

## Course Syllabus

1	Course title	Immature Insects	
2	Course number	0606956	
3	Credit hours	3	
	Contact hours (theory, practical)	2,1	
4	Prerequisites/co-requisites		
5	Program title	Plant Protection	
6	Program code		
7	Awarding institution	The University of Jordan	
8	School	School of Agriculture	
9	Department	Department of Plant Protection	
10	Course level	PhD	
11	Year of study and semester (s)	Second semester 2021/2022	
12	Other department (s) involved in teaching the course	None	
13	Main teaching language	English	
14	Delivery method	<input type="checkbox"/> Face to face learning <input checked="" type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	Online platforms(s)	<input type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom	
		<input type="checkbox"/> Others.....	
16	Issuing/Revision Date	8-3-2022	

### 17 Course Coordinator:

Name: Prof. Ahmad Katbeh

Contact hours: 4 pm to 9 pm

Office number: 198

Phone number: 22521

Email: Ahmadk@ju.edu.jo



### 18 Other instructors:

Name:

Office number:

Phone number:

Email:

Contact hours:

Name:

Office number:

Phone number:

Email:

Contact hours:

### 19 Course Description:

“Immature insects” is a course about the taxonomy of Exoptrygota and Endopterygota immature insects. The student will learn morphological structures and nomenclature unique to each of the major orders; identify all immature insects to order and most to family on sight; identify all immature insects to family and some to genus or species with taxonomic keys and microscope. The biology, behavior, habitat, food, life history and physiology of some representative species will be discussed.



## **20 Course aims and outcomes:**

### **A- Aims:**

1. Study immature insect taxonomy and important biological aspects of the most common insect families.
2. Identification of immature insects.
3. Collect, preserve, pin, label and identify immature insects to the order and family level, in addition to identification of certain insect groups to the specific level.
4. Identify morphological characters of immature insect families.

### **B- Students Learning Outcomes (SLOs):**

Upon successful completion of this course, students will be able to:

PLOs	1	2	3	4	5	6	7	8	9	10	11
SLOs of the course											
A1. Understand the morphology of immature insects	√		√		√		√		√		
A2. Understand Identification of immature insect orders and families and some aspects of their biology and ecology.									√		√
B1. Recognize the different groups of immature insects and their function in the ecosystems.							√		√		
B2. Recognize the different immature insect structures and their role in insect identification.								√	√		
C1. Study the external morphology of immature insects					√				√		
C2. Identify immature insects to family level by sight and to genera or species by traditional or interactive keys.					√			√	√		
C3. Collecting, rearing, pinning, labeling and preserving immature insects.					√			√	√		
D1. Recognize the morphological features of immature insect.									√		
D2. Identify common immature insect families through the recognition of diagnostic features.								√	√		√
D3. How to collect and preserve immature insects					√			√	√		√

## 21. Topic Outline and Schedule:

Week (2 Lectures 1 Lab.)	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Evaluation Methods	Resources
1	Introduction to immature insects	A1-2, B1-2, C1-3, D1-3	<b>Blended</b>		Exam	Chapter 1 in Immature Insects
	Techniques for collecting, rearing, preserving and studying immature insects	A1-2, B1-2, C1-3, D1-3	<b>Blended</b>		Exam	Chapter 2 in Immature Insects
	Immature insects collection and preservation	A1-2, B1-2, C1-3, D1-3	<b>Face to Face</b>		Exam/ Quiz	Chapter 1 in Immature Insects
2	Where to collect for immature insect  Egg types and structure.  Types of Larvae.  Types of pupae.	A1-2, B1-2, C1-3, D1-3	<b>Blended</b>		Exam	Several resources
	Where to collect for immature insect Egg types and structure. Types of Larvae. Types of pupae.	A1-2, B1-2, C1-3, D1-3	<b>Blended</b>			Several resources
	Studying of immature specimens of Insect orders	A1-2, B1-2, C1-3, D1-3	<b>Face to Face</b>		Exam/ Quiz	Chapters 1 in Immature Insects
3	Class and Order Protura, Collembola,	A1-2, B1-2, C1-3, D1-3	<b>Blended</b>			Chapters 3-8 in Immature Insects
	Diplura, Order Microcoryphia, Order Thysanura	A1-2, B1-2, C1-3, D1-3	<b>Blended</b>			Chapters 3-8 in Immature Insects

