Course Specification
(Bachelor)

Course Title:	*Medical and Agricultural Entomology*
Course Code:	*BIO1414*
Program:	*Bachelor of Science in Biology*
Department:	*Department of Biology*
College:	*Faculty of Science*
Institution:	*University of Tabuk*
Version:	***Course Specification Version Number***
Last Revision Date:	*September 2023*

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:					
3 Credit (2 theoretical + 1 practical) hours.					
2. Course type					
A.	☐University	☐ College	☒ Department	☐Track	☐Others
B.	☐ Required		☒ Elective		
3. Level/year at which this course is offered: (8th Level / 4th year)					
4. Course general Description:					
The course provides introduction to Medical and Agricultural Entomology, in addition, The course covers topics on the Types of pathogen transmission, Types of problems caused by arthropods (directly) , Arthropoda as a vector of disease (Mechanical & Biological), and Example of insects causing diseases. Also, examples of Stored products pest and Wood destroying pests.					
5. Pre-requirements for this course (if any):					
General Entomology (BIO1302).					
6. Co-requirements for this course (if any):					
None.					
7. Course Main Objective(s):					
The objective of this course is to introduce the student to insects of economic and medical importance that are common in the local environment and the damages they cause to humans, animals, and plants of economic importance, the appearance of infection, the life cycle, the harmful stages of them, and the most important methods of controlling them.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2	50%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		

No	Mode of Instruction	Contact Hours	Percentage
4	Distance learning		
5	**Others (Lab works)**	2	50%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		**60**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Describe the economic significance of insects to man, in terms of their medical and a agricultural importance	K1	-Lectures. -Class discussion. -Group discussion. -Case studies.	-Quizzes -Midterm examination. -Final examination. -Class discussion and participation. -Homework (Problem-solving).
1.2	Explain different ways for control of medical and agricultural insect pests.	K1	-Lectures. -Class discussion. -Group discussion. -Homework assignments. -Case studies.	-Quizzes -Midterm examination. -Final examination.

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
				-Class discussion and participation. -Homework assignments.
2.0	**Skills**			
2.1	Differentiate between insect orders of medical and agriculture importance.	S1	-Lab work. -Class discussion. -Group discussion. -Brainstorming.	-Quizzes -reports -Final examination. -Class discussion and participation. -Homework (Problem-solving).
2.2	Analyze the relationship between insects as vector and pathogens.	S2	-Lab work. -Class discussion. -Group discussion. -Brainstorming.	-Quizzes -reports -Final examination. -Class discussion and participation. -Homework (Problem-solving).
3.0	**Values, autonomy, and responsibility**			
3.1	Appraise their time in self-study of the course materials.	V1	-Self-learning. -Lab work -Class discussion. -Group discussion. -Individual or group presentation.	-Class discussion and participation. -Homework (Problem-solving).

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to economic and medical entomology	2

2.	Types of pathogen transmission, Types of problems caused by arthropods (directly)	2
3.	Arthropoda as a vector of disease (Mechanical & Biological)	2
4.	Example of insects causing diseases (Housefly)	2
5	Example of insects causing diseases (Cockroaches)	2
6.	Example of insects causing diseases (Flea)	2
7.	Example of insects causing diseases (Bugs: Bed bugs & Reduviid bugs)	2
8.	Example of insects causing diseases (Lice)	2
9.	Example of insects causing diseases (Mosquitoes)	2
10.	Stored products pest (Rust red flour beetles)	2
11.	Stored products pest (Rice weevil, Maize weevil and grain weevil)	2
12.	Palm Tree pests (Red palm weevil))	2
13.	Wood destroying pests (Termites)	2
14.	Wood destroying pests (Wood Attacking Ants and bees)	2
15.	Wood destroying pests (wood boring beetles)	2
Total		**30**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Class Participation	During whole teaching period	5
2.	Homework (Problem-solving)	3 to 13	5
3.	Short Exams (Quizzes)	During whole teaching period	5
4.	Midterm Theoretical Examination	8-9	20
4.	Reports (For Practical)	During whole teaching period	10
5.	Final Practical Examination	15	15
6.	Final Theoretical Examination	17	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	- Mullen, G. L., and Durden, L. A. (2002) Medical and Veterinary Entomology. Academic Press, NY. - Service, M. (2008) Medical Entomology for Students 4th Edition, Cambridge University Press. ISBN 978-0-521-70928-6.
Supportive References	- Medical and Veterinary Entomology (2009). Encyclopedia of Insects, second edition. Academic press. ISBN-10: 0123741440. - Adham, F. K. (2009). Medical and Veterinary Entomology. 1st edition, ISBN: 977-17-6549-3
Electronic Materials	- Websites on the internet that are relevant to the topics of the course. - Biology: Concepts and Connections- Campbell et al., Pearson International, 6th edition. - WHO (1989) geographical distribution of arthropod-borne diseases and principle vectors.
Other Learning Materials	- Multi-media associated with the textbook and the relevant websites

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	- Well-equipped classrooms and laboratories that accommodate a sufficient number of students.
Technology equipment (projector, smart board, software)	- Multimedia projectors and smart boards.
Other equipment (depending on the nature of the specialty)	- Prepared microscope slides for the different types of insects and insect body parts. - Specimens for lab dissection. - Dissecting tools and dishes.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	- Students. - Faculty members.	Indirect & direct: - Questionnaires. - Meetings.

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of Students assessment	- Quality and development committee. - Department chair.	- Course report. - Program annual report.
Quality of learning resources	- Plan and program committee. - Students. - Staff members.	Indirect & direct: - Questionnaires. - Meetings. - Reports.
The extent to which CLOs have been achieved	- Quality and development committee. - Peer Reviewer. - Program leaders.	Indirect & direct: - Questionnaires. - Meetings. - Reports.
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	PROGRAMS AND STUDY PLANS COMMITTEE
REFERENCE NO.	
DATE	SEPTEMBER 2023