I. Catalog Description and Credit Hours of Course:

Insect biology, behavior, control, structure, diversity, physiology and additional selected topics in entomology. Two hours lecture and two hours lab. (3)

II. Prerequisite: ZO 200

III. Purposes or Objectives of the Course:

A. Provide a background in basic insect biology including structure, function and physiology.

B. Provide an introduction to insect behavior and its evolutionary significance as model organisms in biology.

C. Provide a greater depth of understanding of insect control methods, their environmental impact and alternatives to chemical control.

D. Provide an opportunity for students to explore and more fully understand the diversity of insect orders around them every day.

E. To give students practical experience in working with insects as model organisms in biology.

IV. Expectations of students:

A. To attend all lecture and lab sessions and fieldtrips, to comprehend the material, actively participate in discussions and pass all exams and quizzes.

B. To make an insect collection.

C. To carry out an individual experimental project in entomology and make a presentation.

D. Graduate students will additionally do a literature search and make a student presentation in an area of his/her own interest in entomology.

V. Course content or outline:

Lecture __________________________ class hours
Introduction
Insect Cuticle structure and significance 2
Insect Molting 2
Insect Flight and indirect muscles 2
Insect Respiration and tracheal system 2
Insect Digestion and peritrophic membrane 1
Insect Excretion, Osmoregulation
    and Malpighian tubules 2
Insect Open Blood system and immune system 2
Introduction to Insect Pests 2
Insects as Vectors of Diseases 1
Chemical Control of Insects 2
Biological Control of Insects 2
Alternative Control Methods 3
Evolution of Insecticide Resistance
    and transgenic plants 1
Insect Behavior 3
Social Insects 2

Lab  class hours
Insect External Structure 2
Insect Internal Structure 3
Insect Mouthparts and their modifications 3
Insect Diversity - Subclass Exopterygota 5
Insect Diversity - Subclass Endopterygota 5
Fieldtrip (insect diversity and control) 3
Fieldtrip (beekeeping) 3
Fieldtrip (ants and termites) 3
Student presentations 3

VI. Textbook:
Wm. C. Brown Publishers, Dubuque, Iowa.

VII. Basis of Student Evaluation:

Quizzes 5%
Exams 50%
Student Insect Collection 20%
Individual Student Projects 20%
Student Presentation 5%

For Graduate Students:
<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Quizzes</td>
<td>5%</td>
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<tr>
<td>Exams</td>
<td>40%</td>
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<tr>
<td>Student Insect Collection</td>
<td>15%</td>
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<tr>
<td>Individual Student Projects</td>
<td>15%</td>
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<tr>
<td>Student Presentation</td>
<td>5%</td>
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<tr>
<td>Term Paper</td>
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<tr>
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