



## Course Specifications

|                      |                                       |
|----------------------|---------------------------------------|
| <b>Course Title:</b> | <b>General Control</b>                |
| <b>Course Code:</b>  | <b>BIO457</b>                         |
| <b>Program:</b>      | <b>Bachelor of Science in Biology</b> |
| <b>Department:</b>   | <b>Department of Biology</b>          |
| <b>College:</b>      | <b>Faculty of Science</b>             |
| <b>Institution:</b>  | <b>University of Tabuk</b>            |

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## A. Course Identification

|   |   |
|---|---|
| <b>1. Credit hours:</b>                               | <b>3 (2 Theoretical + 1 Practical) hours</b>  |
| <b>2. Course type</b>                                 |   |
| a.  | University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> |
| b.  | Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>  |
| <b>3. Level/year at which this course is offered:</b> | <b>Level 7/First semester/ Fourth year</b>  |
| <b>4. Pre-requisites for this course (if any):</b>    | <b>General Entomology (BIO359)</b>  |
| <b>5. Co-requisites for this course (if any):</b>     | <b>None</b>   |

## 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 (lab work)      | 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)  |               |
|    | <b>Total</b>      | <b>52</b>     |

## B. Course Objectives and Learning Outcomes

### 1. Course Description

- The course includes definition of pests and pest management, difference between the concepts of control and eradication, historical examples of negative economical and health impacts, historical examples about pest management methods, types of different pests and pathogens in relation to public health and agriculture, important data needed to set proper control strategies against pests, how and when to use pest control strategies based on calculations of certain thresholds, different pest control methods and strategies, advantages and disadvantages of each method, types and classification of pesticides, general concepts of the integrated Pest Management (IVM) and its advantages and disadvantages.

### 2. Course Main Objective

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

- Identify the term pest and how to define pest species.
- Identify the history of best methods for pest management.
- Distinguish between natural and applied control methods.
- Identify the different methods of applied pest management.



- Describes how to use the correct method of control in accordance with the different habitats.
- Understand the Integrated Pest Management (IPM).
- Describes the advantages and disadvantages of each method of pest control.

### 3. Course Learning Outcomes

| CLOs |   | Aligned PLOs |
|------|---|--------------|
| 1    | <b>Knowledge and Understanding</b>  |              |
| 1.1  | To define pest, its different types and pest threshold.                               | K1           |
| 1.2  | To describe different methods of pesticides.  | K2           |
| 2    | <b>Skills :</b>   |              |
| 2.1  | To apply web based searching on the topics of pest control.                           | S3           |
| 2.2  | To differentiate between types and classifications of pest control.                   | S1           |
| 2.3  | To write scientific report on a pest control strategy after a field trip.             | S4           |
| 2.4  | To compare between natural pest control and other types of pest control.              | S1           |
| 3    |   |              |
| 3.1  | To justify the need and ways to apply pest control techniques to solve a given issue. | V1           |
| 3.2  | To question the reasons behind the spread of a given pest in a given area.            | V2           |

### C. Course Content

| No           | List of Topics   | Contact Hours |
|--------------|--|---------------|
| 1            | Introduction, what is a pest? Historical lesson of pest. | 2             |
| 2            | The different pest categories                            | 2             |
| 3            | Identification of pest thresholds                        | 2             |
| 4            | Natural control parameters                               | 2             |
| 5            | Mechanical and physical control                          | 2             |
| 6            | Cultural control   | 2             |
| 7            | Biological control                                       | 2             |
|              | <b>Midterm exam</b>                                      |               |
| 8            | Genetics control   | 2             |
| 9            | Chemical control, classification of pesticides           | 2             |
| 10           | Different methods of classifying insecticides            | 2             |
| 11           | Pest resistance towards insecticides                     | 2             |
| 12           | Regulatory control                                       | 2             |
| 13           | Integrated pest control                                  | 2             |
|              | <b>Final exam</b>  |               |
| <b>Total</b> |  | <b>26</b>     |

### 2. Practical part

| No | List of Topics | Contact Hours |
|----|----------------|---------------|
|----|----------------|---------------|



|              |  |           |
|--------------|--|-----------|
| 1            | Introduction to Pest Control   | 2         |
| 2            | Identification of Pest categories  | 2         |
| 3            | Methods of diagnosis and detection of insect pests   | 2         |
| 4            | Biological Control of Insects and Mites  | 2         |
| 5            | Pest survey, surveillance, and sampling methods  | 2         |
| 6            | Cultural Control of agricultural insect pests (This practical either field visit OR lab session)         | 2         |
| 7            | Mechanical control of pests (Field Visit)  | 2         |
|              | <b>Midterm Exam</b>  | 2         |
| 8            | Physical control of stored product pests (Field visit to crop store)                                     | 2         |
| 9            | Chemical control: application of pesticides against agricultural insect pests                            | 2         |
| 10           | Field visit to agricultural scheme and/or Ministry of Environment, Water and Agriculture                 | 2         |
| 11           | Chemical control: application of insecticides against insect vectors (Field visit to Ministry of Health) | 2         |
| 12           | Examination of different types of Synthetic Insecticides   | 2         |
| 13           | Extraction of Some Active biological Pesticides  | 2         |
|              | <b>Final Exam</b>  |           |
| <b>Total</b> |  | <b>26</b> |

