ENTOMOLOGY - BS

Students in this program learn broadly about insects and their relationship to humans, the environment, and other organisms. Students gain a strong scientific foundation in entomology, biology, chemistry, mathematics, ecology and biotechnology, coupled with field experiences and lab work, which provides students with practical skills, needed for research or industry careers.

Entomology is a basic and applied science of insects and their relatives such as ticks and mites. Insects are one of the most numerous and diverse forms of life on earth; they are essential constituents of virtually every terrestrial and aquatic ecosystem. While society benefits from the diverse roles played by insects, some species may become limiting factors in the production, processing and storage of our food and fiber crops, and to the health and well being of humans and animals. The knowledge and skills possessed by entomologists are essential components of modern integrated pest management strategies designed to safely and efficiently produce adequate food supplies for a continuously expanding world population, and to impede the transmission of insect-borne diseases, while at the same time protecting our endangered species and fragile ecosystems.

The Bachelor of Science degree in Entomology prepares students for career paths with strong employment demands among corporate and private agribusiness; urban pest management companies; scientific and technical organizations; public health agencies; local, state and federal governments; and international organizations. Employment opportunities exist in areas such as forensic entomology, conservation biology, environmental quality, food quality, regulatory inspection, public health and more. Our curriculum is sufficiently flexible such that students, in consultation with an academic advisor, may tailor the degree to meet their individual academic goals, including requirements for graduate studies and professional schools in health career areas (medical, veterinary, dental) as well as providing analytical skills needed for law school.

Students majoring in areas such as agronomy, animal science, horticulture, biology, genetics and biomedical sciences may wish to augment their knowledge and broaden their career opportunities by earning either a double major or a minor in entomology. Students interested in a double major or minor in entomology should contact an academic advisor for additional information.

Program Requirements

First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
ENTO 101 or AGLS 101	Introduction to Academic Success in Entomology [1] or Modern Agricultural Systems and Renewable Natural Resources	1
ENTO 201	General Entomology [1]	3
MATH 140	Mathematics for Business and Social Sciences [2]	3
	Semester Credit Hours	**15**

Spring		
BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
ENTO 102	Continuing Academic Success in Entomology [1]	1
MATH 142	Business Calculus [3]	3
Communication (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		3
	Semester Credit Hours	**15**

Second Year

Fall		
CHEM 222	Elements of Organic and Biological Chemistry [4]	3
ENTO 482	Occupational and Professional Development [1]	2
POLS 206	American National Government	3
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) [5]		3
Social and behavioral sciences (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) [5]		3
General elective		1
	Semester Credit Hours	**15**

Spring		
POLS 207	State and Local Government	3
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) [5]		3
Communication (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		3
Language, philosophy and culture (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) [5]		3
Technical elective [6]		3
	Semester Credit Hours	**15**

Third Year

Fall		
ENTO 306	Insect Structure and Function [1]	4
Technical electives [6]		7
General elective		3
	Semester Credit Hours	**14**

Spring		
ENTO 301	Biodiversity and Biology of Insects [1]	4
ENTO 424	Insect Ecology [1]	3
ENTO 481	Seminar [1]	1
GENE 301 & GENE 312	Comprehensive Genetics and Comprehensive Genetics Laboratory	4
Creative arts (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) [5]		3
	Semester Credit Hours	**15**

Fourth Year		
Fall		
ENTO 428	Insect Biotechnology [1]	3
ENTO 429	Insect Biotechnology Laboratory [1]	1
Technical electives [6]		7
General elective		5
	Semester Credit Hours	**16**
Spring		
ENTO 435	Case Studies in Problem Solving [1]	3
ENTO 484 or ENTO 491	Professional Internship [1] or Research	2
Technical electives [6]		6
General electives		4
	Semester Credit Hours	**15**
	Total Semester Credit Hours	**120**

1 Must earn a "C" or better in all required ENTO courses
2 MATH 150, MATH 152 will be accepted in lieu of MATH 140.
3 MATH 151, PHIL 240 will be accepted in lieu of MATH 142.
4 CHEM 227, CHEM 257 will be accepted in lieu of CHEM 222.
5 To be selected in consultation with student's academic advisor in the department. Three hours of international and cultural diversity (https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) electives and three hours of cultural discourse (https://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/) are required for graduation; these courses may fulfill other degree requirements as well. See the list of approved courses.
6 Technical electives must be selected in consultation with the student's advisor or from the current list of approved electives published by the department. See Technical Electives table.

Additional Requirements for a Baccalaureate Degree

- Foreign Language (two years of the same language in high school or one year/two semester sequence in college)
- Writing Intensive Courses (two courses designated W in major or one W and one C course in major)
- International and Cultural Diversity Courses (three credit hours)
- Cultural Discourse Course (three credit hours)

