

MINISTRY OF EDUCATION AND TRAINING
DALAT UNIVERSITY



COURSE SYLLABUS
ENTOMOLOGY AND APPLICATION

Lam Dong - 2020

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COURSE SYLLABUS

ENTOMOLOGY AND APPLICATION

1. GENERAL INFORMATION

1.1. Course code: 20CS4204 **Course title:** ENTOMOLOGY AND APPLICATION

1.2. Credit units: 3 (2 – 1)

1.3. Level: Undergraduate , **Program type:** Full-time

1.4. Course type: Elective

1.5. Prerequisites: completed courses: Zoology, Plant protection, Laboratory Technique, Overview of Biotechnology

1.6. Workload breakdown:

- Lecture : 22 periods
- Group exercises and activities : 8 periods
- Lab tutorial : 30 periods
- Self study : 70 hours

2. COURSE OBJECTIVES AND LEARNING OUTCOMES

2.1. Course objectives

Objectives	Description	Program Learning Outcome	Graduate attribute
ACADEMIC KNOWLEDGE			
OBJ 1	Providing students with fundamental knowledge of morphology, anatomy-physiology, biology, ecology, taxonomy of insects; the meaning and role of insects with humans and with nature (the habitat of humans and of all living things)	1.3.35	3
PRACTICAL SKILLS			
Personal and professional attributes			

OBJ 2	Applying the knowledge learned to perform the operations of collecting, preserving, mounting specimens and classifying insects.	2.1.1 2.1.2 2.1.8 2.2.3 2.2.4 2.2.5 2.2.8 4.1.7 4.1.9	4
OBJ 3	Applying the knowledge learned to carry out applied research of insect species/groups in the fields of agriculture, decoration, food resources,...	2.1.1 2.1.2 2.1.3 2.1.6 2.1.8 2.2.2 2.2.4 2.2.5 4.1.7 4.1.9	4
Soft-skills			
OBJ 4	Developing team working, communication, presentation, report writing skills	3.1.1 3.1.2 3.1.3 3.1.5 3.2.2 3.2.3 3.2.4 3.2.6	3
OBJ 5	Improving skills in searching reference, planning, arranging, monitoring experiments and processing data	2.2.5 4.3.1 4.3.7 4.3.12	3
ATTITUDE			
OBJ 6	Serious, hard working, honest in studying	2.4.3 2.4.7 2.5.2 2.5.3 2.5.5	3

2.2. Course learning outcomes

Objective	Course LO	LO description	I, T, U taxonomy
OBJ 1	LO 1	Acquiring general knowledge of Arthropoda and Insecta	T
	LO 2	Acquiring basic knowledge of insect morphology, anatomy - physiology, biology and ecology	T

	LO 3	Acquiring the knowledge of insect classification	T
	LO 4	Understanding the meaning and role of insects with humans and with nature (the living environment of humans and all living things). Describing the value of insects to humans.	T
OBJ 2	LO 5	Applying learned knowledge to breed species/groups of insect that contribute significant value to life.	T
OBJ 3	LO 6	Applying learned knowledge to collect, preserve, make specimens and classify insects	T
OBJ 4	LO 7	Organizing group activities, managing group and collaborating with other groups. Preparing presentations, reports and group presenting.	U
OBJ 5	LO 8	Material searching, analyzing, calculating and experiments arranging, data processing suitable for research objectives	TU
OBJ 6	LO 9	Being serious, honest in the learning process, do not create data, do not plagiarize.	U

3. COURSE DESCRIPTION

Entomology and applications is an elective course in the supportive knowledge block. This course introduces the meaning and role of insects to humans and to nature (the living environment of humans and all living things). The course provides students with basic knowledge of morphology, physiological-anatomy, biology, ecology of insects, taxonomy of insects, from which to apply learned knowledge to carry out applied research of insects in the fields of agriculture, decoration, food resources,...

