Course Specifications

Course Title:	**Pest Control**
Course Code:	**23074366-2**
Program:	**BSc Biology.**
Department:	**Biology**
College:	**Aljumum University College**
Institution:	**Umm Al-Qura University**

Table of Contents

A. Course Identification

1. Credit hours: 2 hours
2. Course type **a.** University ☐ College ☐ Department ■ Others ☐ **b.** Required ■ Elective ☐
3. Level/year at which this course is offered: 4th year / level (7).
4. Pre-requisites for this course (if any)**:** Entomology (23073363-3)
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		70 %
2	**Blended**		
3	**E-learning**		10 %
4	**Correspondence**		10 %
5	**Other**		10 %

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	**26**
2	**Laboratory/Studio**	**42**
3	**Tutorial**	**6**
4	Practical/Field work/Internship	**6**
5	**Others** (specify)	**10**
	Total	**90**
Other Learning Hours*		
1	**Study**	
2	**Assignments**	
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others** (specify)	
	Total	

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

Civilization has been combating insects and other pests throughout history. A pest is an undesirable organism that injures humans, desirable plants and animals, manufactured products, or natural substances. Many insects compete for our crops and livestock. As the battle between humans and pests continues over time, so will innovative methods of control. Pest control is designed for the students to understand the definition of pest and reasons for its deployments. The harmful effects of pests on plants, crops, and stored grain.Also, it will be covered different strategies used to control the pest. The factors that turn normal insects into pests. The role of ecosystem in controlling pests and overview of environmental friendly pesticides and its benefits

2. Course Main Objectives:

 After completing this course, students should be able to:

1. Understand the principles of the human – insect relationship.
2. List all the insects' orders.
3. Recognize some important insect-plant related diseases
4. Study the definition of pest and reasons for its deployments.
5. Study history and principles of insect control.
6. Study different strategies used in pest control.
7. Integrated pest management program (IPM).
8. Study the introduction of pesticides and their modes of action.
9. Recognize the role of ecosystem in controlling pests.
10. Knowledge of environmental friendly pesticides and its benefits

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	Identify the different types of pests.	
1.2	Define the major concepts in field of pest control and pesticides toxicology. As well as the major applications of pest control and pesticides toxicology in solving biological and environmental problems. Apprehend the basic information and techniques related to pest control and pesticides toxic. Illustrate the role of ecosystem in controlling pests. Illustrate the working knowledge of the environmental friendly pesticides and its benefits.	
1.3		
1...		
2	**Skills :**	
2.1	The student is able to propose solutions to some problems.. To use computer and internet. To describe the disorders arise after any organ injury	
2.2		
2.3		
2...		
3	**Competence:**	
3.1	Developing oral presentations.	
3.2	Communicating personal ideas and thoughts.	

CLOs		Aligned PLOs
3.3	□ Work independently and as part of a team to finish some assignments. □ Communicate results of work to others	
3...		

C. Course Content

#	List of Topics	No. of Weeks	Contact Hours
1	❖ **The definition of pest and reasons for its deployments.** - What is the pest, and antiquity of pest problems. - What turned insects into pests, and what causes pest outbreaks?	1	2
2	❖ **Recognize the role of ecosystem in controlling pests.** ❖ **Climatic factors, natural barriers, natural enemies, and diseases**	1	2
3	❖ **Different strategies used in pest control:** **1) Chemical control and its hazards**. - The history. - Inorganic and organic insecticides. - Mode of action of insecticides, and metabolism of insecticides. - Resistance and advantages of insecticides. - Hazards of insecticides and the precaution to reduce it. - Chemical pollution of environment and annual world production & consumption of pesticides. **2) Natural, agricultural, and mechanical control methods.**	2	4
4	**3) Physical control and legal control** **4) Legal control** **5) Biological control** - The biological control history and definitions. - The procedures adopted in biological control. - Biological control organisms, entomophagous insect orders, advantages and disadvantages.	2	4
5	**6) Microbial control** - The definition and traits desirable in pathogens - Principles groups of pathogens. - Toxin produced by microbes - Synergism between micro-organisms and insecticides - Host resistance to pathogen. - Methods of application and mass production of pathogens. - Advantages and disadvantages - Causes of pest infection with microbes. - Immune system of insects.	2	4
6	**7) Hormonal control.** - The endocrine system of insects. - Kinds of insect hormones. - Function of insect hormones. - Concepts of hormonal control of insects. - Insect hormone-mimics in non-insectan organisms. Advantages and disadvantages. **8) Pheromonal or behavioural control.** - Principles of behavioral control, and chemicals to which insects react.	2	2

	- Mode of pheromones application, pest management with pheromones. - Advantages and disadvantages.		
7	**9) Radiations or chemosterilant as controlling agents.** - Definition and classification of chemosterilants. - Mode of application and field trials. - Advantages and disadvantages.	1	2
8	**10) Genetic control** - Definition and methods of genetic control. - Advantages and disadvantages		
9	**11) Integrated pest management program (IPM).** - The definition, logic and necessity of IPM. - Tools of IPM. - Ecology versus IPM. - Kind of pests and economic injury. - Integration of existing methods.		
10	❖ **The definition of organic agriculture and why it's needed.**	1	2
11	❖ **Examples of insect pest orders.** - Orthoptera - Hemiptera - Lepidoptera - Hymenoptera - Diptera).	2	4

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**		
1.1 1.2 …	□ Identify the different types of pests. □ Define the major concepts in field of pest control and pesticides toxicology. As well as the major applications of pest control and pesticides toxicology in solving biological and environmental problems. □ Apprehend the basic information and techniques related to pest control and pesticides toxic. □ Illustrate the role of ecosystem in controlling pests. □ Illustrate the working knowledge of the environmental friendly pesticides and its benefits.	□ The methodology includes a combination of lectures by the lecturer, seminar presentation by the students and web-interactions. □ At the end of the programme, students will be divided into groups for seminar presentation on important areas of the course to assess their understanding and comprehension of the course. □ All students will be involved in on-line learning process and each student is required to create an E-mail address to facilitate student web interactions. □ Using images and movies □ Encouraging students to collect the new information about what the new in pest	Homework and quizzes. Midterm and final written exams (theoretical and practical). Evaluation of reports. Oral presentation. Course work reports.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		control. Availability of the reference books and scientific sites concerning pest control.	
2.0	**Skills**		
2.1	Developing oral presentations	Application of essential scientific techniques through lectures, classes and essays. Small group discussion. Ask the students to make small search project during the semester. Making connections between different topics across the course.	Course work reports. Evaluation of the topics prepared by students according to the content, arrangement, and covering of the topic. Midterm and final exams. Checking the homework assignments
2.2	Communicating personal ideas and thoughts.		
…	Work independently and as part of a team to finish some assignments.		
3.0	**Competence**		
3.1	Use information and communication technology	Oral presentations. Internet search assignments and essays. Incorporating the use and utilization of computer in the course requirements. Students will be asked for delivering a summary regarding certain topics related to the course.	Evaluation of student essays and assignments. Evaluating the laboratory written reports. Marks given to for good reports and presentations Evaluating during the discussion in lecture and reports. Part of the grad is put for student's written participation
3.2	Use IT and communication technology in gathering and interpreting information and ideas		
…	Use the internet as a means of communication and a source of information.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	**Home works, search or presentation**	**4th and 8th weeks**	**10 %**
2	**Midterm "Written Test (1)"**	**8th week**	**30%**
3	**Final Exam "Practical Test"**	**15th week**	**20%**
4	**Final Exam Written Test**		**40%**
5			
8	**Total**		**%100**

***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 :

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Lecture note of Department.
Essential References Materials	Srivastava, K.P. (1996): Text Book Of Applied Entomology. Kalyani publishers.
Electronic Materials	Scientific search engines on the internet.
Other Learning Materials	Modern devices or display screen and CD.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms, laboratories
Technology Resources (AV, data show, Smart Board, software, etc.)	data show
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods

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	
Reference No.	
Date	

Head of Department

Dr. Wessam M. Filfilan

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