

**Descriptions – Entomology  
of  
Courses**

**441. Internal Morphology**

Winter. 4(2-6) ENT 440 or approval of department.

Morphology of the internal structure of insects. Emphasis on the evolutionary development of organs and organ systems of various representative insects.

**444. Insect Ecology**

Fall of odd-numbered years. 3(3-0)  
One course in introductory entomology.

Unique characteristics and principles of insect ecology. Trophic relationships, populations, climate, co-existence, competition, behavior, communities and distributions.

**450. Insect Physiology**

Spring. 5(3-4) ENT 441; 1 biochemistry or physiology course; 1 year of chemistry including 1 term of organic.

General and comparative physiology of insects, treating molecular, tissue and organ function. Laboratory exercises emphasizing mastery of sound experimental procedures.

**455. Toxicology of Insecticides**

Winter of odd-numbered years. 4(4-0)  
1 term organic chemistry.

Properties of insecticides. Mode of action, metabolism and movement in animals. Safety and potential hazards to man and wildlife. Fates of insecticides in the environment.

**460. Medical Entomology**

Spring. 4(3-3) ENT 301, ENT 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. Nematode Diseases of Economic Plants**

Winter. 4(3-3) B S 212 or BOT 205. Interdepartmental with the Department of Botany and Plant Pathology.

Major nematode diseases of economically important plants, with emphasis on diagnostic symptoms, nematode biology and principles of control.

**480. Insects in Relation to Plant Diseases**

Fall of even-numbered years. 3(2-2)  
ENT 302. Interdepartmental with the Department of Botany and Plant Pathology.

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.

**490. 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.

**808. Advanced Taxonomy**

Fall, Winter. 4(0-12) May reenroll for a maximum of 24 credits. ENT 418, ENT 440.

Classification in depth of a single order of insects, including comparative morphology of the group and survey of recent and classical literature.

**812. Graduate Seminar Topics**

Fall, Winter, Spring. 1(1-0) May reenroll if different topic is taken. Graduate students and approval of department.

Graduate level seminars on current research and philosophy. Student participation required.

**815. Biological Control**

Spring of even-numbered years. 3(2-3)  
Approval of department.

Properties of entomophagous species; relationships to population ecology and systematics; foreign exploration, colonization, manipulation, and evaluation; interactions with pesticides, analysis of successful programs, and future trends. Collection for taxonomic lab to be made the summer before.

**820. Applied Insect Ecology**

Winter of odd-numbered years. 3(2-3)  
Approval of department.

Ecological factors in an insect's ecosystem that can be manipulated for the purpose of pest management. Critical evaluation of current and classical literature presented by students in both oral and written reports.

**821. Advanced Stream Ecology**

Summer. 3 credits. ENT 421 or approval of instructor. Given at W. K. Kellogg Biological Station. Interdepartmental with the Department of Fisheries and Wildlife.

Stream ecosystem energy budget models with emphasis on individual projects involving both laboratory and field experiments. Particular use will be made of artificial streams and locally abundant species of aquatic insects.

**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)  
ENT 301, ENT 302; organic chemistry.

Chemical and physical properties of insecticides, relationship of chemical structure to mode of action, and physiological basis of toxicological action.

**871. Biology of Nematodes**

Spring. 4(2-6) ENT 470 or approval of department. Interdepartmental with the Department of Botany and Plant Pathology.

Ontogeny, taxonomy, morphology, pathology and ecology of nematodes, with special reference to plant-parasitic and phytopathogenic species.

**881. Biology of the Arthropoda**

Winter. 5(3-6) ZOL 481 or approval of department. Interdepartmental with and administered by the Department of Zoology.

Ecology, life cycles, morphology, taxonomy, and distribution of arthropods other than insects.

**890. Problems**

Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits. Majors or approval of department.

Advanced individual work in: apiculture, aquatic insects, insect biochemistry, biosystematics, economic insects, insect ecology, forest insects, morphology, nematology, insect physiology, plant disease transmission, insect toxicology, araneida, acarina, medical entomology, chemistry of insecticides, insect biology, extension entomology, systems.

