902. Comparative Literature: Studies in Form and Genre
Winter, Spring 3(3-0) Interdepartmental with the departments of German and Russian, and Romance and Classical Languages.

Development and interrelationships of individual and collective forms and genres of literatures of the Western world, including the drama, tragedy, the novel, the short story, the theory and forms of poetry, popular literature, and the tale.

903. Comparative Literature: Studies in Periodization
Fall, Winter, Spring 3(3-0) Interdepartmental with the departments of German and Russian, and Romance and Classical Languages.

Analyses of the manner in which various genres, conventions and continuing traditions of literature interact with the creative and critical climates of particular periods and movements, such as classicism, the Middle Ages, the baroque, and romanticism, in qualifying or modifying characteristic literary works.

904. Studies in Influence
Fall, Winter, Spring 3(3-0)

Mutual influences of the English, Romance and Germanic literatures in general and in terms of specific authors and literary kinds, together with studies of the intermediaries of transmission, translations and sources.

930. Studies in English Drama
Fall of even-numbered years, Winter and Spring of odd-numbered years 3(3-0)

Liturgical beginnings to 1642.

940. Studies in Shakespeare
Winter of odd-numbered years 3(3-0)

To receive credit, both ENG 940 and ENG 941 must be completed satisfactorily.

941. Studies in Shakespeare
Spring of odd-numbered years 3(3-0)

To receive credit, both ENG 940 and ENG 941 must be completed satisfactorily.

970. Graduate Reading Course
Fall, Winter, Spring, Summer 1 to 5 credits Approval of department.

Supervised reading course in English and American literature for Ph.D. candidates.

975. The Reading Process and the Concept of Literacy
Spring 3(3-0) Approval of department.

The contributions of language and literary studies to our understanding of the reading process and our definitions of literacy.

990. Studies in English Language
Fall, Winter, Spring 3(3-0)

The English language from the viewpoint of historical problems, literary analysis and pedagogical implications.

981. Seminar: Earlier English Literature
Fall, Winter, Spring 3(3-0)

Special problems in English literature, beginning to 1920.

982. Seminar: Later English Literature
Fall, Winter, Spring 3(3-0)

Special problems in English literature, 1660-1900.

983. Seminar: American Literature
Fall, Winter, Spring 3(3-0)

Special problems in American literature, beginnings to 1900.

984. Seminar: Twentieth Century Literature
Fall, Winter, Spring 3(3-0)

Special problems in English and American literature, 1900 to the present.

985. Seminar: Special Studies in Literary Form and Theory
Fall, Winter, Spring 3(3-0)

Forms, genres, and movements.

986. Seminar: American Literature and Culture
Fall, Winter, Spring 3(3-0)

American literature in a cultural context, drawing upon popular and fine arts, the history of ideas, the history of social movements.

987. Seminar: Special Topics in Comparative Literature
Spring 3(3-0) Advanced graduates. Interdepartmental with the departments of Romance and Classical Languages, and German and Russian. Administered by the Department of Romance and Classical Languages.

988. Advanced Writing for Doctoral Candidates
Fall, Winter, Spring, Summer 3(3-0)

Admission to a doctoral program or approval of instructor.

Training for writing dissertations and publishing in the sciences, humanities, and other fields. Includes a detailed analysis of each student's style, methods of organizing practice in editing, and individual conferences.

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

ENTOMOLOGY

College of Agriculture and Natural Resources
College of Natural Science

250. Pesticides, Their Alternatives and Environmental Quality (N)
Winter 3(4-0)

Impact of agricultural pesticides on man and his environment. Emphasizes the effect of chemicals on food production and combating diseases and ecological imbalance. Presents pesticide alternatives for the future.

301. General Entomology
Fall, Spring 3(3-0) B S 211 and B S 212 recommended.


302. General Entomology Laboratory
Fall, Spring 20-60 ENT 301 or concurrently.

Insect diversity with emphasis on morphology, development, classification, identification, biomics, and evolution. Stresses reproductive strategies and general adaptability as relates to the overall ecological success of insects.

303. Entomological Techniques
Spring 20-60 ENT 301 or approval of department; ENT 302 recommended but not required.

Field entomology, including collecting and rearing techniques and methods of specimen preparation and preservation. Practical experience in insect identification and biomics. Collection required.

