هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

# Course Specifications

| | |
|---|---|
| **Course Title:** | **Medical and Agricultural Entomology** |
| **Course Code:** | **BIO458** |
| **Program:** | **Bachelor of Science in Biology** |
| **Department:** | **Department of Biology** |
| **College:** | **Faculty of Science** |
| **Institution:** | **University of Tabuk** |

## Table of Contents

## A. Course Identification

| | |
|---|---|
| **1. Credit hours:** | **3 (2 Theoretical + 1 Practical) hours** |
| **2. Course type** | |
| **a.** | University ☐ College ☐ Department ☑ Others ☐ |
| **b.** | Required ☐ Elective ☑ |
| **3. Level 6/year at which this course is offered:** | **Levels 6, 7 or 8/ Third or Fourth Year** |
| **4. Pre-requisites for this course** (if any)**:** | **General Entomology (BIO359)** |
| **5. Co-requisites for this course** (if any)**:** | **None** |

### 6. Mode of Instruction (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|---|---|---|---|
| 1 | Traditional classroom | 2 | 50% |
| 2 | Blended | | |
| 3 | E-learning | | |
| 4 | Distance learning | | |
| 5 | Other laboratory | 2 | 50% |

### 7. Contact Hours (based on academic semester)

| No | Activity | Contact Hours |
|---|---|---|
| 1 | Lecture | 26 |
| 2 | Laboratory/Studio | 26 |
| 3 | Tutorial | |
| 4 | Others (specify) | |
| | Total | 52 |

## B. Course Objectives and Learning Outcomes

### 1. Course Description

- The course provides introduction to Medical and Agricultural Entomology, types of disease transmission, diseases and conditions caused by arthropod vectors, biology, behaviour, ecology of insect and arachnid vectors and the major vector-borne diseases and conditions they cause to human and livestock and companion animals with emphasis to those vectors have public health importance in the Saudi Arabia, the insect pests that cause damage to stored grains and destroying wood, prevention and control strategies against each of these arthropod (insects and arachnids) vectors and pests.

### 2. Course Main Objective

**By the end of this course, the students should be able to:**

- Provide students with modern information needed to reach a clear knowledge and understanding the importance of insect as agricultural pests and causing vertebrate diseases.
- Introduce students to the scientific concept of science terms partition and label scientific.
- Develop student's ability to learn and understand the different method of insect to cause harm to plants and vertebrates.

- Develop the skills of students in the remedy common mistakes to be able to distinguish between agricultural pests and medical importance insects.

## 3. Course Learning Outcomes

| CLOs | | Aligned PLOs |
|---|---|---|
| 1 | **Knowledge and Understanding** | |
| 1.1 | To define the basics, the most important concepts, and terminology constants for general entomology. | K1 |
| 1.2 | To recognize different between types of insects. | K1 |
| 1.3 | To outline the evolutionary relationships between insects and different living organisms. | K2 |
| **2** | **Skills :** | |
| 2.1 | To summarize most of the special characters of insects. | S5 |
| 2.3 | To draw samples of different insect stages thoroughly microscope. | S6 |
| **3** | **Values:** | |
| 3.1 | To appraise their time in self-study of the course materials. | V1 |

## C. Course Content

| No | List of Topics | Contact Hours |
|---|---|---|
| 1 | Introduction to economic and medical entomology | 2 |
| 2 | Types of pathogen transmission. | 2 |
| 3 | Types of pathogen transmission. | 2 |
| 4 | Types of problems caused by arthropods (directly) | 2 |
| 5 | Arthropods as vector of diseases (Mechanical) | 2 |
| 6 | Arthropods as vector of diseases (Biological) | 2 |
| 7 | Example of insects causing diseases (bugs) | 2 |
| | **Midterm Exam** | |
| 8 | Example of insects causing diseases (human lice) | 2 |
| 9 | Example of insects causing diseases (fleas) | 2 |
| 10 | Example of insects causing diseases (mosquitoes) | 2 |
| 11 | Stored products pests-1 | 2 |
| 12 | Stored products pests-2 | 2 |
| 13 | Wood destroying pests. | 2 |
| | **Final Exam** | |
| **Total** | | **26** |

| No | List of practical topics | Contact Hours |
|---|---|---|
| 1 | Introduction arthropods morphology and taxonomy | 2 |
| 2 | Introduction arthropods morphology and taxonomy | 2 |
| 3 | Mouthparts (insect feeding) and metamorphosis. | 2 |
| 4 | Examination of Cockroach | 2 |
| 5 | Examination of house fly | 2 |
| 6 | Examination of Bugs and human lice | 2 |

| | | |
|---|---|---|
| 7 | Examination of Fleas | 2 |
| | **Midterm Exam** | |
| 8 | Examination of Sand flies, black flies and tsetse flies | 2 |
| 9 | Examination of Mosquitoes | 2 |
| 10 | Field visits | 2 |
| 11 | Stored product pests (rust red flour beetle and rice moth) | 2 |
| 12 | Wood destroying pests (carpenter ants, carpenter bees, termites) | 2 |
| 13 | Wood destroying pests (carpenter ants, carpenter bees, termites) | 2 |
| | **Final Exam** | |
| **Total** | | **26** |