	Studying of immature specimens of Ephemeroptera, Odonata	A1-2, B1-2, C1-3, D1-3	Face to Face		Exam/ Quiz	Chapters 9-12 in Immature Insects
4	Ephemeroptera, Odonata, Blattodea	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 9-12 in Immature Insects
	Isoptera, Mantodea	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 9-12 in Immature Insects
	Studying of immature specimens of Orthoptera, Dermaptera Mantodea, Blattodea, Psocoptera	A1-2, B1-2, C1-3, D1-3	Face to Face			Chapters 13-18 in Immature Insects
5	Grylloblattodea, Phasmatodea,	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 13-18 in Immature Insects
	Orthoptera, Dermaptera	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 13-18 in Immature Insects
	Studying of immature specimens of Hemiptera	A1-2, B1-2, C1-3, D1-3	Face to Face		Exam/ Quiz	Chapters 29, 31 in Immature Insects
6	Embiidina, Zoraptera, Plecoptera	A1-2, B1-2, C1-3, D1-3	Blended		Exam/ Quiz	Chapters 18-23 in Immature Insects
	Psocoptera, Mallophaga, Anoplura	A1-2, B1-2, C1-3, D1-3	Blended		Exam/ Quiz	Chapters 18-23 in Immature Insects
	Field trip	A1-2, B1-2, C1-3, D1-3	Face to Face		Report	
7	Mechoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 24-25 in Immature Insects
	Trichoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 24-25 in Immature Insects

	Studying of immature specimens of Coleoptera	A1-2, B1-2, C1-3, D1-3	Face to Face		Exam/ Quiz	Chapter 34 in Immature Insects
8	Lepidoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapter 26 in Immature Insects
	Lepidoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapter 26 in Immature Insects
	Studying of immature specimens of Hymenoptera, Trichoptera, Neuroptera	A1-2, B1-2, C1-3, D1-3	Face to Face		Exam/ Quiz	Chapters 24, 27 in Immature Insects
9	Hymenoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 27-28 in Immature Insects
	Thysanoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 27-28 in Immature Insects
	Field trip	A1-2, B1-2, C1-3, D1-3	Face to Face		Report	
10	Hemiptera, Homoptera,	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 29, 31 in Immature Insects
	Megaloptera	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 29, 31 in Immature Insects
	Field trip					
11	Rhaphidiptera, Neuroptera, Neuroptera	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 32-34 in Immature Insects
	Rhaphidiptera, Neuroptera, Neuroptera	A1-2, B1-2, C1-3, D1-3	Blended			Chapters 32-34 in Immature Insects
	Midterm Lab exam	A1-2, B1-2, C1-3,	Face to Face			

		D1-3				
12	Coleoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapter 34 in Immature Insects
	Coleoptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapter 34 in Immature Insects
	Studying of immature specimens of Lepidoptera	1,2,3,4	Face to Face		Exam/ Quiz	Chapter 26 in Immature Insects
13	Coleoptera, Strepsiptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 34-35 in Immature Insects
	Coleoptera, Strepsiptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 34-35 in Immature Insects
	Studying of immature specimens of Diptera	A1-2, B1-2, C1-3, D1-3	Face to Face		Exam/ Quiz	Chapters 36-37 in Immature Insects
14	Siphonaptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 36-37 in Immature Insects
	Diptera	A1-2, B1-2, C1-3, D1-3	Blended		1,2,3,4	Chapters 36-37 in Immature Insects
	Submitting insect collection	A1-2, B1-2, C1-3, D1-3	Face to Face		Exam/ Quiz	
15	Diptera		Blended		1,2,3,4	Chapters 37 in Immature Insects
	Diptera		Blended		1,2,3,4	Chapters 37 in Immature Insects
	Final Lab exam					

## 22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:



Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
<b>Midterm Exam</b>	<b>15%</b>	To be agreed upon	11 <sup>th</sup> week	Face to face
First Lab. Exam	10%	To be agreed upon	11 <sup>th</sup> week	Face to face
<b>Insect Collection</b>	<b>15%</b>		14 <sup>th</sup> week	Face to face
Presentation	10%	To be agreed upon	13 <sup>th</sup> week	Face to face
Term paper	10%	To be agreed upon	13 <sup>th</sup> week	
Final Lab. Exam	10%	All topics	15 <sup>th</sup> week	Face to face
<b>Final Exam</b>	<b>30%</b>	All topics	University calendar	Face to face

### 23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

### 24 Course Policies:

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course:

### 25 References:

A- Required book(s), assigned reading and audio-visuals:

- 1- Stehr, W.F. (editor) 1987. Immature insects. Volume 1. Kendall/Humt Publishing Comp. Dubuque. USA. 754 pp.
- 2- Stehr, W.F. (editor) 1991. Immature insects. Volume 2. Kendall/Humt Publishing Comp. Dubuque. USA. 975 pp.




### B- Recommended books, materials, and media:

- 1- Borror. D. J. C. A. Triplehorn, and N. F. Johnson. 2005. Borror and Delong's An Introduction to the Study of Insects. 7<sup>th</sup> Edition. USA. Philadelphia. PA. Saunders Publishing Company. 865 PP.
- 2- ELearning website of the University of Jordan.

### 26 Additional information:

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Name of Course Coordinator: Ahmad Katbeh	Signature: 	Date: 18-12-2024
Head of Curriculum Committee/Department: ----- Signature: -----		
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Head of Department: ----- Signature: -----		
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Head of Curriculum Committee/Faculty: ----- Signature: -----		
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