901. Internship  
(F E 901) Fall, Winter, Spring, 
Summer. 3 to 5 credits. May re-enroll for a 
maximum of 9 credits. Approval of depart­ 
ment.
Sagervised advanced graduate practitioners, ob­ 
servation, internships, and externships in the 
various areas of emphasis.

902. Independent Study in Family 
Ecology  
(F E 909) Fall, Winter, Spring, 
Summer. 1 to 5 credits. May re-enroll for a 
maximum of 9 credits. Approval of depart­ 
ment. 
Study on an individual basis.

903. Seminars in Family Ecology  
(F E 905) Spring, Summer. 2 or 3 
credits. May re-enroll for a maximum of 9 
credits. Approval of department. 
Seminars in selected topics.

932. History and Philosophy of Home 
Management  
(FCS 932) Fall, Summer of even­ 
numbered years. 2(2-0) 
History and development of home management as a field of study. Values and decision-making as analyzed by various disciplines and as used in home management.

933. Apprentice Experience in Home 
Management Residence  
(FCS 933) Fall, Winter, Spring, 
3(1-6) 437 and approval of department. 
Experience in presenting home management as a resident course. Each student works with one home management group. Limited to a few well-qualified students.

999. Research  
Fall, Winter, Spring, Summer. Var­i­ 
able credit. Approval of department.

FISHERIES AND 
WILDLIFE  
F W

College of Agriculture and 
Natural Resources

200. Resource Ecology and Man  
For course description, see Interde­ 
partmental Courses.

202. Soils and Man’s Environment  
Winter. 3(3-0) Interdepartmental 
with Resource Development Department, Natural 
Resources, and Soil Science and adminis­ 
tered by Soil Science. 
Use of soil-water resources in a technological 
society as it relates to environmental quality. 
Nature of pollution problems and their possible 
solutions. Food production and world popula­ 
tion.

301. Fish and Wildlife of North 
America  
Winter. 5(3-4) N S 192 or B S 212. 
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.

305. Management of Fish and 
Wildlife Resources  
Winter. 3(3-0) IDC 200 or other 
ecology course. 
Effects of regulation, refuge, stocking, species introduction, habitat manipulation, artificial

feeding, genetic improvement, land use, ecological 
research and control of predators, diseases and 
competitors in the production of fish and 
game.

374. Biological Oceanography  
(474) Winter. 3(3-0) N S 193 or 
B S 212. 
Biology of marine animals, with emphasis on 
physical, chemical and biological factors affect­ 
ing their abundance and distribution.

402. Conservation Education  
Fall, Winter, Spring. 4(3-2) Ele­ 
mentary education juniors. 
Nature, distribution, abundance and interrela­ 
tionships of natural resources. Biological and 
physical components of field, range, forest, and 
aquatic systems. Includes techniques of teaching about the environment.

403. Conservation Education  
Spring. 4(3-2) Elementary education 
juniors. 
A continuation of 402. Special emphasis afford­ 
ed lakes, streams, and wetlands.

404. Fisheries and Wildlife Problems  
Fall, Winter, Spring, Summer. 1 to 5 
credits. May re-enroll for a maximum of 12 
credits. B S 212; 6 credits of fisheries and 
wildlife; approval of department. 
To give undergraduate majors an opportunity to study special topics in fisheries and wildlife.

424. Wildlife Population Analyses  
Spring. 4(3-2) 305 or approval of 
department. 
Population measurement; reproductive and sur­ 
vival rates; sex and age determination; han­ 
dling and marking methods.

425. Wildlife Habitat Analyses  
Spring. 4(2-4) BOT 450 or ZOL 
389 or FOR 290. 
Evaluation of environmental factors affecting 
wildlife species; food and cover measurements. Determination of limiting factors.

426. Ecology of Migratory Birds  
Fall, 4(2-4) ZOL 481 or approval 
of department. 
Ecological, behavioral, and physiological charac­ 
teristics affecting population parameters of migra­ 	ory birds and applications of these re­
relationships to the management of migratory 
wildlife resources.

427. Wildlife Biology and 
Management  
Winter. 4(3-4) 424; ZOL 389 or 
BOT 450. 
Ecology and management of resident wildlife on 
farm, forest and range lands.

450. Natural Resource Administration  
Fall, Winter. 4(4-0) Interdepartmental 
with the Forestry, Park and Recreation 
Resources, and Resource Development 
Departments and administered by the Forestry 
Department. 
Concepts and methods of economics and adminis­ 
tration and application of techniques to 
management of wildlands.