Technical Electives

Code	Title	Semester Credit Hours
ACCT 209	Survey of Accounting Principles	3
AGEC 314	Marketing Agricultural and Food Products	3
AGEC 330	Financial Management in Agriculture	3
AGEC 340	Agribusiness Management	3
AGSM 335	Water and Soil Management	3
AGSM 337	Technology for Environmental and Natural Resource Engineering	3
ALED 440	Leading Change	3
ANSC 107	General Animal Science	3
ANSC 108	General Animal Science Laboratory	1
ANSC 303/ NUTR 303	Principles of Animal Nutrition	3
ANSC 305	Animal Breeding	3
ANSC 307	Meats	3
ANSC 318	Animal Feeds and Feeding	3
ANSC 320	Animal Nutrition and Feeding	3
ANSC 326/ FSTC 326	Food Bacteriology	3
ANSC 327/ FSTC 327	Food Bacteriology Lab	1
BESC 201	Introduction to Bioenvironmental Sciences	3
BESC 401	Bioenvironmental Microbiology	3
BESC 402	Microbial Processes in Bioremediation	3
BICH 303	Elements of Biological Chemistry	3
BICH 410	Comprehensive Biochemistry I	3
BICH 411	Comprehensive Biochemistry II	3
BICH 431/ GENE 431	Molecular Genetics	3
BIOL 206	Introductory Microbiology	4
BIOL 213	Molecular Cell Biology	3
BIOL 319	Integrated Human Anatomy and Physiology I	4
BIOL 320	Integrated Human Anatomy and Physiology II	4
BIOL 351	Fundamentals of Microbiology	4
BIOL 357	Ecology	3
BIOL 413	Cell Biology	3
BIOL 456	Medical Microbiology	3
CHEM 228	Organic Chemistry II	3
CHEM 238	Organic Chemistry Laboratory	1
CHEM 258	Organic Chemistry II - Reactivity and Applications	4
COMM 203	Public Speaking	3
ECCB 205	Fundamentals of Ecology	3
ENTO 208-299 (https://catalog.tamu.edu/undergraduate/course-descriptions/ento/)		
ENTO 320	Honey Bee Biology	3
ENTO 322	Insects and Human Society	3
ENTO 401	Principles of Integrated Pest Management	3
ENTO 402	Insects In Agriculture	3
ENTO 403	Urban Entomology	3
ENTO 423	Medical Entomology	2
ENTO 431/ FIVS 431	The Science of Forensic Entomology	3
ENTO 432/ FIVS 432	Applied Forensic Entomology	1
ENTO 441	Engineering Vector Populations	3

ENTO 442	Mosquito - A History of Humankind's Struggle for Survival with the Deadliest Animal on the Planet	3
ENTO 485	Directed Studies	0-4
ENTO 489	Special Topics in...	1-4
GENE 405/ BIMS 405	Mammalian Genetics	3
GENE 406/ BIOL 406	Bacterial Genetics	3
GENE 412	Population, Quantitative and Ecological Genetics	3
HORT 201	Horticultural Science and Practices	3
HORT 301	Garden Science	3
HORT 308	Plants for Sustainable Landscapes	3
HORT 313	Introduction to Plant Physiology	3
HORT 315	Issues in Horticulture	3
HLTH 331	Community Health	3
HLTH 334	Women's Health	3
HLTH 335	Human Diseases	3
HLTH 342/ PHLT 342	Human Sexuality	3
HLTH 353/ PHLT 353	Drugs and Society	3
HLTH 354/ PHLT 354	Medical Terminology for the Health Professions	3
HLTH 403/ PHLT 403	Consumer Health	3
HLTH 405/ PHLT 405	Rural Health	3
HLTH 407	Global Health	3
HLTH 429	Environmental Health	3
PHLT 301	Public Health Concepts	1
PHLT 302	Foundations of Public Health	3
PHLT 303	Social Context of Population Health	3
PHLT 304	Biological Basis of Public Health Diseases & Disorders	3
PHLT 305	Epidemiology in Public Health	3
PHLT 306	Border Health	3
PHLT 307	Public Health in the Global Context	3
PHLT 308	Comparative Global Health Systems	3
PHLT 309	Population Health Promotion	3
PHLT 310	Public Health Writing	1
PHLT 311	Narrative Approach to Public Health	1
PHLT 313	Health Care and Public Health System	3
PHLT 314	Public Health Data Management and Assessment I	2
PHLT 315	Public Health Data Management and Assessment II	2
PHLT 330	The Environment and Public Health	3
PHLT 331	Occupational Safety and Health I	3
PHLT 332	Occupational Safety and Health II	3
PHLT 333	Accident Investigation	3
PHLT 334	Fire Safety and Workplace Hazards	3
PHLT 335	Hazardous Materials	3
PHLT 370	Broad Street Learning Community II	3
PHLT 410	Public Health Communication	3
PHLT 411	Project Management in Public Health	3
PHLT 412	Health Advocacy and Policy	3
PHLT 413	Public Health Informatics	3
PHLT 414	Applications of Epidemiology in Public Health	3
PHLT 415	Emergency Management in Public Health	3
PHLT 416	Public Health Leadership and Ethics	3
PHLT 426/ MKTG 443	The Business of Healthcare	3
PHLT 432	Human Factors and Ergonomic Health and Safety	3
PHLT 433	Industrial Inspections and Audit Techniques	3
PHLT 434	Project Cost Benefit and Economics	3
PHLT 436	Infectious Disease in the Developing World: Risks, Challenges, and Solutions	3
PHLT 441	Strategies for Population Health Improvement	3
PHLT 445	Applications of Public Health	3
PHLT 470	Global Public Health Systems and Practice Experiences	1-3
PHLT 485	Directed Studies	1-4
PHLT 489	Special Topics In...	1-4
PHYS 201	College Physics	4
PHYS 202	College Physics	4
PLPA 301	Plant Pathology	3
PLPA 303	Plant Pathology Laboratory	1
SCSC 105	World Food and Fiber Crops	3
SCSC 301	Soil Science	4
SCSC 304	Plant Breeding and Genetics	3
SCSC 405	Soil and Water Microbiology	3
SCSC 422	Soil Fertility and Plant Nutrient Management	3
SCSC 455	Environmental Soil and Water Science	3
STAT 302	Statistical Methods	3
VTPB 405	Biomedical Microbiology	4
VTPB 409	Introduction to Immunology	3
VTPB 487	Biomedical Parasitology	4