**899. Master's Thesis Research**

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

**940. Analytical Techniques for Biological Compounds I**

Fall. 4(2-6) 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 Biological Compounds II**

Winter. 4(2-6) ENT 940.

Analytical techniques used for identification and quantification of biologically active compounds. Emphasis on spectroscopy and gas-liquid chromatography.

**999. Doctoral Dissertation Research**

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

**FAMILY AND CHILD  
SCIENCES**

**FCS**

**College of Human Ecology**

**145. The Individual, Marriage and the Family**

Fall, Winter, Spring. 4(4-0) Students may not receive credit in both FCS 145 and S W 228.

Individual as young adult. Alternative living patterns. Marriage as social institution. Courtship and marriage patterns. Adjustments in marriage. Attitudes and roles in family living. Crises situations. Family planning.

**255. Family and Individual Development: Life Cycle**

Winter, Spring. 3(3-0) Three terms of natural science; sophomores.

Overview of family development. Predictable individual developmental changes over the life span. Cognitive, moral, physical, psychological and social aspects. Interface between individual and family development.

**262A. Child Growth and Development: Conception through Early Childhood**

Fall, Winter, Spring. Summer of odd-numbered years. 3(3-0) Sophomores, PSY 160 or PSY 170 or ED 200; FCS 262B concurrently.

Physical, cognitive, social, and emotional aspects of human growth and development from conception through early childhood.

**262B. Child Growth and Development Laboratory**

Fall, Winter, Spring. Summer of odd-numbered years. 1(0-3) FCS 262A concurrently or approval of department.

Observation of human development in infants and young children.

- 263. Children, Youth and the Family**  
(245.) Fall, Winter, Spring. 3(3-0)  
Sophomores; SOC 241 or FCS 145 or FCS 262A;  
or approval of instructor.  
A family systems perspective of middle child-  
hood, adolescence, and youth development is  
presented, incorporating childhood through  
launching stages of family development. In-  
teractions of parents, children and socio-cultural  
factors are analyzed.
- 364A. Interacting with Young Children  
in Child Development Centers**  
(364.) Fall, Winter, Spring. 3(3-0) FCS  
262A, FCS 262B each with minimum grade of  
2.0; FCS 364B concurrently.  
Application of principles of human growth and  
development to personal interaction with chil-  
dren ages three to six individually and in small  
groups in schools of early childhood.
- 364B. Interacting with Young  
Children--Laboratory**  
Fall, Winter, Spring. 1(0-3) FCS 364A  
or concurrently, FCS 262A, FCS 262B each  
with a minimum grade of 2.0.  
Experience in interaction with children ages  
two to six years, individually and in groups in a  
child development center.
- 369A. Learning Activities for Early  
Childhood Programs**  
Fall, Winter, Spring. 3(3-0) Majors:  
FCS 262A and FCS 262B, FCS 364A and FCS  
364B each with a minimum grade of 2.0; FCS  
369B concurrently. Others: approval of de-  
partment.  
Planning learning activities and teaching strate-  
gies for children ages 3 to 6 in early childhood  
education programs.
- 369B. Learning Activities for Early  
Childhood  
Programs--Laboratory**  
Fall, Winter, Spring. 1(0-3) FCS 369A  
concurrently and approval of department.  
Experience in planning and carrying out learn-  
ing activities with young children in an early  
childhood program.
- 400H. Honors Work**  
Fall, Winter, Spring, Summer. Vari-  
able credit. May reenroll for a maximum of 16  
credits. Seniors; approval of department.
- 442. Minority Families in America**  
(401.) Winter. 3(3-0) Juniors.  
Historical, structural, functional components of  
minority family systems in white America. Cen-  
ters on a particular minority family system each  
term. Life styles, pressures, adaptations, viabil-  
ity and continuity of minority family subculture.
- 444. Interpersonal Relationships in  
the Family**  
Fall, Winter, Spring, Summer of  
even-numbered years. 3(3-0) FCS 145 or FCS  
263 or approval of department.  
Relationships between and among family mem-  
bers as they are affected by other systems, and  
by physical, cultural, social-psychological forces  
within the family eco-system. Contemporary  
family life issues.
- 445. Human Sexuality in the Family**  
(365.) Fall, Winter, Spring. 3(3-0)  
Juniors. Credit may not be earned in both FCS  
445 and PSY 290.  
Personal, interpersonal, societal meanings of  
human sexuality, utilizing outgoing small peer  
group interaction. Nonlecture, value clarifica-  
tion approach, integrating reflection on research  
findings, family, peer and cultural influences.
- 446. Approaches to the Study of the  
Family**  
Fall, Winter, Summer of odd-  
numbered years. 4(4-0) FCS 145 or FCS 263,  
FCS 444.  
The family is studied from several approaches.  
Case studies, films, literary materials, research  
studies and observations of living situations are  
included.
- 461. Individual Child Study**  
Fall, Winter. 3(2-2) Majors: FCS 364;  
others: FCS 262A, PSY 244 or ED 412.  
An in-depth analysis of development and behav-  
ior utilizing regular observation of a young  
child. Applications of theories of child growth  
and behavior.
- 464. Problems in Teaching in a Child  
Development Center**  
(464B.) Fall, Winter, Spring, Summer.  
2(2-0) FCS 464A or FCS 464C or concurrently.  
Analysis of problems in teaching in an early  
childhood program. Application of child guid-  
ance techniques and principles.
- 464A. Practicum in a Child  
Development Center**  
Fall, Winter, Spring, Summer. 7(0-21)  
FCS 369A, FCS 369B each with a minimum  
grade of 2.0; FCS 464 concurrently. Advance  
application required. Not open to students with  
credit in FCS 464C.  
A directed practicum in planning, implement-  
ing and evaluating the learning environment in  
a class of young children during an entire term.
- 464C. Practicum in a Child  
Development Center**  
Fall, Winter, Spring, Summer. 4(0-12)  
FCS 369A, FCS 369B each with a minimum  
grade of 2.0; FCS 464 concurrently. Advance  
application required. Not open to students with  
credit in FCS 464A.  
A directed practicum in planning, implement-  
ing and evaluating the learning environment in  
a class of young children. For experienced  
teachers.
- 467. Administration of Child  
Development Centers**  
Spring. 3(3-0) FCS 464A, FCS 464B or  
concurrently; or approval of department.  
Administrator's role in child development cen-  
ters. Application of child care philosophy, man-  
agement and communication skills to operation  
of early childhood education programs. Federal,  
state, and local regulations and support services.
- 468. Teacher-Parent Interaction**  
Fall, Winter, Spring. 3 credits. Majors:  
FCS 464A, FCS 464B or concurrently; others:  
FCS 262A or ED 412.  
Analysis of parent-teacher communication and  
interaction, parent involvement, and parent  
education related to early childhood education  
programs operated by schools, churches, or  
community agencies. Field experience when  
feasible.
- 470. Current Issues in Family and  
Child Sciences**  
Winter, Spring. 3(3-0) FCS 464A, or  
Seniors, or approval of department.  
Analysis of current events, issues; of legislation  
which has bearing on homes, families and chil-  
dren and children's programs. Implications for  
professional decisions and actions.
- 480. Human Development and  
Interpersonal Relationships: The  
Middle and Later Years**  
Spring, Summer of odd-numbered  
years. 4(3-1) Introductory sociology and  
psychology; FCS 145 or FCS 263 or FCS 444.  
Social-psychological-biological development  
and socialization for roles in middle and later  
years. Generational relationships; societal in-  
fluences. Case study approach involving in-  
teraction with an adult or family in middle or  
later years.
- 495. Independent Study**  
Fall, Winter, Spring, Summer. 4 to 12  
credits. May reenroll for a maximum of 12 cred-  
its. Approval of department.  
Study of a selected topic under the guidance of a  
faculty adviser in the area of speciality.
- 498. Field Study**  
Fall, Winter, Spring, Summer. 1 to 12  
credits. May reenroll for a maximum of 12 cred-  
its. Approval of department.  
Study in off-campus situations in a variety of  
ways using involvement in volunteer, govern-  
mental or business-sponsored community ser-  
vice agencies to further insights into interaction  
among the individual, the family and the com-  
munity.
- 801. Seminar in Family Life**  
(801A.) Fall, Winter, Spring. 3(3-0)  
May reenroll for a maximum of 12 credits. Ap-  
proval of department.
- 802. Seminar in Child Development**  
(801B.) Fall, Winter, Spring. 3(3-0)  
May reenroll for a maximum of 12 credits. Ap-  
proval of department.
- 810. Workshop**  
Summer. Variable credit. Approval of  
department.  
Content varies depending on nature of work-  
shop.
- 813. Special Studies in Family Life**  
(813B.) Fall, Winter, Spring, Summer.  
1 to 4 credits. May reenroll for a maximum of 12  
credits. Approval of department.
- 819. Theories of Child Development**  
(862.) Fall. 3(3-0) FCS 262A or child  
psychology.  
Comparative study of conceptual frameworks  
utilized in child development.
- 820. Human Development in the  
Family: Physiological  
Development**  
Fall. 4(4-0) Six credits in child devel-  
opment or approval of department.  
Selected aspects of family members' physiologi-  
cal potential, development, status explored.  
Family's contributions to members' physiologi-  
cal potential for growth and development and to  
realization of human potential are seen as fun-  
damental.
- 821. Human Development in the  
Family: Personality**  
Winter. 4(4-0) Six credits in child de-  
velopment or approval of department.  
Influence of child-rearing practices and parent-  
child relationships on developing human per-  
sonality. Application of research findings and  
theoretical approaches to psychological devel-  
opment in the family and family-related situa-  
tions.

**Descriptions – Family and Child Sciences  
of  
Courses**

**822. Human Development in the Family: Socialization**  
Spring. 4(4-0) Basic course in sociology; 6 credits in child development or family life or approval of department.

Influence of family structure and interaction upon socialization from infancy to adulthood. Relationship of family to processes in larger social environment, and influence of these on human social development.

**830. Individual Readings**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**831. Death, Dying, and the Family**  
Spring. 3(3-0)

Provides students with an understanding of various theoretical frames of reference developed for viewing death within the family and strategies designed to assist them to deal with it.

**840. Topics in Child Development**  
Fall, Winter, Spring. Variable credit. 3(3-0) to 6(6-0) FCS 262A or a child growth and development course.

In-depth analysis of a selected topic pertinent to the care and education of young children in child development centers.

**841. Early Childhood Education: Curricular Approaches**  
Spring. 3(3-0) FCS 262A or a child growth and development course.

Exploration of theoretical background and content of curricular approaches in early childhood programs. Analysis and evaluation of early childhood curricular materials. Experience in designing and sequencing activities for young children.

**842. Assessment of Development of the Young Child**  
Fall. 3(3-0) A child growth and development course.

Survey of assessment instruments and procedures for children from birth to age seven. Techniques for practitioner or parent to use to assess physical, social, emotional and intellectual development.

**843. Play and Human Development**  
Winter of odd-numbered years. 3(3-0)  
One course in child development or human development.

Role of play in human development. Functions of play related to other aspects of development. Analysis of theory related to play behavior.

**850. Aging in the Family**  
Fall. 3(3-0) FCS 480 or approval of instructor.

Provides students with a knowledge and understanding of the literature in aging in the family and develops an appreciation of the interrelationships involved in this multidisciplinary area.

