



SULTAN QABOOS UNIVERSITY

COURSE OUTLINE

PROGRAM: Bachelor of Science in Plant Sciences

1. Course Code	PLNT3526	
2. Course Title	General Entomology	
3. Credits	3 Cr Hrs , 12 Cr Points, 6 ECTS	
4. Pre-requisite Course(s)	BIOL2101, PLNT2515	
5. Co-requisite Course(s)		
6. Equivalent Course(s)	CROP3526, PROT3526	
7. Incompatible Course(s)		
8. Course Category	<input type="checkbox"/> University Requirement	<input type="checkbox"/> University Elective
	<input type="checkbox"/> College Requirement	<input type="checkbox"/> College Elective
	<input checked="" type="checkbox"/> Department Requirement	<input type="checkbox"/> Department Elective
	<input type="checkbox"/> Specialization Requirement	<input type="checkbox"/> Specialization Elective
	<input type="checkbox"/> Other (specify):	
9. Course Owner	College: CAMS	Department: Plant Sciences
10. Course Type	<input type="checkbox"/> Lecture	<input checked="" type="checkbox"/> Lecture/Lab
	<input type="checkbox"/> Lecture/Seminar	<input type="checkbox"/> Lecture/Studio
	<input type="checkbox"/> Lecture/Tutorial	<input type="checkbox"/> Lecture/Lab/Tutorial or Seminar
	<input type="checkbox"/> Tutorial	<input type="checkbox"/> Laboratory (Practical)
	<input type="checkbox"/> Field or Work Placement	<input type="checkbox"/> Studio
	<input type="checkbox"/> Seminar	<input type="checkbox"/> Internship
	<input type="checkbox"/> Workshop	<input type="checkbox"/> Project
11. Language of Instruction	English	
12. Course Description		
This course introduces the student to the importance of insects to humans, and their structure, function, developmental stages, and behavior. It also presents fundamentals of insect classification to the order level with discussions of the characteristics of the major orders found in Oman. As an important component of their practical training, students are required to submit an insect collection representing different orders and species, and to successfully rear a common insect from egg to adult stage.		
13. Teaching/Learning Strategies		
Lectures Videos Article summary assignment Lab sessions & Lab exercise sheets Insect collection project Insect rearing project		
14. Assessment Components and Weight [%]		
<input type="checkbox"/> Quizzes	<input checked="" type="checkbox"/> Practical 14	<input checked="" type="checkbox"/> Other (specify): 8% Lab Final
<input checked="" type="checkbox"/> Homework assignments 10	<input checked="" type="checkbox"/> Project 23	
<input checked="" type="checkbox"/> In-term examination(s) 25	<input checked="" type="checkbox"/> Final examination 20	
15. Grading Method		
<input checked="" type="checkbox"/> A-F Scale <input type="checkbox"/> Pass/Not passed		
16. Textbook(s) and Supplemental Material		
1. Gullan and Cranston. 2005. The Insects: an Outline of Entomology, 3rd ed. 505 pp. (main textbook)		

2. Ross, H.H., C. A. Ross, and J.R.P. Ross. 1982. A Text Book of Entomology, 4th ed. 696 pp. (supplementary textbook)

17. Matching Course Objectives with Program Outcomes and SQU Graduate Attributes

SQU Graduate Attributes

A. SQU graduates should be able to: <ol style="list-style-type: none"> 1. apply the knowledge and skills relevant to the specialization 2. communicate effectively and use information and communication technologies 3. critically analyze complex information and present it in simple clear manner 	B. SQU graduates possess <ol style="list-style-type: none"> 1. interpersonal communication skills and alignment with culture of international labour market to assist them in practical life and in living successfully 2. skills and motivation for independent learning and engagement in lifelong learning and research 3. work ethics and positive values, and intellectual independence and autonomy 4. teamwork skills and display potential leadership qualities 	C. SQU graduates should <p>relish good citizenship qualities, be conscious of their national identity and be socially responsible, engage in community affairs and be mindful of contemporary issues.</p>
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#	Intended Student Learning Outcome /Course Learning Objective	Relevant Program Outcome(s)	Applicable Attribute(s)
1.	Define Entomology, and recall important milestones in its history	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
2.	List positive and negative impacts of insects on humans and the environment	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
3.	Explain the factors that make insects such a successful and dominant group of animals	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
4.	Recognize arthropods vs. other animals, differentiate between given specimens or illustrations of insects and their arthropod relatives based on special morphological characteristics; and describe basic biological and ecological features of arthropod groups	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
5.	Describe insect morphological structures in the head, thorax, and abdomen and their functions, and relate structure to insect and vice versa; recognize morphological structures and their functions/uses from given illustration	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
6.	Recognize that a particular insect part (antenna, mouthparts, legs, wings, ovipositors) could have variable form in different insects and relate form of insect part to its function	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
7.	Recognize various directions/positions on an insect body or part of its body; describe and label body parts and subparts (e.g. antenna, leg) of an insect and	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1)	A.1, A.2, B.2

