هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	**Medical and Economic Entomology**
Course Code:	**ZOOL 456**
Program:	**Biology**
Department:	**Biology**
College:	**Science**
Institution:	**Jazan University**

Table of Contents

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 12/4th Year
4. Pre-requisites for this course (if any)**:** General Entomology **ZOOL 356**
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**	19	77%
2	**Blended**	1	7.7%
3	**E-learning**	1	7.7%
4	**Distance learning**	1	7.7%
5	**Other**	-	

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	22
2	**Laboratory/Studio**	22
3	**Tutorial**	-
4	**Others** (self-learning)	4
	Total	48

B. Course Objectives and Learning Outcomes

1. Course Description

Course Title	Course No.	Credit Units			Year	Level	Pre-Requisite
		Theoretical	Practical	Total			
Medical and Economic Entomology	**ZOOL 456**	**2**	**1**	**3**	**4th**	**12th**	**ZOOL 356**

- **Brief Course Description**

The course provides basic information on insects of medical and economic importance in the local environment and the impact of insect pests on various agricultural production systems and public health. Methods of pest control. Beneficial insects and making use of them.

- **Course Objectives:**

This course aims to giving the student knowledge in the fields:

1 -Insects of medical importance and their biology and systematic position- .Life cycle of pathogenic Micro-organisms inside the vector.
2- Means of Control insects of medical and economic importance .
3- Identify examples of beneficial insects and biological control
4- List all characteristics, importance, features, steps related to medical and economic entomology.
5- Differentiate between different mechanisms, functions, practices and aspects related to medical and economic entomology.
6- Apply accepted knowledge in entomology to solve some applied techniques and problems .
7- Design an entomological experiment and procedures in laboratory or in the field or even theoretically.
8- Communicate effectively orally or written by English language especially in biological terminology .
9- Demonstrate risk assessment & safety and then take the right decision in the various work sites

2) Course Contents:

1- Definition of medical insect, The relationship between the vector and pathogen, Types of pat transmission, Classification medical insects.

2- Order Diptera: General characters, Suborder Nematocera, Family Culicidae, External morpholog types of mosquitoes, Medical importance (malaria, yellow fever, dengue fever, rift valley elephantiasis, life cycle and control of mosquitoes, plasmodium malaria cycle. Study of models c species and myiasis.

3- General characters, life cycle, Medical importance and control of Orders: Blattaria, Phthira Hemiptera, Siphonaptera.

4- Agriculture pests: Study of models of species in the local environment in terms of life cycle, ha phases and damage to plants, stored materials and the most important ways to control them.

5- Beneficial insects: Such as Honey bee, Silk worm, Predators.

Practical:

Common insect's specimen and slides of economic and medical importance in local environment. Microscopic slides for some pathogens and specimen of insects, Damages they cause to humans, animals and plants. Life cycles and methods of these pest control.

3) Assessment:

Exams: Essay/Objective, oral, class work, research work, translations
Practical: Identifying samples and slides, drawings.
Theory activities 20%
Practical 30%
Final 50%

5) Teaching Methods:

Lectures, photographs, slides, multimedia, web-based learning. Samples, Light microscopes. Reports and Essay Assignments, Homework, field trips.

6) Text Books:

- - Louis Compton Miall (2017) Injurious and Useful Insects: An Introduction to the Study of Eco Entomology, Leopold Classic Library, Amazon.com.
- Chabman and Hall, (2012), (5thed) Medical Entomology for Students, Cambridge University.
- المدخل الي علم الحشرات الطبية والبيطرية (2015) تأليف د عزام محمد الناصر الاحمد -دار جامعة الملك سعود للنشر-المملكة العربية السعودية.
- دليل المرشد الزراعي (2013): الطبعة الاولي-د محمد علي طناني –دار البتول للنشر – جمهورية مصر العربية.
- السيد حسن شورب(2013) أساسيات علم الحشرات الطبية والبيطرية المكتبة الأكاديمية
- ايمان بدوي مرسي احمد (2014) الحشرات الاقتصادية – جامعة القاهرة

7) References:

- Glenn W. Herrick (2015) Insects of economic importance; outlines of lectures in eco entomology. Classic Library, Amazon.com