**852. Communication and Family Crisis**  
Winter. 3(3-0) Approval of department.

Dynamics of family communication and adjustment to crisis during the life cycle. Delineation of major types of family crises and their consequences. Strategies for positive communication and resolution.

**853. Interpersonal Effectiveness**  
Fall. 3(3-0) FCS 444 or approval of department.

Theory and research underlying personal development and effective relationships in the family system. Professional application of interpersonal effectiveness training. Approved through Summer 1980.

**855. Topics in Family Relationships**  
Fall. 2 to 4 credits. FCS 444 or FCS 445 or approval of department.

In-depth analysis of a topic related to the American family as an interactive system within the larger society.

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

**999. Doctoral Dissertation Research**  
Fall, Winter, Spring, Summer. Variable credit.

Research in home management and economics of the family.

## **FAMILY ECOLOGY F E**

### **College of Human Ecology**

**200. Ecological Approach to Family and Health**  
Fall, Winter. 2(2-0) Sophomores. Not open to HEC majors.

Use of the human ecosystem perspective to study people and their various environments with focus on family and health support systems.

**221. The Role of the Helping Professions and Organizations in Community Services**  
(IDC 221.) Fall, Winter, Spring. 4(4-0)  
Interdepartmental with and administered by the Department of Urban and Metropolitan Studies.

Analysis of human and community needs; review and examination of existing and emerging resources to meet those needs; role of professionals and volunteers in providing community and human services.

**238. Personal Finance**  
Fall, Winter, Spring. 3(3-0)  
Strategies, techniques and resources useful in the management of personal finance.

**332. Theory and Application of Home Management**  
Fall, Winter, Spring. 4(3-2) Juniors and HEC 301 or concurrently; or approval of department.

Principles of effective home management and their application in a living situation.

**340. Instruction in Human Ecology for Non-Formal Settings**  
Fall, Winter, Spring. 3(2-2) Juniors, HEC 301; Dietetic Majors: HNF 320 or concurrently.

Theory and practice of instruction in Human Ecology with specific application to non-formal environments. For majors in Dietetics and Community Services and other majors in human ecology.

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

**436. Consumer Economic Problems**  
Fall, Winter, Spring, Summer of even-numbered years. 3(3-0) EC 200 or EC 201.  
Nature of current consumer problems. Sources of information and methods of evaluating information in the search for solutions to problems and for improved consumer protection.

**437. Energy Utilization in the Household**  
Fall. Summer of even-numbered years. 3(3-0) HEC 301 or approval of department.

Human and fossil fuel energy use at the household level. Issues and policies regarding work accomplishment in the home.

**438. Family Financial Management**  
Fall, Spring, Summer of odd-numbered years. 4(4-0) HEC 301; EC 201 or PAM 201.

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

**450. Selected Topics in Family Ecology**  
Fall, Winter, Spring. 3(3-0) or 4(4-0)  
May reenroll for a maximum of 12 credits. Seniors.

Current issues of concern to professional family ecologists.

**495. Independent Study**  
Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 12 credits. Approval of department.

**498. Field Study**  
Fall, Winter, Spring, Summer. 4(2-8) to 16(2-42) Approval of department.

Preprofessional experience in a community agency/organization engaged in activities related to student's program. Weekly reports and seminar dealing with student learning experiences, professional development, and roles of selected agencies.

**800A. Seminar in Family Ecology**  
Fall, Winter, Spring, Summer of even-numbered years. 3(3-0) May reenroll for a maximum of 12 credits. Approval of department.

**804. Human Resource Development in Family**  
Spring. Summer of odd-numbered years. 3(3-0) EC 200, EC 201; FCS 444.

Role of family in human capital formation and development. Examination of effect of family environment on quality of human resources. Evaluation of public policy impacts on human resource development.

**813A. Special Studies in Family Ecology**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**814. Community Systems for Community Development**  
Winter. 3(3-0) Approval of department. Interdepartmental with and administered by the Department of Resource Development.

Basic systems of the community, their functions and interrelatedness; the family, economic, government, education, and supportive service systems.