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|---|---|---|---|
| **1.0** | **Knowledge and Understanding** | | |
| 1.1 | To define the basics, the most important concepts, and terminology constants for general entomology | - Lectures.<br>- Activities.<br>- Case studies and articles.<br>- Using internet. | - Quizzes.<br>- Final exam.<br>- Homework. |
| 1.2 | To recognize different between types of insects.. | | |
| 1.3 | To outline the evolutionary relationships between insects and different living organisms.. | | |
| **2.0** | **Skills** | | |
| 2.1 | To summarize most of the special characters of insects. | - Individual and small group tasks.<br>- Lab demonstrations<br>- Individual presentation and group team presentation.<br>- Short essay. | - Assessment of practical examinations.<br>- Assessment of lab reports. |
| 2.2 | To draw samples of different insect stages thoroughly microscope. | | |
| **3.0** | **Values** | | |
| 3.1 | To appraise their time in self-study of the course materials. | - Essay writing.<br>- Lab demonstrations. | - Oral and written scientific report.<br>- Interactive discussion and participation. |

### 2. Assessment Tasks for Students

| # | *Assessment task | Week Due | Percentage of Total Assessment Score |
|---|---|---|---|
| **1** | Short essay, Quizzes | 1-13 | 10% |
| | Midterm Theoretical Exam | 8 | 25% |

| # | *Assessment task | Week Due | Percentage of Total Assessment Score |
|---|---|---|---|
| 3 | Midterm Practical Exam | 8 | 10% |
| 4 | Final Practical Exam | 14 | 15% |
| 5 | Final Theoretical Exam | 15 | 40% |

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :**

- Office hours: 6 hrs / week. At office
- Academic Guidance for about 30 students as determined by admission and registration.
- Direct supervision of staff for lab works.
- Electronic communication through blackboard and e-mail.

## F. Learning Resources and Facilities

### 1. Learning Resources

| | |
|---|---|
| **Required Textbooks** | - Mullen, G. L., and Durden, L. A. (2002) Medical and Veterinary Entomology. Academic Press, NY.<br>- Service, M. (2008) medical Entomology for Students 4th Edition Cambridge University Press. ISBN 978-0-521-70928-6. |
| **Essential References Materials** | - Vincent, H. R. and Ring T. C. (2009). Encyclopedia of Insects, second edition. Academic press. ISBN-10: 0123741440.<br>- Adham, F. K. (2009). Medical and Veterinary Entomology. 1st edition, ISBN: 977-17-6549-3. |
| **Electronic Materials** | - Biology: Concepts and Connections- Campbell et al., Pearson International, 6th edition.<br>- WHO (1989) geographical distribution of arthropod-born diseases and principal vectors. |
| **Other Learning Materials** | |

### 2. Facilities Required

| Item | Resources |
|---|---|
| **Accommodation**<br>Classrooms, laboratories, demonstration) (.rooms/labs, etc | - Classrooms accommodate about 60 students/ room.<br>- Laboratories accommodate about 30 students/ Lab. |
| **Technology Resources**<br>AV, data show, Smart Board, software,) (.etc | - Data show, Smart Board, virtual session provided by the blackboard (allowing discussion , sharing ppt and video) |
| **Other Resources**<br>Specify, e.g. if specific laboratory) equipment is required, list requirements or (attach a list | - A number of computers should be available for students, slides, Microscope ,mini samples in resin |

## G. Course Quality Evaluation

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|---|---|---|
| - Effectiveness of teaching and assessment. | - Students. | Indirect<br>- Questionnaires. |
| - The extent of achieving the course learning outcomes. | - Program committee.<br>- Staff members.<br>- Students. | Direct<br>- Questionnaires.<br>- Reports.<br>- Meetings |
| - Quality of learning resources. | - Program leaders.<br>- Peer Reviewer. | Direct & Indirect<br>- Questionnaires.<br>- Reports.<br>- Meetings |

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

| | |
|---|---|
| **Council / Committee** | Biology Department Council |
| **Reference No.** | |
| **Date** | 1/6/2022 |