4. COURSE REQUIREMENTS

4.1 Requirements for teaching staff

The contents, teaching schedule, and requirements of the course must be made public to students in the first lecture. Any enquiries or suggestions from students should also be considered and finalized in the first lecture. After being finalized, matters relating to the administration of the course must be applied consistently throughout the course.

Changes in teaching schedule and make-up lectures must be informed to students in due time.

Major changes in the contents and course requirements (especially those directly affecting students' benefits) must be approved by the Faculty before the beginning of the course.

4.2 Requirements for students

4.2.1 Attendance

Enquiries and suggestions about matters relating to the administration of the course would be considered only in the first lecture. Students must comply with the course requirements once being made public and finalized.

Special provisions could be extended to students in difficult situations (such as, students in serious health conditions,...). In such cases, students must inform the lecturer in charge and provide proper documentation.

- Students must prepare for lectures in accordance with the course requirements.
- Punctuality is required. Students are not allowed to attend once the lecture has begun for 15 minutes.
- Students with clashes should inform the lecturer in charge to make proper arrangements.

4.2.2 Class conducts and behavior

The course is conducted on the principle of respect for both learners and teachers. The rules for classroom conducts and behavior are as follows:

- Students must comply with the university's guidelines on proper dressing.
- Students must exhibit proper conduct and behavior and follow the instructions of the lecturer in charge during the lecture.
- Students should not consume foods or beverages during the lecture.
- Laptops, mobile phones, or tablets should only be used for taking notes or performing calculations that are required by the lecturer.
- Students should not discuss topics or perform activities that are unrelated to the lesson.
- Students are requested to keep the classroom clean and tidy.

Students who do not comply with the above-mentioned rules would be requested to leave the classroom.

4.2.3 Academic enquiries

- Appeals, complaints, or enquiries relating to grading, exam results, and other academic issues would be processed in accordance with the university's policies. Students should contact the faculty staff for consultation on the procedures and documentation.
- Enquiries relating to the contents of the course: students are encouraged to discuss with the lecturer in charge about the issues.

- Student feedback is encouraged to improve the quality of the course. During the course, feedback can be sent directly to the lecturer in charge or through class representatives.
- Students are supposed to complete the assignments by themselves. Supports, such as having a third party complete the assignments, copying (in full or in part) other students' assignments, or free-riding in group assignments, are deemed excessive and results in incompleteness and must re-register for the next school year.

5. COURSE CONTENTS

Section/ Module	Topic	Course LO	Teaching and learning activities	Organization of teaching and learning			
				In-class			
				Lecture	Exercise	Group discussion	Lab tutorial
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chapter 1.	Introduction	LO 1 LO 2 LO 4 LO 7 LO 8 LO 9	lecture	2			
1.1.	Course overview						
1.2.	Definition of insecta						
1.3.	The position of insects in taxonomy						
1.4.	Size and distribution						
1.5.	Number of insects						
1.6.	The role of insects with human life and life on the planet						
Chapter 2.	Morphology	LO 1 LO 2 LO 6 LO 7 LO 9	lecture, In-class exercises, Lab tutorial	4	1		5
2.1.	Head and head appendages						
2.2.	Thorax and thoracic appendages						
2.3.	Abdomen and abdominal appendages						
2.4.	Integument and						

	cuticular appendages						
Chapter 3.	Anatomy and physiology	LO 1 LO 2 LO 7 LO 9	lecture, In-class exercises, Lab tutorial	4	1		5
3.1.	The muscular system						
3.2.	The digestive system						
3.3.	The respiratory system						
3.4.	The circulatory system						
3.5.	The excretory system						
3.6.	The endocrine system						
3.7.	The nervous system						
3.8.	The sense organs						
3.9.	The reproductive system						
Chapter 4.	Biology	LO 1 LO 2 LO 5 LO 7 LO 8 LO 9	lecture, Lab tutorial	4			5
4.1.	Reproduction methods						
4.2.	Development and metamorphosis						
Chapter 5.	Ecology	LO 1 LO 2 LO 5 LO 7 LO 8 LO 9	lecture, Lab tutorial	4			5
5.1.	Concepts						
5.2.	The influence of abiotic factors						
5.3.	The influence of biotic factors						
Chapter 6.	Systematics and Taxonomy	LO 1 LO 2 LO 3 LO 6 LO 7 LO 8 LO 9	lecture, Lab tutorial	2			5