	count their numbers based on specimen and/or illustration	-Graduates will be motivated to engage in independent life-long learning (B.2)	
8.	Differentiate between adult and immature insects and between different stages and types of immature insects based on specimens and/or illustrations	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
9.	Describe molting process, mode of metamorphosis, and life cycle stages of insects	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
10.	Explain insect classification categories and ranks and the difference between insect common and scientific names	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
11.	Explain the defining morphological characteristics and basic biology of insect orders including their unique behaviors, life history and relationship with humans	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
12.	Explain the basics of insect anatomy and the function of different organs of important life systems	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
13.	Recognize a selection of important beneficial and harmful insects and describe their basic biology and impact	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
14.	Develop interest in current research on insects and how to summarize main points of short research articles.	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be able to use the information technology for searching and processing data relevant to crop sciences and landscape design (A.2.2) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
15.	Describe and apply the methods, tools, equipment used in insect collection, preservation, storage, and display via lab sessions, field trips, and insect collection project	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
16.	Dissect whole body of grasshopper to study its general morphology; dissect mouthparts of grasshopper and of plant bug and know their general morphologies	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
17.	Differentiate between males and female insects based on their external genitalia	-Graduates will have knowledge and skills in crop sciences (A.1.1)	A.1, A.2, B.2

		-Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	
18.	Identify given adult or nymph specimen to its correct order using both printed and digital taxonomic keys; Recognize and differentiate 20 orders of winged and wingless hexapods based on given specimen, illustration, or description	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
19.	Develop basic skills and knowledge of insect rearing including accurately recording duration of stages and changes of form and behavior during development	-Graduates will have knowledge and skills in crop sciences (A.1.1) -Graduates will have ability to effectively communicate orally and in writing (A.2.1) -Graduates will be motivated to engage in independent life-long learning (B.2)	A.1, A.2, B.2
20.			

16. Student Responsibilities

It is the student's responsibility to know and comply with all University Academic Regulations relevant to participation in this course. These regulations specifically include attendance requirement and students' academic code of conduct.

For attendance, it is the student's responsibility to be punctual and to attend all classes.

Students are expected to perform their work with honesty and avoid any academic misconduct, which is defined as the use of any dishonest or deceitful means to gain some academic advantage or benefit. This can take many forms, including but not limited to, the following: copying, plagiarism, collusion and forging documents. For full details, please refer to the Undergraduate Academic Regulations and to the Student Academic Misconduct Policy.

Additionally, this course requires that you:

COURSE INFORMATION			
Course Code	PLNT3526	Course Title	General Entomology
Semester/ Year	Fall	Section(s)	10
Day, Time, and Place			
Course Coordinator	Ali K. Al-Wahaibi		
Office Location	CAMS, AGR/1009	Office Hours	
Office Tel. Ext.	1220	Email	awahaibi@squ.edu.om

Tentative Schedule			
Week	Lecture #	Topic/Material to be covered	Assessment
1	1	Lect: Course outline and requirements, The science of entomology, Importance of insects Lab: Entomology tools, collection methods	Lab exercise sheet
2	2	Lect: Importance of insects (cont.) Lab: Field trip to botanic gardens/AES	
3	3	Lect: Insect characteristics; Insect life stages, Insects and their relatives Orientation terms used to describe the body of insects Lab: Preservation methods, labeling of specimens. Processing of insects collected from field trip; Practicing of preservation methods and labeling of specimens;	Lab exercise sheet
4	4	Lect: Insect structure: body regions, exoskeleton, the head Insect structure: antennae Lab: Insect structure: body, antennae ; video Insect structure: mouthparts *Rearing project started	Lab exercise sheet
5	5	Lect: Insect structure; mouthparts Lab: Insect structure: legs, wings, and genitalia video	Lab: exercise sheet
6	6	Lect: Insect structure: thorax, legs, wings ; Insect structure: abdomen, genitalia, ovipositor Lab: Full day field trip	
7	Exam	Lect: Exam 1 Lab: Insect structure: abdomen and genitalia ; video	Theory Exam Lab exercise sheet
8	8	Lect: Insect metamorphosis ; Insect immatures Lab: Mid Term Lab Exam	Lab Exam
9	9	Lect: Taxonomy: Hexapoda, entognatha, Thysanura Lab: Insect metamorphosis and immatures?; video	Lab exercise sheet
10	10	Lect: Odonata, Orthoptera, Mantodea, Blattaria, Isoptera Lab: How to use identification keys; Insect orders: non-Holometabola	Lab exercise sheet
11	11	Lect: Hemiptera, Phthiraptera, Thysanoptera Lab: Insect orders :Holometabola; Insect-keying	Lab exercise sheet
12	12	Lect: Neuroptera, Coleoptera Lab: Hymenoptera, Lepidoptera, Diptera (Lect. materail); Insect orders : non-Holometabola + Holometabola; Insect-keying	Lab exercise sheet Article Summary
13	Exam	Lect: Exam 2 Lab: Beneficial and harmful insects	Theory Exam Lab exercise sheet
14	14	Lect: Insect Life systems (concise version): Digestive-excretory, respiratory systems Lab: Digestive and excretory systems Life systems: digestive, circulatory, respiratory, excretory, reproductive, and nervous	Lab exercise sheet
15	15	Lect: Insect Life systems (concise version): circulatory, reproductive, and nervous-endocrine systems Lab: Final Lab Exam	Final Lab Exam Citrus Butterfly Rearing Report
16			Insect Collection
17			Final Theory Exam

APPENDIX A: INSTRUCTORS OF MULTIPLE SECTIONS

[illegible]

APPENDIX B: ADDITIONAL INFORMATION