319 Introduction to Earth System Science  
Fall. 3(3-0) Interdepartmental with Geologi-

cal Sciences and Plant Biology and Sociol-
y and Zoology. Administered by Entomol-
y: RB: Completion of one course in bio-
logical or physical science.

364 Turfgrass Entomology  
Fall. 3(2-2) P: CSS 232 SA; CSS 362  
Life history, identification, and collection of turfgrass 
pests. Cultural biological and insecticide control. Principles of pest management.

407 Diseases and Insects of Forest and Shade Trees  
Spring. 4(3-3) Interdepartmental with Plant 
Biology and Plant Pathology. Administered 
by Plant Pathology: P: (PLB 105 or BS 162 
or LB 144) and Completion of Tier I Writing 
Requirement SA: BOT 407  
Diseases, insects, and environmental problems 
afecting trees in forests, parks, suburbs, and nurse-
ries. Methods of control.

410 Apiculture and Pollination  
Fall. 2(1-2) P: BS 162 or PLB 105 or LB 144  
Biology of bees and their relationship to flowers, 
pollination and crop production. Offered first 
ten weeks of semester. Laboratory sessions at MSU 
apiary required.

422 Aquatic Entomology  
Fall of odd years. 3(2-3) Interdepartmental with 
Fisheries and Wildlife and Zoology. Administered 
by Entomology: P: BS 162 SA: 
ENT 420  
Biology, ecology and systematics of aquatic insects 
ines and lakes. Field trips and aquatic 
sect collection required.

460 Medical Entomology  
Spring of odd years. 3(3-0) P: ENT 404 or 
MMG 201 or MMG 301 or approval of de-
artment R: Open to juniors and open to 
seniors and open to graduate students. 
Transmission and management of infectious dis-
ees involving insects and aracnids.

469 General Entomology  
Spring of odd years. 3(2-3) P: (BS 162 or LB 
144) or (BS 161 and BS 171) and comple-
tion of Tier I writing requirement)  
Biology of nematodes with special reference to the 
influence of phytoperasitic, entomopathogenic, 
animal parasitic, microbiotrophic and marine species on 
sustainable development and global property.

477 Pesticides in Pest Management  
Fall of even years. 3(3-0) Interdepartmental 
with Crop and Soil Sciences and Horticult-
ure. Administered by Entomology: P: PLP 
405 or CSS 302 or ENT 404 or ENT 470 
RB: CEM 143 or CEM 251 R: Open to ju-
iors or seniors or graduate students. 
Chemistry, modes of action, product development 
and regulation of pesticides. Environmental and 
social aspects of pesticide use.

478 Integrated Pest Management (W)  
Spring of odd years. 3(3-0) Interdepart-
mental with Crop and Soil Sciences and 
Forestry and Horticulture. Administered 
by Entomology: P: (ENT 404 or ENT 470 or 
PLP 405 or CSS 302) and completion of Ti-
er I writing requirement  
Theory, philosophy and application of pest man-
agement focusing on agricultural and natural sys-
tems.

485 Tropical Biology  
Spring. 3(3-0) Interdepartmental with Plant 
Biology and Zoology. Administered by Zool-
y: P: ZOL 355 R: Open only to juniors or 
seniors. Tropical biota emphasizing evolutionary and ecolog-
ic principles compared across tropical ecosystems.

815 Insect Behavior  
Fall of odd years. 4(1-6) P: ENT 404 or ap-
proval of department  
Identification, morphology, biology and evolutionary 
relationships of adult insects. Insect collection re-
quired.

838 Immature Insect Taxonomy  
Fall of even years. 4(1-5) P: ENT 404 or ap-
proval of department  
Classification, identification, morphology, biology 
and evolutionary relationships of immature insects. 
Emphasis on terrestrial holometabolia. Collection 
required.

844 Insect Ecology, Evolution and Conservation  
Fall of even years. 3(3-0) RB: ENT 404  
Unique characteristics and principles of insect ecol-
y and evolution including trrophic relationships, 
community structure, speciation, coevolution and 
conservation.

848 Biological Control of Insects and Weeds  
Spring of odd years. 3(2-2) RB: (ENT 404) or 
Ecology  
Principles and practices in the application of natural 
emies to control arthropod and weed pests. Iden-
tification and biology of beneficial species (parasi-
toids, predators, pathogens) and the ecological 
basis for their use in pest management systems.

850 Insect Physiology  
Spring of odd years. 3(2-2) P: ENT 404 or 
approval of department RB: Biochemistry  
Description of insect form and function. Examples of 
how physiological systems are coordinated for com-
bplex biological functions.

851 Molecular Entomology  
Fall of odd years. 3(3-0) Interdepartmental 
with Genetics. Administered by Entomology. 
Analysis of molecular processes unique to insects, 
and their potentials for genetic engineering.
**Entomology—ENT**

**890 Independent Study**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open to graduate students.  
Individual study on a field or laboratory research topic or review of published literature on a topic of interest.

**898 Master’s Research**  
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 10 credits in all enrollments for this course. R: Open only to masters students in the Department of Entomology.  
Master’s degree Plan B research paper.

**899 Master’s Thesis Research**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 24 credits in all enrollments for this course. R: Open only to masters students in the Department of Entomology.  
Master’s thesis research.

**999 Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open to doctoral students.  
Doctoral dissertation research.