6.1.	Concepts and principles in classification						
6.2.	Classification						
6.3.	Key to the orders of Insecta						
Chapter 7.	Insects and Humans	LO 1 LO 2 LO 4 LO 5 LO 6 LO 7 LO 8 LO 9	lecture, Seminar, Lab tutorial	2			5
7.1.	How insects benefit humans						
7.2.	Beneficial insect products						
TOTAL				22	2		30

Lab tutorial

Lab tutorial	Contents	Learning outcomes	Activities
Lab tutorial 1: Insect making specimens methods (5 tiết)	Collecting, preserving, and mounting specimens	LO 1, LO 2, LO 3, LO 6, LO 7, LO 9	Group tutorial in the lab
Lab tutorial 2: Morphology, taxonomy of insects (5 tiết)	Observing the morphological features of insects, classifying insects to orders, families	LO 1, LO 2, LO 3, LO 6, LO 7, LO 9	Group tutorial in the lab
Lab tutorial 3: Insect anatomy (5 tiết)	Dissecting and observing of the external and internal structure of the organ systems	LO 1, LO 2, LO 7, LO 9	Group tutorial in the lab
Lab tutorial 4: Insect rearing method (15 tiết)	Rearing insects, observing the morphology, development and metamorphosis of insects	LO 1, LO 2, LO 4, LO 5, LO 6, LO 7, LO 8, LO 9	Group tutorial in the lab

6. COURSE MATERIALS

6.1. Recommended textbook

[1] Bùi Công Hiên, Trần Huy Thọ (2003). *Côn trùng học ứng dụng*. nxb Khoa học và Kỹ thuật.

[2] Nguyễn Việt Tùng (2006). *Giáo trình côn trùng học đại cương*. Đại học nông nghiệp I, Hà nội.

6.2. Supplementary materials

[3] Nguyễn Văn Đĩnh (chủ biên) (2004). *Giáo trình biện pháp sinh học trong bảo vệ thực vật*. Trường đại học Nông nghiệp I, Hà nội.

[4] Đặng Ngọc Thanh, Trương Quang Học (2001). *Hướng dẫn thực tập động vật không xương sống*. Nxb Đại học Quốc Gia Hà nội.

[5] Cedric Gillott (2005). *Entomology*. Published by Springer

[6] Mark A. Jervis, 2005. *Insects as natural enemies. A Practical Perspective*. Published by Springer

[7] Timothy J. Gibb, Christian Y. Oseto (2006). *Arthropod collection and identification. Laboratory and field techniques*. Published by Elsevier

7. COURSE ASSESSMENTS

7.1. Grading scheme

- Grades are on the scale of 10.

7.2. In-term assessment

In-term assessment have a weight of 50%, including:

- awareness and attitude in discussions, seminars, exercises: 20 %.

- Lab tutorial: 30 %

7.3. Final examination

- Final examination has a weight of 50%.