Online source: https://en.wikipedia.org/wiki/Economic_entomology

https://www.who.int/
https://www.fao.org/home/ar

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	List all characteristics, importance, features, steps related to medical and economic entomology.	K 1-3
1.2	Differentiate between different mechanisms, functions, practices and aspects related to medical and economic entomology.	K 2-1
1.3	Apply your knowledge in entomology to solve some applied techniques and problems.	K 3-1
2	**Skills :**	
2.1	Argue different entomological approaches in laboratory or field or even theoretically.	S 2-2
2.2	Design an entomological experiment and procedures in laboratory or in the field or even theoretically.	S 3-1
2.3	Communicate effectively orally or written by English language especially in biological terminology.	S 4-1
3	**Values:**	
3.1	Demonstrate risk assessment & safety and then take the right decision in the various work sites	V 2-1

C. Course Content

No	List of Topics	Contact Hours
1	Identification medical insects. Types of problems caused by insects.	2
2	Methods of transmission of pathogens.	2
3	Life cycle of mosquitoes and diseases transmission	2
4	Plasmodium life cycle – Mosquito control.	2
5	Life cycle of Sand fly and medical importance	2
6	Life cycle of Cockroaches and diseases transmission- Life cycle of lice and medical importance	Self learning
7	Life cycle of Bugs & fleas and medical importance.	2
8	Identification economic insects -The agriculture pests in Saudi Arabia.	2
9	Identification economic insects -The agriculture pests in Saudi Arabia.	Self learning
10	Order Orthoptera - Economic importance and control.	2
11	Orders: Isoptera ,Thysanoptera - Economic importance - control.	2
12	Order: Lepidoptera – Economic importance - control.	2
13	Beneficial insects - Biological control.	2
Total		22

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	List all characteristics, importance, features, steps related to medical and economic entomology.	. Lectures, self-learning	Written exam, Quizzes
1.2	Differentiate between different mechanisms, functions, practices and aspects related to medical and economic entomology.	Lectures.	Written exam, Quizzes, Assignments
1.3	Apply your knowledge in entomology to solve some applied techniques and problems.	Lectures. Filed work	Written exam, Assignments.
2.0	**Skills**		
2.1	Argue different entomological approaches in laboratory or field or even theoretically.	Lab work	Written exam, Short answer Question
2.2	Design an entomological experiment and procedures in laboratory or in the field or even theoretically.	Lab work	Written exam, Assignments
2.3	Communicate effectively orally or written by English language especially in biological terminology.	Lab work, Group Discussion , self-learning	Quizzes, Lab work assignments
3.0	**Values**		
3.1	Demonstrate risk assessment & safety and then take the right decision in the various work sites	Lectures, Lab work , self-learning	Written exam, Quizzes, Assignments
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Written assignment	3	5%
2	Theoretical quiz	5	5%
3	Midterm exam	6	10%
4	Practical Mid-term exam	6	10%
5	Final Practical exam	11	20%
6			
7	Final exam	12	50%

***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 :
10 Office hours/faculty/week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	- المدخل الي علم الحشرات الطبية والبيطرية (2015) تأليف د عزام محمد الناصر الاحمد -دار جامعة الملك سعود للنشر-المملكة العربية السعودية. - دليل المرشـــد الزراعي (2013): الطبعة الاولي-د محمد علي طناني –دار البتول للنشر – جمهورية مصر العربية.

Essential References Materials	- Louis Compton Miall (2017) Injurious and Useful Insects: An Introduction to the Study of Economic Entomology, Leopold Classic Library, Amazon.com. - Mike Service (2012), Medical Entomology for Students (5thed), Cambridge University Press.
Electronic Materials	https://en.wikipedia.org/wiki/Scientific_method https://www.fao.org/home/ar
Other Learning Materials	----------

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture room,
Technology Resources (AV, data show, Smart Board, software, etc.)	Data Show, AV, Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Photographs, slides, multimedia, web-based learning. Samples, Light microscopes, glassware, chemicals.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students, Faculty	Direct (Questionnaire)
Effectiveness of assessment	Peer Reviewer	Direct (Cross Check marking)
Extent of achievement of course learning outcomes	Program Leader	Indirect (QA Committee)
Quality of learning resources	QA. Committee	Indirect (Benchmarking)

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	Consultant Committee/ Board of Biology Department
Reference No.	
Date	11-9-2022

Course coordinator: Dr. Usama Mohammed Hassan Signature:
Head of Department: Dr. Abdullah Yahya Mashraqi Signature: