Entomology

Undergraduate Study

An undergraduate degree in Insect Science will no longer be offered.

Minor - Insect Science

The department offers a minor in Insect Science that may be earned by completing ENT 370 Insect Biology and 12 credits in courses selected from an approved list supplied by the department.

Minor - Emerging Global Diseases

Entomology administers the Emerging Global Diseases minor (see http://www.ent.iastate.edu/egd ). Core courses address the biology of emerging disease agents (e.g., protozoa, fungi, microbes, and viruses), the clinical manifestations and epidemiology of emerging diseases, and the impact of those diseases on human interactions and socioeconomics. One course must be taken from each of three core areas:

Pathogens and Disease
MICRO 310 Medical Microbiology
MICRO 353 Introductory Parasitology

Sociology and Economics
SOC 411 Social Change in Developing Countries
SOC 345 Population and Society
FS HN 342 World Food Issues: Past and Present

Arthropod-borne Diseases
ENT 374 Insects and Our Health
ENT 574 Medical Entomology
MICRO 353 Introductory Parasitology

The remainder of the credits (for a total of 15) may be selected from any of the above-listed courses not selected, and from other appropriate courses as approved by Emerging Global Diseases program advisers.

Graduate Study

The department offers work for the master of science and doctor of philosophy degrees with a major in entomology. Studies at the Ecosystem, Organismal, and Subcellar levels occur in the following areas: aquatic entomology, biological control, chemical ecology, ecology, host plant resistance, insecticide toxicology, medical/veterinary entomology, pathology, pest management, physiology, population genetics, or systematics.

Graduates have a broad understanding of entomology and related disciplines, and an in-depth command of their area of concentration. They are able to communicate effectively with scientific colleagues and the general public in both formal and informal settings. Graduates are able to address complex problems facing entomology or toxicology professionals, taking into account related ethical, social, legal, economic, and environmental issues. They are skilled in research methods, data analyses, and interpretation of results. They also are skilled in working effectively with their colleagues, and writing concise and persuasive grant proposals. They have an understanding of and can critically evaluate current entomological literature.

Prerequisite to the entomology major and to minor graduate work in the department is completion of at least two years of zoological courses, for part of which credit in other closely allied biological sciences may be substituted. Specific course requirements for advanced degrees depend partly upon previous training and experience in the major field of specialization.

Any student receiving the M.S. in entomology shall have at least one course in insect physiology, one course in insect systematics, two courses of ENT 590 Special Topics (selected from topics A through D, F through I, M and N, inclusive), and at least 1 credit of ENT 600 Seminar.

Any student receiving the Ph.D. in entomology shall have at least one course in insect physiology, one course in insect systematics, four additional courses of ENT 590 Special Topics (selected from topics A through D and F through I, M through N inclusive), and at least 1 credit of ENT 600 Seminar. At least one 590 must be taken from each of these subgroups: Population (C, D, N); Organismal (A, B, F, M); and Suborganismal (G, H, I).

In addition, Ph.D. students majoring either in Entomology or Toxicology shall have two semesters of teaching experience, taken as ENT 590K Special Topics: Teaching Experience. one semester and ENT 590L Special Topics: Extension Internship. the other semester.

A student can receive a Ph.D. minor in Entomology by taking 3 Entomology courses (500 level and above) for a total of 9 credits to be determined by the student’s POS committee and approved by the Entomology Director of Graduate Education.

An option for an emphasis in molecular Entomology is available. Any student receiving the M.S. in entomology with an emphasis in molecular entomology is required to take:

ENT 555 Insect Physiology
ENT 590G Special Topics: Molecular Entomology.
Plus one other course of 590 selected from topics A-D, F, H, I, M, N
Plus one additional course in molecular entomology
ENT 600 Seminar
BBMB 404 Biochemistry I
BBMB 542A Introduction to Molecular Biology Techniques: DNA Techniques

And one course from the following:

ENT 576 Systematic Entomology
ENT 525 Aquatic Insects
ENT 568 Advanced Systematics

Any student receiving the Ph.D. in entomology with an emphasis in molecular entomology is required to take:

ENT 555 Insect Physiology
ENT 590G Special Topics: Molecular Entomology.
Plus three other courses of 590 selected from topics A-D, F, H, I, M, N
One additional course in molecular entomology
ENT 600 Seminar
BBMB 542A Introduction to Molecular Biology Techniques: DNA Techniques
BBMB 542C Introduction to Molecular Biology Techniques: Cell Techniques
BBMB 542D Introduction to Molecular Biology Techniques: Plant Transformation
BBMB 542E Introduction to Molecular Biology Techniques: Proteomics

An additional course with a molecular component

Plus one from each of the following:

Systematics
ENT 576 Systematic Entomology
ENT 525 Aquatic Insects
ENT 568 Advanced Systematics
Biochemistry
BBMB 404 Biochemistry I
BBMB 405 Biochemistry II
BBMB 504 Amino Acids and Proteins
BBMB 505 Bioenergetics and Metabolism

Entomology participates in the interdepartmental majors in ecology and evolutionary biology: genetics; Microbiology; and molecular, cellular and developmental biology; and in the interdepartmental major and minor in toxicology (see Index).

The Federal Corn Insects and Crop Genetics Research Unit and the North Central Plant Introduction Station are available for advanced study in certain phases of entomological research.

More information about the department, such as current research, faculty resumes, physical facilities, and graduate students can be viewed on the department’s website at www.ent.iastate.edu . Curriculum assessment for the department can be viewed here: http://www.ent.iastate.edu/assessment .