

880. Proseminar for Master's Degree Candidates
Fall, Winter, Spring, Summer. 3(3-0)
Individual scholarly work under guidance.

885. Studies in the History of Literary Criticism
Fall, Winter, Spring, Summer. 3(3-0)
The history of literary criticism.

886. Studies in Modern Criticism
Fall, Winter, Spring, Summer. 3(3-0)
885.
Continuation of 885.

895. College Teaching of English
Fall, Winter, Spring. 1 to 3 credits.
May re-enroll for a maximum of 3 credits.
Graduate teaching assistant.
Supervised teaching of college classes in English language and literature.

896. Practicum in English Language and Literature
Fall, Winter, Spring Summer. 2 to 6 credits. Approval of department.
Supervised graduate practicums, observations, internships in the teaching of English language and literature.

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

902. Comparative Literature: Studies in Form and Genre
Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits. Interdepartmental with the German and Russian and Romance Language Departments.
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) May re-enroll for a maximum of 9 credits. Interdepartmental with the German and Russian and Romance Language Departments.
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, or romanticism, in qualifying or modifying characteristic literary works.

904. Studies in Influence
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits.
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 odd-numbered years. Winter and Spring of even-numbered years. 3(3-0) May re-enroll for a maximum of 9 credits.
Liturgical beginnings to 1642, excluding Shakespeare.

940. Studies in Shakespeare
Winter of odd-numbered years. 3(3-0)
To receive credit, both 940 and 941 must be completed satisfactorily.

941. Studies in Shakespeare
Spring of odd-numbered years. 3(3-0)
To receive credit, both 940 and 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.

980. Studies in English Language
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits.
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) May re-enroll for a maximum of 9 credits.
Special problems in English literature, beginnings to 1660.

982. Seminar: Later English Literature
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits.
Special problems in English literature, 1660-1900.

983. Seminar: American Literature
Fall, Winter, Spring. 3(3-0) May re-enroll for a maximum of 9 credits.
Special problems in American literature, beginnings to 1900.

984. Seminar: Twentieth Century Literature
Winter, Spring. 3(3-0) May re-enroll for a maximum of 6 credits.
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) May re-enroll for a maximum of 9 credits.
Forms, genres, and movements.

986. American Literature and Culture
Fall, Winter. 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) May re-enroll for a maximum of 9 credits. Advanced graduates. Interdepartmental with the departments of Romance Languages and German and Russian and administered by the Romance Languages Department.

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

ENTOMOLOGY ENT

College of Natural Science

250. Pesticides and Environmental Quality
Winter. 3(3-0)

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 212 recommended.
Biological relationships of insects. Insect behavior, ecology, and classification. Metamorphosis and development of insects.

302. General Entomology Laboratory
Fall, Spring. 2(0-6) 301 or concurrently.
Experiments in morphology, physiology, behavior of insects. Populations and classification of major groups.

337. Forest and Shade Tree Entomology
Fall. 4(3-2) Three terms of Natural Science.

Provides an understanding of significance and nature of insect injury to forest and shade trees, based upon morphology, physiology, biology and taxonomy of insect and host. Analyzes biological, chemical, cultural and silvicultural approaches to insect control in order to equip student with competence to carry out survey and action program assignments.

401. Problems
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll 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.

404. Field Entomology
Summer. 6 credits. One year of zoological science or teaching major in general science or approval of department. Given at W. K. Kellogg Biological Station.
Basic field survey in entomology. Emphasis on the biology, collection and identification of insects common to the Gull Lake Biological Station area.

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.

411. Seminar
Fall, Winter. 1(1-0) Majors or approval of department.
Reports by students, faculty, and representatives of the profession, with emphasis on current problems not covered in regular college subjects.

418. Systematic Entomology
Winter. 4(1-9) 301, 302.
General taxonomic course to acquaint the student with the various groups of insects.

420. Aquatic Insects
Fall. 4(2-4) 301, 302.
Biology, ecology and systematics of aquatic insects.

421. Stream Ecology
Summer. 3 credits. 420 or approval of department. Given at W. K. Kellogg Biological Station.
An in-depth examination of stream ecosystems—physical, chemical and biological aspects. Field work will be centered on local streams. Laboratory exercises will involve manipulations necessary for the determination of population energy budgets, with special emphasis on aquatic insects.

430. Economic Entomology

Winter. 3(2-3) 301, 302.

Recognition, life histories, behavior, ecology and integrated control of insects of economic importance.

438. Taxonomy of Immature Insects

Spring of even-numbered years. 4(1-9)

418. Identification of immature insects with particular emphasis on the Holometabola.

440. External Morphology of Insects

Fall. 4(2-6) 301, 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.

441. Internal Morphology

Winter. 4(2-6) 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.

450. Insect Physiology

Winter. 4(4-0) 441; PSL 401; 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. Introductory Nematology

Winter of odd-numbered years. 3(2-3) Interdepartmental with the Department of Botany and Plant Pathology.

Biology, taxonomy and control of plant parasitic and saprophytic nematodes.

480. Insects in Relation to Plant Diseases

(860.) Winter of even-numbered years. 4(2-4) 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

(870.) 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, 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

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

Insects and various invertebrates in relation to their environment. Factors affecting populations, speciation and distribution. Application of basic ecological principles to integrated control measures.

821. Advanced Stream Ecology

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

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.

830. Insect Biochemistry

Spring of even-numbered years 4(4-0). 450; BCH 401.

Energy metabolism, intermediary metabolism and the biochemistry of development in insects; stresses biochemical differences between insects and higher animals.

831. Insect Biochemistry Laboratory

Summer of even-numbered years. 2(0-6) 830 or concurrently.

Laboratory to accompany 830. Experiments designed to elucidate the biochemical mechanisms of importance to 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) 301, 302; organic chemistry.

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

851. Insect Physiology Laboratory

Winter. 2(0-6) 450 or concurrently. Selected physiological systems in insects.

881. Biology of the Arthropoda

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

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

899. 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) 940.

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

999. 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) Freshmen or Sophomores or approval of department. Students may not receive credit in both 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.

245. Children, Youth and the Family

(261.) Fall, Winter, Spring. 3(3-0) Sophomores, SOC 241.

Focuses on family system. Stages of family development studied include childbearing through launching. Interaction of parent, children and societal forces, particularly in middle childhood and adolescent stages emphasized.

262A. Child Growth and Development: Conception Through Early Childhood

(362A.) Fall, Winter, Spring. Summer of odd-numbered years. 3(3-0) A biological science or physiology course and SOC 241; ED 200 or PSY 160 or 170.

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

262B. Child Growth and Development Laboratory

(362., 362B.) Fall, Winter, Spring. Summer of odd-numbered years. 1(0-3) 262A concurrently or approval of department.

Observation of human development in infants and young children.

364. Interacting with Young Children in Child Development Centers

Fall, Winter, Spring. 3(2-3) 262A and 262B or PSY 245.

Application of principles of human growth and development to personal interaction with children ages three to six individually and in small groups in schools of early childhood.

369A. Learning Activities for Early Childhood Programs

(369.) Fall, Winter, Spring. 3(3-0) Majors: 262A and B and 364; others: ED 312. Planning learning activities and teaching strategies for children ages 3 to 6 in early childhood education programs.

*Name changed November 1, 1968. Formerly Home Management and Child Development.
†Name changed July 1, 1970. Formerly College of Home Economics.