- Form: In-class written exam

7.4. Assessment schedule

Assessment	Content	Schedule	Course LO	Evaluation form	Weight (%)
[1]	[2]	[3]	[4]	[5]	[6]
In-term assessment	in-class exercises	After chapter 2, 3	LO 1 LO 2 LO 9	Personal assignment; multiple choice tests	10%
	Seminar chapter 7	After chapter 6	CDR1 LO 4 LO 7 LO 8	Group presentation assignment	10%

			LO 9		
	Lab tutorial	During the Lab tutorial	LO 1 LO 2 LO 3 LO 5 LO 6 LO 7 LO 8 LO 9	- Practical skills - Reports	30%
Final examination	Integrated knowledge from chapter 1 to chapter 7	Following the university's exam schedule	LO 1 LO 2 LO 3 LO 4 LO 9	In-class written test	50%

8. COURSE SCHEDULE

Lecture	Learning activities
1	<ul style="list-style-type: none"> ➤ Introducing lecturer information; ➤ Briefly introducing the course and answering questions related to the course outline and materials; ➤ informing course requirements and assessments; ➤ Dividing into groups to participate in course activities ➤ Lecturing the contents of chapter 1 ➤ Summary
2	<ul style="list-style-type: none"> ➤ Lecturing the contents of chapter 2 ➤ Summary
3	<ul style="list-style-type: none"> ➤ In-class multiple choice test of chapter 2 ➤ Lecturing the contents of chapter 3 ➤ Summary
4	<ul style="list-style-type: none"> ➤ Summarizing the contents of chapter 3 (lectured) ➤ Lecturing the contents of chapter 3 (continued) ➤ In-class multiple choice test of chapter 3 ➤ Lecturing the contents of chapter 4 ➤ Summary
5	<ul style="list-style-type: none"> ➤ Summarizing the contents of chapter 4 (lectured) ➤ Lecturing the contents of chapter 4 (continued) ➤ Lecturing the contents of chapter 5 ➤ Summary
6	<ul style="list-style-type: none"> ➤ Summarizing the contents of chapter 5 (lectured) ➤ Lecturing the contents of chapter 5 (continued), chapter 6 ➤ Summary ➤ informing study plan for chapter 7

7	<ul style="list-style-type: none"> ➤ Group presentations ➤ Commenting and evaluating the group presentations
8	<ul style="list-style-type: none"> ➤ Group presentations (continued) ➤ Commenting and evaluating the group presentations ➤ Summarizing the contents of chapter 7 ➤ informing lab tutorial plan and final examination

9. MAPPING MATRIXES AND COURSE LEARNING OUTCOMES CONSISTENCY MATRIXES

9.1 Course learning outcomes – Training program learning outcomes mapping

Course LO \ Training program LO	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
1.3.35	H	H	H	H					
2.1.1					H	H			
2.1.2					H	L			
2.1.3						H			
2.1.6						H			
2.1.8					L	H			
2.2.2						H			
2.2.3					H				
2.2.4					H	H			
2.2.5					L	L		H	
2.2.8					L				
2.4.3									H
2.4.7									H
2.5.2									H
2.5.3									H
2.5.5									H
3.1.1							H		
3.1.2							H		
3.1.3							H		
3.1.5							H		
3.2.2							H		

3.2.3								H		
3.2.4								L		
3.2.6								H		
4.1.7					L	L				
4.1.9					L	L				
4.3.1									H	
4.3.7									H	
4.3.12									H	

9.2 Course learning outcomes – Course content consistency matrix

Course LO Section	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
Chapter 1	P	I		I			I	I	I
Chapter 2	A	P				I	P		P
Chapter 3	A	P					P		P
Chapter 4	A	P			I		P	P	P
Chapter 5	A	P			I		P	P	P
Chapter 6	A	A	P			P	P	P	P
Chapter 7	A	A		P	P	A	P	P	P

I- Introductory, P- Proficient; A- Advanced.

