AGPS 002: ENTOMOLOGY - GENERAL & APPLIED

Originator
kleuschner

Justification / Rationale
Correct effective date - change from Spring 2022 to Fall 2022 rb

Effective Term
Fall 2022

Credit Status
Credit - Degree Applicable

Subject
AGPS - Agriculture/Plant Science

Course Number
002

Full Course Title
Entomology - General & Applied

Short Title
ENTOMOLOGY/GENL&APPL

Discipline

Disciplines List
Agriculture

Modality
Face-to-Face
Hybrid

Catalog Description
This course is a study of insects including external and internal structures, major life systems, growth and development, classification, ecology, behavior, economic importance, and an overview of pest management. Suggested for Biological Science General Education Requirements.

Schedule Description
This combination lecture/lab course is a study of insects including external and internal structures, major life systems, growth and development, classification, ecology, behavior and economic importance. IGETC: 5B, 5C

Lecture Units
3

Lecture Semester Hours
54

Lab Units
1

Lab Semester Hours
54

In-class Hours
108

Out-of-class Hours
108

Total Course Units
4
Total Semester Hours
216

Limitation on Enrollment
35

Required Text and Other Instructional Materials

Resource Type
Book

Author
Required: Castner, J.

Title
Photographic Atlas of Entomology and Guide to Insect Identification

City
Gainesville, FL

Publisher
Feline Press

Year
2004

College Level
Yes

Flesch-Kincaid Level
12

Resource Type
Book (Recommended)

Author
Recommended: Kenn Kaufman

Title
Kaufman Field Guide to Insects of North America

Publisher
Houghton Mifflin Co.

Year
2007

For Text greater than five years old, list rationale:
Both of these books are very accurate despite the initial date of publication. There are very few good entomology books that work for this course, but these two fill that role.

Class Size Maximum
35

Course Content

1. Introduction to Entomology
   a. Position of Insects in the animal World
   b. Abundance, Size, and Reproductive Capacity of Insects
   c. Beneficial and Injurious Insects
2. Arthropoda: Insects and their Allies
3. Insect Structure and Function
   a. General External Anatomy
   b. General Internal Anatomy
   c. Physiology: Digestive, Circulatory, Excretory, Respiratory, Reproductive, Muscular, Nervous, and Hormonal Systems
4. Insect Life Cycles and Metamorphosis
5. Collecting, Mounting and Identifying Insects
6. Insect Orders—The Diversity of Insects
   a. Minor Orders: Thysanura, Collombola, Ephemeroptera, Odonata, Isoptera, Dermaptera, Mallophaga, Anoplura, Thysanptera, Neuroptera, Siphonaptera, Blatteria, Mantodea, Phasmida
   b. Major Orders: Orthoptera, Hemiptera, Homoptera, Coleoptera, Lepidoptera, Diptera, Hymenoptera
7. Insect Families within the Major Orders
8. Insect Ecology
9. Insect Behavior
10. Insects as Pests, including human interactions
11. Principles of Insect Pest Management

Lab Content

1. Insect Structure and Function
   a. General External Anatomy
   b. General Internal Anatomy
   c. Physiology: Digestive, Circulatory, Excretory, Respiratory, Reproductive, Muscular, Nervous, and Hormonal Systems
2. Insect Life Cycles and Metamorphosis
3. Collecting, Mounting and Identifying Insects
4. Insect Orders—The Diversity of Insects
5. Minor Orders: Thysanura, Collombola, Ephemeroptera, Odonata, Isoptera, Dermaptera, Mallophaga, Anoplura, Thysanptera, Neuroptera, Siphonaptera, Blatteria, Mantodea, Phasmida
6. Major Orders: Orthoptera, Hemiptera, Homoptera, Coleoptera, Lepidoptera, Diptera, Hymenoptera
7. Insect Families within the Major Orders
8. Insect Ecology
9. Insect Behavior

Course Objectives

	Objectives
Objective 1	Recall, discuss and compare basic knowledge of 23 insect orders, 50 to 100 common families, and specific insects of major importance.
Objective 2	Determine appropriate pest management procedures based on insect biology, ecology, economics and environmental concerns.
Objective 3	Demonstrate an understanding of the role that insects play in ecosystems.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Describe insect structure and function, reproduction, adaptability, and behavior.
Outcome 2	Differentiate between the main 23 insect orders and identify each one by sight.
Outcome 3	Demonstrate proper collection, preservation, preparation, and curation of an insect collection.
Outcome 4	Classify insects and other arthropods in the phylum arthropoda.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Laboratory	a. Use of video microscope b. Use of various media for presentations, including PowerPoint, CD/DVD, video, slides. c. Students will have opportunities to work as partners and in small groups
Lecture	Important information regarding insect taxonomy and structure and function will be presented in modules or powerpoint lectures to supplement the textbook and additional assigned readings.
Discussion	Students will participate in class discussions and group assignments both in class and in online modules.
Activity	A requirement of this course is to create and properly prepare an insect collection and field trips and outings will be offered to collect and to photograph insects in their natural habitats
Demonstration, Repetition/Practice	Students will write a research paper on an entomological topic and present their findings to the entire class

