **Frenchophone Literatures of the Third World**
Fall. 3(3-0)
P: FRN 410, FRN 420.
Frenchophone literatures of West Africa, the Maghreb, Madagascar, the Caribbean, and Vietnam.

490. **Independent Study**
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.
R: Not open to freshmen and sophomores. Approval of department.
Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.

491. **Special Topics in French**
Fall, Spring. 3(3-0)
P: Not open to freshmen and sophomores. Approval of department.
Special topics supplementing regular course offerings, proposed by faculty on a group study basis.

492. **Senior Writing Project**
Fall, Spring, Summer. 1(1-0)
P: Open only to seniors in French.
Research and preparation of a paper on an interdisciplinary subject that synthesizes at least three areas of a major's undergraduate education. Students work under the supervision of a faculty member.

800. **Current Approaches to French Instruction**
Fall. 3(3-0)
Theoretical and practical view of methodologies of teaching French.

805. **Evolution of the French Language**
Fall of even-numbered years. 3(3-0)
Diachronic examination of the phonological, morphological, and syntactic developments of French as it evolved from Latin.