

450. Insect Physiology
Spring. 4(3-3) 441; PSL 412; 1 year of chemistry or approval of department. Comparative physiology of insects with histological and functional aspects of organs and organ systems.

460. Medical Entomology
Winter. 4(3-3) 301, 302, or approval of department. Distribution and biology of important arthropod vectors of diseases to man, disease symptoms, life cycle of the infectious agent, reservoirs, urticating arthropods, anaphylactic reactions, myiasis, and prophylactic measures.

470. Agricultural Nematology
Winter of odd-numbered years. 3(2-3) Biology, taxonomy and control of plant parasitic, insect parasitic, and saprophytic nematodes.

808. Advanced Taxonomy
Fall, Winter, Spring. 4(0-12) May re-enroll for a maximum of 24 credits. 418, 440. Classification in depth of a single order of insects, including comparative morphology of the group and survey of recent and classical literature.

811. Ecology of Aquatic Insects
Summer of every third year; given in 1969. 3 credits. 420 or approval of department. Given at W. K. Kellogg Biological Station. Aquatic insects, their physiology, distribution, and density. Preparation of energy budgets for natural populations.

820. Insect Ecology
Spring of odd-numbered years. 3(2-3) 430; BOT 450. Insects and various invertebrates in relation to their environment. Factors affecting populations, speciation and distribution. Application of basic ecological principles to integrated control measures.

830. Insect Biochemistry
Spring of even-numbered years. 5(3-6) 450; BCH 401. Energy metabolism, intermediary metabolism and the biochemistry of development in insects; stresses biochemical differences between insects and higher animals.

838. Principles of Taxonomy
Spring of odd-numbered years. 3(3-0) Twenty credits in zoology and/or entomology, or approval of department. Methods and principles of systematic zoology and entomology, including a historical survey of the pre-Linnaean and post-Linnaean systems of classification. International rules of zoological nomenclature and their emendations.

840. Insect Toxicology
Winter of odd-numbered years. 5(3-6) 301, 302; organic chemistry. Chemical and physical properties of insecticides, relationship of chemical structure to mode of action, and physiological basis of toxicological action.

860. Insects in Relation to Plant Diseases
Winter of even-numbered years. 4(2-4) 430; BOT 405. Relationships of insects, mites and nematodes to important plant diseases incited by bacteria, fungi, viruses and toxins. Mode of transmission and means of control. Transmission techniques and important plant-pathogen-insect relationships.

870. Topics in Entomology
Fall, Winter, Spring, Summer. Variable credit. Majors or approval of department. Advanced work in medical entomology, acarology, advanced forest entomology, soil arthropods, behavior and biological control.

899. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

940. Analytical Techniques for Bioactive Compounds
Fall. 3(1-6) Organic chemistry, approval of department. Application, extraction, cleanup and purification techniques employed in analysis of biologically active compounds. Stresses use of radioisotopes, and column, paper, thin-layer, and molecular sieve chromatography.

941. Analytical Techniques for Bioactive Compounds
Winter. 3(1-6) 940. Analytical techniques used for identification and quantitation of biologically active compounds. Emphasis on spectroscopy and gas-liquid chromatography.

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

EXTENSION PERSONNEL DEVELOPMENT EPD

College of Agriculture and Natural Resources

801. Seminar in Cooperative Extension Service
Fall, Winter, Spring, Summer. 1 to 3 credits. Approval of department.

880. Special Problems
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 6 credits. Supervised readings and independent study of selected topics varying from term to term: application of social research to extension, marketing and 4-H programs, and special problem papers.

899. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

FAMILY AND CHILD SCIENCES* FCS

College of Home Economics

145. Relationships in the Modern Family
Fall, Winter, Spring. 3(3-0) Freshmen or Sophomores or approval of department. Students may not receive credit in both 145 and S W 228. Family relationships throughout the life cycle. Changing nature of families in contemporary society; appraisal of attitudes and roles in family living; development of realistic patterns for courtship and marriage in an increasingly complex world.

*Name changed November 1, 1968. Formerly Home Management and Child Development.

261. Human Development in the Family
Fall, Winter, Spring. Summer of odd-numbered years. 3(3-0) Sophomores.

Influences of values in a society upon the pattern of family life; normal growth and development of family members, changing roles of family members—conflict in roles; family structure around the world; family authority patterns; value orientation.

331. Management and Decision-Making in the Family
Fall, Winter, Spring. Summer of even-numbered years. 3(3-0) S S 233.

Presentation of the integrated nature of home management; concerns, values, and goals as reflected in decision-making about family resources.

332. Theory and Application of Home Management
Fall, Winter, Spring. 4(1-4) with residence; 4(2-4) without residence. 261; 331 or concurrently; F N 220 or approval of department. Principles of effective home management and their application in a living situation. Residence in a home management house provided.

362. Child Study
Fall, Winter, Spring. Summer of odd-numbered years. 4(3-3) N S 192; S S 233; PSY 151 or ED 200. Home Economics students: 261.

Development of child from prenatal through adolescent period. Observations of children of various ages.

364. Guidance of Young Children
Fall, Spring. 3(2-2) 362 or PSY 345 or approval of department.

Examination of philosophies of child guidance and their relation to knowledge of child development and behavior. Supervised practice in guiding young children in a nursery school setting.

369. Learning Resources in the Nursery School
Winter, Spring. 4(3-2) Majors: 362; others: ED 312.

Selection and use of play materials and equipment for group work with young children and function of these materials in development of child.