471. Ichthyology  
Spring. 3(3-0) ZOL 305 or 315. In­ 
terdpartmental with the Zoology Department. 
Classification and natural history of fishes. Em­ 
phasis on food, game, and forage fishes.

473. Fishery Biology and 
Management  
Fall, 5(2-3) ZOL 471. 
Biology of fishes with special reference to dis­ 
tribution and natural history, and application of 
this knowledge to problems of obtaining 
maximum return from fishery resources.

476. Limnology  
Winter. 3(3-0) B S 212. Interde­ 
partmental with the Zoology Department. 
Ecology of lakes and streams with special refer­ 
ce to physical, chemical, and biological factors affect­ing their productivity.

477. Limnological Methods  
Winter. 3(0-9) 478 concurrently; 
ZOL 481; ENT 391, 392 recommended. In­ 
terdpartmental with the Zoology Department. 
Methods and instruments of limnological field investigation on lakes and streams.

484. Advanced Conservation 
Education  
Fall of odd-numbered years. 4(3-2) 
Approval of department. 
Designed for secondary teachers. Areas of out­ 
door education, school camping, recreation, bi­ 
ology teaching and camp counseling. This 
course will offer both content and methods ap­ 
plicable to people working in specified types 
of jobs.

801. Seminar in Fisheries and Wildlife  
Fall, Winter, Spring. 2(0-4) 
Graduate problems and current developments of 
importance.

892. Advanced Topics  
Fall, Winter, Spring, Summer. 1 to 6 
credits. May re-enroll for a maximum of 15 
credits. Approval of department. 
Study of selected advanced topics in detail and 
depth.

999. Research  
Fall, Winter, Spring, Summer. Var­i­ 
able credit. Approval of department.

FOOD SCIENCE AND 
HUMAN NUTRITION*  
College of Agriculture and 
Natural Resources

College of Human Ecology†

Food Science  
FSC

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

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

300. Dairy Products I  
Spring. 3(2-2) 
Composition, use, classification and market 
grades, methods of storage and factors affecting keeping quality of dairy products.

*Named changed October 17, 1970. Formerly Food Science and Human Nutrition and Foods.
†Named changed July 1, 1970. Formerly College of Home Economics.
Descriptions — Food Science and Human Nutrition

Courses

200. Food Preparation
(F N 200.) Fall, Spring. 5(2-6)
CEM 132.
Scientific principles of food preparation, with special emphasis on the physical and chemical changes involved.

200A. Lectures in Foods
(F N 200A.) Fall, Spring. 1(2-0) 100; CEM 132.
Lecture part of 200. Completion of this course, 100 and CEM 132 constitutes substitution for 200.

220. Meal Management
(F N 220.) Fall, Winter, Spring. 5(3-4) Sophomores.
Analysis of factors that influence family meals; family food behavior, resources, and family goals and values. Emphasis on the use of the money resource. Survey of patterns of meal service. Study of food laws.

322. Quality Food Production
(I A 322.) Fall, Winter, Spring. 4(2-4) 220.
Experience in quantity food production; personnel problems; cost control.

325. Institution Management
(I A 325.) Winter. 3(3-0) Juniors.
Principles of effective management with emphasis on techniques of supervision for controlling costs in quantity food service operations.

350. Fundamental Principles of Nutrition
(F N 350.) Winter, Spring. 4(3-2) FSL 331 or BCH 200 or concurrently.
Identification, function, metabolism and food sources of specific nutrients required by man for normal growth and development.

400H. Honors Work
(F N 400H.) Fall, Winter, Spring. Summer. Variable credit. May re-enroll for a maximum of 16 credits. Seniors, approval of department.

403. Experimental Foods I
(F N 403.) Fall. 4(2-6) 200 or FSC 211.
Colloidal properties of foods with special reference to protein in food preparation. Objective and subjective evaluation of effect of ingredient proportion, manipulation, temperatures, etc. on quality characteristics. Simple statistical treatment and interpretation of data.

404. Experimental Foods II
(F N 404.) Winter. 4(2-6) 200 or FSC 211.
Continuation of 403 with focus on chemical and physical properties of fats and carbohydrates as they affect food preparation and preservation.

406. Cultural Aspects of Food
(F N 406.) Spring. 3(3-0) Juniors.
A cross-cultural investigation of food and its consumption. Factors such as history, religion, food sources and socio-economic status are considered.

408. Laboratory—Cultural Aspects of Food
(F N 408.) Spring. 1(0-3) 100 or 200. 406 or concurrently.
Art and science of cookery in relation to historical, national, regional, racial and religious customs.