337. Forest and Shade Tree Entomology
Fall 4(2-2) Three terms of natural science.


401. Problems
Fall, Winter, Spring, Summer 1 to 6 credits May reenroll for a maximum of 12 credits Approval of department.

Advanced individual work on a field or laboratory research problem or a study of published literature on a selected topic.

410. Apiculture and Pollination
Spring 3(2-2)

Biology of the honey bee and some of the wild bees. Relationships between bees and flowering plants. Value of bees in crop pollination. Introduction to management with visits to the University apiary.

413. Insect Behavior
Winter of even-numbered years 3(3-0) ENT 301, ENT 302, ZOL 413 recommended.

Mechanisms and adaptive significance of communication, orientation, food and habitat selection and behavioral rhymicity in insects.

418. Systematic Entomology
Winter 4(1-0) ENT 301, ENT 302.

General taxonomic course to acquaint the student with the various groups of insects.

420. Aquatic Insects
Spring 3(3-0) ENT 301, ENT 302.

Biology, ecology and systematics of aquatic insects. Insect collection required.

421. Stream Ecology
Fall, Summer given at W. K. Kellogg Biological Station. 3(3-0) ENT 420 or approval of department. Interdepartmental with the Department of Fisheries and Wildlife.

An in-depth examination of stream ecosystems—physical, chemical and biological aspects. Field work will be centered on local streams. Laboratory exercises will involve manipulation necessary for the determination of population energy budgets, with special emphasis on aquatic insects. Field trips required.

425. Agricultural Entomology
Fall 4(3-2) One year of biological or agricultural sciences.

Natural processes of insect populations and associated techniques that are important to agriculture.
812. Graduate Seminar
Spring of even-numbered years. 4(1-9)
ENT 418.
Identification of immature insects with particular emphasis on the Holometabolans.

440. External Morphology of Insects
Fall. 4(2-6) ENT 301, ENT 302, or approval of department.
Morphological concepts of external skeletal parts of insects. Emphasis on evolutionary development of structures from the Apterygota through the Pterygota.

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
Fall. 5(3-4) ENT 301, ENT 302, 1 biochemistry or physiology course; 1 year of chemistry including 1 term of organic chemistry. 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. Fate 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.

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.

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.

835. Principles of Taxonomy
Spring of odd-numbered years. 3(3-0)
Taxonomy of immature insects with particular emphasis on the Holometabolans. Methods and principles of systematic zoology and entomology, including a historical survey of the pre-Linnaean and post-Linnaean systems of classification. Intra- and interspecific differences and their emendations.

871. Biology of Nematodes
Spring. 4(2-6) ENT 300 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(3-5) ZOL 401 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: agriculture, aquatic insects, insect biochemistry, biosystematics, economic insects, insect ecology, forest insects, morphology, nematology, insect physiology, plant disease transmission, insect toxicology, araneida, arachnida, 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(2-5) Organic chemistry, approval of department.
Application, extraction, cleanup and purification techniques employed in analysis of biologically active compounds. Stresses use of isolation techniques, and column, paper, thin-layer, and molecular sieve chromatography.

941. Analytical Techniques for Biological Compounds II
Winter. 4(2-6) approval of department.
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 ECOLOGY

118. Family Resources
(F E 118.) Fall. 3(2-2)
Skill development in identification, description and classification of human and non-human family resources on a historical and cross-cultural basis.

145. The Individual, Marriage and the Family
(FCS 145.) Fall, Winter, Spring. 4(4-0)

221. The Role of the Helping Professions and Organizations in Community Services
(IDC 221, F E 221.) Fall, Winter, Spring. 4(4-0) Interdepartmental with and administered by the Department of Urban and Metapolitan 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
(FE 238.) Fall, Winter, Spring. 3(3-0)
Strategies, techniques and resources useful in the management of personal finance.

255. Family and Individual Development: Life Cycle
(FCS 255.) 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
(FCS 262A.) Fall, Winter, Spring. Summer of odd-numbered years. 3(3-0) Sophomores, PSY 160 or PSY 170 or ED 200; FCE 262B concurrently.
Physical, cognitive, social, and emotional aspects of human growth and development from conception through early childhood.

262B. Child Growth and Development Laboratory
(FCS 262B.) Fall, Winter, Spring. Summer of odd-numbered years. 10(5-3) FCE 262A concurrently or approval of department.
Observation of human development in infants and young children.