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	Homework assignments and worksheets based on the reading in the weekly module or textbook will be required.	In and Out of Class
College level or pre-collegiate essays	Students will write an entomological research paper using the APA format	In and Out of Class
Other	Creation and proper care/curations of an insect collection is required.	In and Out of Class
Student participation/contribution	Students will participate in class discussions both in the Lab and in the online module.	In and Out of Class
Mid-term and final evaluations	A midterm and a final will occur during the semester to test students knowledge of the material	In and Out of Class
Tests/Quizzes/Examinations	After each module there is usually a quiz (video quiz or written quiz) on that week's topic.	In and Out of Class
Group activity participation/observation	Some activities require students to work in groups. Example: microscope use and grasshopper dissection.	In Class Only
Laboratory projects	Laboratory projects include the use of microscopes, grasshopper dissection, and insect collection management.	In Class Only
Reading reports	Reading assignments will be required in some weeks - either from the textbook or supplemental reading provided by the instructor.	In and Out of Class

Assignments

Other In-class Assignments

1. Lab exercises and lab reports: Examples include - microscope use, grasshopper dissection (actual or virtual), preparation and curation of an insect collection.

Other Out-of-class Assignments

1. Read assigned chapters in textbook
2. Write answers to assigned questions from readings, powerpoints, or textbook
3. Semester project: prepare an extensive insect collection
4. Study and learn assigned vocabulary and insect/arthropod taxonomic groups
5. Complete lab exercises and assigned lab reports
6. Write an entomological research paper and present it to the class.

Grade Methods
Letter Grade Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %
50
On-campus %
50

Lab Courses

How will the lab component of your course be differentiated from the lecture component of the course?
The lab component will focus on the hands-on activities that are difficult to accomplish online: grasshopper dissection, use of microscope, insect collecting and preparation, while the lecture component will cover theory: arthropod types and characteristics, insect structure and function, insect taxonomy and natural history, and the history of entomology and pesticide use.

From the COR list, what activities are specified as lab, and how will those be monitored by the instructor?
The instructor will explain and then be available for guidance (and eventually grading) of the following activities:
field observation of insects in a natural setting and a museum
dissection of a grasshopper
microscope use (two types)
class insect collection care and curation
insect collecting / trapping
insect preparation including data labels

How will you assess the online delivery of lab activities?
This course will be assessed on a regular basis to ensure that the goals of the lab activities are being met and match up with the student learning outcomes.

Instructional Materials and Resources

If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?
Nothing is anticipated outside the college LMS

If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.
N/A

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:
Discussion forums with substantive instructor participation
Online quizzes and examinations
Private messages
Regular virtual office hours
Timely feedback and return of student work as specified in the syllabus
Weekly announcements

External to Course Management System:
Direct e-mail
Telephone contact/voicemail

For hybrid courses:
Field trips
Library workshops
Orientation, study, and/or review sessions
Scheduled Face-to-Face group or individual meetings
Supplemental seminar or study sessions

Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.

Communication is key and I will make myself readily available to all students during the semester using all of the listed methods above.

If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.

N/A

Other Information

Provide any other relevant information that will help the Curriculum Committee assess the viability of offering this course in an online or hybrid modality.

The hybrid format is ideal and will allow the class to use the Canvas modules for learning important content material while reserving the face to face Lab time for hands on activities. Students will be better able to focus on the lab activities in this way, in particular the insect collection requirement, which requires a lot of lab time with instructor guidance.

COD GE

C1 - Natural Sciences

CSU GE

B2 - Life Science
B3 - Laboratory Activity

IGETC GE

5B - Biological Science
5C - Science Laboratory

MIS Course Data

CIP Code

01.0304 - Crop Production.

TOP Code

010300 - Plant Science

SAM Code

D - Possibly Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Funding Agency Category

Not Applicable

Program Status

Program Applicable

Transfer Status
Transferable to both UC and CSU

General Education Status
Y = Not applicable

Support Course Status
N = Course is not a support course

Allow Audit
No

Repeatability
No

Materials Fee
No

Additional Fees?
No

Approvals

Curriculum Committee Approval Date
12/07/2021

Academic Senate Approval Date
12/09/2021

Board of Trustees Approval Date
01/21/2022

Chancellor's Office Approval Date
03/16/2022

Course Control Number
CCC000255120

Programs referencing this course
Desert Ecologist Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=150)
Desert Naturalist Certificate (http://catalog.collegeofthedesert.eduundefined/?key=189)
Liberal Arts: Math and Science AA Degree (http://catalog.collegeofthedesert.eduundefined/?key=29)
Agri-Business AS Degree (http://catalog.collegeofthedesert.eduundefined/?key=46)
Environmental Horticulture AS Degree (employment preparation) (http://catalog.collegeofthedesert.eduundefined/?key=47)
Environmental Horticulture AS Degree (transfer preparation) (http://catalog.collegeofthedesert.eduundefined/?key=48)
General Agriculture AS Degree (http://catalog.collegeofthedesert.eduundefined/?key=49)
Turfgrass Management AS Degree (http://catalog.collegeofthedesert.eduundefined/?key=50)
Natural Resources AS Degree (employment preparation) (http://catalog.collegeofthedesert.eduundefined/?key=70)
Natural Resources AS Degree (transfer preparation) (http://catalog.collegeofthedesert.eduundefined/?key=71)
Agriculture Food Safety Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=83)
Agriculture Office Assistant Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=84)
Agriculture Pest Management Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=86)
Agriculture Technician Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=87)
Environmental Horticulture Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=90)
Agriculture Irrigation Technician Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=91)
Plant Science AS Degree (employment preparation) (http://catalog.collegeofthedesert.eduundefined/?key=94)
Turfgrass Management Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=95)