409. Demonstrations in Foods and Nutrition
(F N 409.) Winter. 4(1-6) 403; 350 or 461; COM 101 or AFI 113; or approval of department.
Principles and techniques of demonstration as applied to teaching or promotional work.

426. Institution Marketing
(I A 426.) Fall. 3(2-2) EC 303 or EC 300.
Standards of quality, distribution and storage of food supplies to serve as a basis for purchase of such commodities for institution food service.

428. Advanced Food Management
(I A 428.) Spring. 4(4-4) 322, 325.
Experience in food administration. University food services are used for training centers.

452. Patterns of Food Selection
(F N 452.) Fall. Summer of even-numbered years. 3(3-0) 350 or equivalent credit in nutrition and chemistry; teaching or extension experience.
Factors influencing food choices. Evaluation of dietary habits in relation to nutritional needs of individuals.

453. Readings in Nutrition
(F N 453.) Winter. Summer of odd-numbered years. 3(3-0) 453 or approval of department.
A study of recent developments in research in human nutrition.

454. Recent Advances in Foods
(F N 454.) Spring. 3(3-0) 403.
Critical analysis of recent developments in preparation, prefabrication and preservation of foods.

461. Human Nutrition I
(F N 461.) Fall. 4(2-2) BCH 200; PSL 332 or 241.
Metabolism of protein, fats and carbohydrates as applied to nutritional requirements and food supplies of people.

462. Human Nutrition II
(F N 462.) Winter. 4(2-2) 461.
Metabolism of vitamins and minerals as applied to the nutritional requirements and food supplies of people.

463. Human Nutrition III
(F N 463.) Spring. 4(2-2) 462.
Critical analysis of methods used in assessing human nutrition status; evaluation of nutritional problems of current interest.

464. Diet Therapy
(F N 464.) Spring. 4(2-2) 462 or concurrently.
Dietary modifications necessary in pathological conditions, including dietary treatment of diabetes, goit, nephritis, and gastro-intestinal disorders.

495. Independent Study
(I A 495.) Fall, Winter, Spring. Variable credit. May re-enroll for a maximum of 8 credits. Seniors, approval of department.
Individual study of specific problems in food service management of hospitals, restaurants, college housing units, and the federal school lunch program under staff guidance.

800. Seminar in Foods and Nutrition
(F N 800.) Fall, Winter, Spring. 1(1-0) 403 or 463.

802. Seminar in Food Service Management
(I A 802.) Winter, Summer. 1 to 2 credits. May re-enroll for a maximum of 8 credits. Approval of department.

803. Problems in Food Service Management
(I A 803.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

805. Experimental Foods III
(F N 805.) Spring. 4(1-9) 404 or approval of department.
Planning, executing, and reporting individual research project. Data collection, evaluation and interpretation to demonstrate understanding of research techniques and attitudes, and an awareness of significant problems in the field.

813A. Special Studies in Nutrition
(F N 813A.) Fall, Winter, Spring. Summer. Variable credit. 461.

813B. Special Studies in Experimental Foods
(F N 813B.) Fall, Winter, Spring. Summer of odd-numbered years. Variable credit. 404; BCH 200 or 451 and 504.

813C. Special Studies in Food Service Management
(I A 813C.) Fall, Winter, Spring. Summer. Variable credit. Approval of department.
Special studies in facility management, manpower coordination and tools and methods of operational control.

816. Applied Human Nutrition
(F N 816.) Spring. 3(3-0) 462.

825. Techniques in Nutrition Research
(F N 825.) Winter of odd-numbered years. 1 to 2 credits. CEM 333; approval of department. Interdepartmental with and administered by the Animal Husbandry Department. Use of specialized instruments and techniques. Laboratory safety. Management of laboratory animals. Development of abilities in areas of particular interest to individual students.

899. Research
(F N 899.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

927. Comparative Nutrition I
(F N 927.) Winter. 2 or 4 credits. BCH 451; PSL 562 or concurrently. Interdepartmental with the Animal Husbandry Department.
Mammalian nutrition based on biochemical and physiological phenomena. Proteins are studied in the first half of the term; carbohydrates, fats and macro-minerals in the last half.

928. Comparative Nutrition II
(F N 928.) Spring. 2 or 4 credits. BCH 451; PSL 562. Interdepartmental with and administered by the Animal Husbandry Department.
Mammalian nutrition based on biochemical and physiological phenomena. Micro-minerals are studied in the first half of the term; vitamins in the last half.

999. Research
(F N 999.) Fall, Winter, Spring, Summer. Variable credit. Approval of department.

FOREIGN LANGUAGES

See German and Russian, Linguistics and Oriental and African Languages, and Romance Languages.