## D. Teaching and Assessment

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

| Code       | Course Learning Outcomes   | Teaching Strategies  | Assessment Methods   |
|------------|--|--|--|
| <b>1.0</b> | <b>Knowledge and Understanding</b>                                       |  |  |
| 1.1        | To define pest, its different types and pest threshold                   | - Lectures.  | - Quizzes.<br>- Homework.<br>- Final exams.  |
| 1.2        | To describe different methods of pesticides                              | - Activities and homework.   | - Quizzes.<br>- Homework.<br>- Final exams.  |
| <b>2.0</b> | <b>Skills</b>  |  |  |
| 2.1        | To apply web based searching on the topics of pest control               | - Lectures.<br>- Individuals and small group tasks.                          | - Individual and group presentations.  |
| 2.2        | To differentiate between types and classifications of pest control       | - Short essay .<br>- Individual presentation and working as a part of group. | - Case studies.<br>- Demonstrate through posters and charts.<br>- Practical examinations . |
| 2.3        | To write scientific report on a pest control strategy after a field trip | - Short essay .<br>- Individual presentation and working as a part of group. | - Case studies.<br>- Demonstrate through posters and charts.                               |

| Code | Course Learning Outcomes  | Teaching Strategies  | Assessment Methods   |
|------|---|--|--|
| 2.4  | To compare between natural pest control and other types of pest control               | - Short essay .<br>- Individual presentation and working as a part of group. | - Case studies.<br>- Demonstrate through posters and charts. |
| 3.0  | <b>Values</b>   |  |  |
| 3.1  | To justify the need and ways to apply pest control techniques to solve a given issue. | - Essay writing.<br>- Individual presentation or group.                      | - Oral and written scientific report.                        |
| 3.2  | To question the reasons behind the spread of a given pest in a given area             | - Essay writing.<br>- Individual presentation or group.                      | - Interactive discussion                                     |

## 2. Assessment Tasks for Students

| # | *Assessment task             | Week Due | Percentage of Total Assessment Score |
|---|------------------------------|----------|--------------------------------------|
| 1 | Activities and Short Quizzes | 1-13     | 10%                                  |
|   | Midterm Theoretical Exam     | 8        | 25%                                  |
| 3 | Midterm Practical Exam       | 8        | 10%                                  |
| 4 | Final-Practical Exam         | 14       | 15%                                  |
| 5 | Final Theory 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 hours/ week at least.
- academic guidance for about 30 students as determined by admission and registration.
- Direct supervision of staff or lab works.
- Electronic communication through blackboard and e-mail.

## F. Learning Resources and Facilities

### 1. Learning Resources

|                                       |   |
|---------------------------------------|---|
| <b>Required Textbooks</b>             | - A manual of forensic entomology. British museum (Natural History), London. Smith (1986).  |
| <b>Essential References Materials</b> | - Not applicable (N.A.)   |
| <b>Electronic Materials</b>           | - <a href="http://www.scientificpest.com.au/">http://www.scientificpest.com.au/</a><br>- <a href="http://www.masapestcontrol.com.sa/Pest-Control-Equipment.html">http://www.masapestcontrol.com.sa/Pest-Control-Equipment.html</a><br>- <a href="http://www.ipm.ucdavis.edu/">http://www.ipm.ucdavis.edu/</a> |



|                                 |                  |
|---------------------------------|------------------|
| <b>Other Learning Materials</b> | - Not applicable |
|---------------------------------|------------------|

## 2. Facilities Required

| Item   | Resources   |
|--|---|
| <b>Accommodation</b><br>Classrooms, laboratories, demonstration)<br>(.rooms/labs, etc                                      | A sufficient number of classrooms, well - equipped<br>Practical laboratories are available to- accommodate students<br>Virtual session provided by blackboard (which- allow discussion and sharing video and PowerPoint |
| <b>Technology Resources</b><br>AV, data show, Smart Board, software,) (.etc  | - Data show<br>- Wireless connection in the building for students and faculties   |
| <b>Other Resources</b><br>Specify, e.g. if specific laboratory) equipment is required, list requirements or (attach a list | - Equipment for environmental monitoring and impact assessment required   |

## 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

|                            |                            |
|----------------------------|----------------------------|
| <b>Council / Committee</b> | Biology Department Council |
| <b>Reference No.</b>       |                            |
| <b>Date</b>                | 1/6/2022                   |