9.3 Course learning outcomes – Course assessment mapping

Course LO Assessments (*)	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
in-class exercises	H	H							H
Seminar	H			H			H	H	H
Lab tutorial	H	H	H		H	H	H	H	H
Final examination	H	H	H	H					H

H: High, M: Medium, L: Low

9.4 Learning outcomes – Delivery methods mapping

Course LO Delivery methods (**)	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
	lecture	H	H	H	H	H	L	H	L
In-class exercises	M	H	M	L	L	H	L	L	H
Seminar	H	M	M	H	L	L	H	H	H
Lab tutorial	M	H	H	M	H	H	H	H	H

H: High, M: Medium, L: Low

9.5 Course learning outcomes – Course materials mapping

Course LO Course materials	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
	Reference 1			X	X				
Reference 2	X	X	X	X	X				
Reference 3				X	X			X	
Reference 4	X	X	X			X		X	
Reference 5	X	X	X	X		X			
Reference 6				X	X	X		X	
Reference 7			X			X		X	

10. TEACHING STAFF

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11. ASSESMENT RUBRIC

1. Assesment rubric for in-class tests (multiple choice tests), and final exam

Quality level	Score	Description	Score
Excellent	8.5 - 10	Fully understand the required information. Can generalize information received, evaluate and apply it to different situations, or create new ones.	
Good	7.0 – 8.4	Understand quite fully the necessary information and establish a connection between them.	

Adequate	5.0 – 6.9	Understand basic information and establish brief relationships between them.	
Marginal	0.0 – 4.9	Only a small amount of discrete information has been obtained. A connection between a small number of information has been established.	
Comment			

2. Assessment rubric for group assignment

Criteria	LO	Weight	Quality level				Score
			Excellent	Good	Adequate	Marginal	
			10 – 8.5	8.4 – 7.0	6.9 – 5.0	4.9 – 0.0	
Report form	LO 1 LO 4 LO 7 LO 8 LO 9	10%	Nice structure, clear, no misspellings	Reasonable structure, a few typos.	Reasonable structure. Lots of typos	Monotonous structure, letter small, lots of spelling mistakes	
Skill present		10%	Speak clearly, confidently, persuasively, within the allotted time, listener exchange	Speak well clearly, within the allotted time, exchange listeners	Speak well clear, less than or beyond the specified time	Speak softly, not confidently, no listener exchanges, less than or beyond the allotted time	
Report content/Product quality		40%	Meet 80%-100% requests	Meet 70%-80% requests	Meet 50%-70% requests	Meets less than 50% of requirements	
Answer the questions		30%	Right answer all questions	Right answer over 2/3 of the questions	Right answer over 1/2 of the questions	Right answer less than 1/2 of the questions	
Join the implementation		10%	100% of members participate in the implementation/submission display	~ 80% of the members participate in the implementation/submission display	~ 60% of members participate in the implementation/submission display	< 40% of members participate in implementation/submission display	
TOTAL							

3. Assessment rubric for lab tutorial

Criteria	LO	Weight	Quality level				Score
			Excellent	Good	Adequate	Marginal	
			10 – 8.5	8.4 – 7.0	6.9 – 5.0	4.9 – 0.0	
Diligence	LO 1 LO 2 LO 3 LO 5 LO 6	10%	Arrive right specified hours	Arrived less than 5 minutes late specified hours	Arrive less than 10 minutes late than the scheduled time	Arrived late on 15 minutes	
Prepare theory, samples	LO 7 LO 8 LO 9	10%	Fully prepared, right	Fully prepared, more than 70% correct	Fully prepared, more than 50% correct	Inadequate or correct preparation less than 50%	
Experimental manipulation and data processing		50%	Properly follow the experimental procedures and process the data good	Properly follow the experimental procedure and process the data quite well	Executing the experimental procedure correctly but processing the data incorrectly	Improper implementation of experimental procedures, wrong data handling	
Experimental results and answer the question		30%	Interpret results and pay the right words question	Explain the results and answer more than 70% correct number of questions	Explain the results and answer more than 50% correct number of questions	Explanation of wrong results or reply less than 50% correct number of questions	
TOTAL							

**PP. RECTOR
DEAN**

HEAD OF SECTION

TEACHING STAFF


Trần Văn Cấn


L.N. Tru



Nguyễn Thanh Thủy Tiên