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

437. Management of Work Capacity in the Home
Winter. Summer of even-numbered years. 3(3-0) 331 or approval of department. Analysis of the resource of human work capacity in the home—physiological and psychological factors; principles and use of work simplification.

438. Family Finance
Fall, Winter, Spring. Summer of even-numbered years. 3(3-0) S S 233.

Major financial alternatives available to families during the founding, active parenthood, and retirement stages. Implications for the community of the family's financial decisions.

439. Consumer Economic Problems
Fall, Spring. Summer of odd-numbered years. 3(3-0) 438 or approval of department. Current aspects of consumer behavior including motivation, credit buying, and selected economic problems.

444. Interpersonal Relations Within the Home

Fall, Spring. Summer of even-numbered years. 3(3-0) 261 or approval of department.

Develops an understanding of the dynamics of the various relationships within families. Planned to meet personal needs as well as preparation for those entering professions related to the family-life field. Current family-life literature.

446. Approaches to Studying the Family

Fall, Winter. Summer of odd-numbered years. 3(3-0) 145; S S 233; PSY 151 or ED 200, or approval of department.

Course to increase understanding of human relations in families and other small groups, and of one's self in a group. Readings, case studies, literary materials, films, and observations of living situations are included.

461. Growth and Behavior of the Individual Child

Fall, Winter. 3(2-2) Majors: 364; others: 362 or PSY 345 or ED 312.

Child's progress as he interacts with his environment followed through observations in nursery school and at home and through use of nursery school records. Various measuring and summarizing devices.

463. Physical Development of Children

Winter. 4(3-2) 362 or ED 312; F N 102.

Growth patterns and factors influencing them. Experimental evidence of nutritional requirements.

464A. Participation in the Nursery School I

Fall, Winter, Spring. Summer of odd-numbered years. 3 to 6 credits. Majors: 364, 369; others: 362 or ED 312 and approval of department; 468 concurrently.

467. Nursery School Administration

Spring. 3(2-3) 464A or concurrently.

Housing and equipment, costs, staff, program, health protection, and community relations. School planning and organization.

468. Nursery School and Parent Education

Fall, Winter, Spring. Summer of odd-numbered years. 3 credits. Majors: 364, 369; others: 362 or ED 312 and approval of department; 464A concurrently.

Recognizing and planning for learning experiences for children in nursery school program and methods of working with parents.

495. Independent Study

Fall, Winter, Spring, Summer. 4 to 12 credits. May re-enroll for a maximum of 12 credits. Approval of department.

Study of a selected topic under the guidance of a faculty adviser in the area of specialty.

498. Field Study

Fall, Winter, Spring, Summer. 4 to 12 credits. May re-enroll for a maximum of 12 credits. Approval of department.

Study in off-campus situations in a variety of ways using involvement in volunteer, governmental or business-sponsored community service agencies to further insights into interaction among the individual, the family and the community.

800A. Seminar in Home Management and Economics of the Family

Fall, Winter, Spring. Summer of even-numbered years. 2(2-0) May re-enroll for a maximum of 8 credits. Approval of department.

800B. Seminar in Family Life and Child Development

Fall, Winter, Spring. 2(2-0) May re-enroll for a maximum of 8 credits. Approval of department.

810. Workshop

Summer. Variable credit. Approval of department.

Content varies depending on nature of workshop.

813A. Special Studies in Home Management and Economics of the Family

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

813B. Special Studies in Family Life and Child Development

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

819. Research Methods

Winter. 3(3-0) Approval of department. Interdepartmental and jointly administered with the Textiles, Clothing and Related Arts Department.

830. Individual Readings

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

832. Theories of Management and Decision-Making in the Family

Winter of odd-numbered years. 4(2-1)

Comparative study of conceptual frameworks of family decision-making and of interrelated decisions, including both individual and social choices.

837. Allocation of Family Resources

Spring of even-numbered years. Summer of odd-numbered years. 4(4-0) 437, 438.

Contributors to and recipients of family resources both human and non-human. Patterned use of resources and the effect of definite factors such as standard of living on those patterns.

838. Analysis of Family Income

Spring of odd-numbered years. Summer of even-numbered years. 3(3-0) 438.

Forms of family income and economic problems relative to the protection of family economic security through insurance and investments, property rights and descent of property, and estate planning.

862. Advanced Child Study

Spring. Summer of odd-numbered years. 3(3-0) 362 or ED 312 or approval of department.

Current trends in field of child development based on research and on significant new books. Careful observations of children in a variety of informal situations will be made within the limits of available resources.

899. Research

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

932. History and Philosophy of Home Management

Fall. Summer of even-numbered years. 3(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

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. Variable credit.

Research in home management and economics of the family.

FISHERIES AND WILDLIFE

F W

College of Agriculture and Natural Resources

200. Resource Ecology and Man

For course description, see Interdisciplinary Courses.

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 regulations, refuges, stocking, species introductions, 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 affecting their abundance and distribution.

402. Conservation Education

Winter. 4(3-2) Elementary education juniors.

Nature, distribution, abundance and interrelationships of natural resources. Includes principles of resource use, study of natural objects and techniques of teaching conservation. Special emphasis on biological and physical components of field, range and forest.

403. Conservation Education

Spring. 4(3-2) Elementary education juniors.

A continuation of 402. Special emphasis afforded lakes, streams, and wetlands.

404. Fisheries and Wildlife Problems

Fall, Winter, Spring. 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.