



Course Specification

Course title: Insecticide Toxicology **Code:** Ent. 382

Program (s) on which the course is given: Entomology (Special)

Element of program : Major - **Single** Double

Department offering the program: Zoology Department

Department offering the course: Zoology Department

Academic year: 3rd year – 1st semester

Date of specification approval: 1/2016

A- Basic information

Academic year: 3 rd	Course title: Insecticide Toxicology		Code: Ent.382
Lecture: 4 hr/wk	Practical: 4 hr/wk	Tutorial: 0 hr/wk	Total: 8 hr/wk

B- Professional information

1- Overall aims of course	<p>This course aims to provide student with knowledge and understanding of:</p> <ol style="list-style-type: none"> 1. Exhibiting the sense of beauty and neatness. 2. Preparing and graduating a professional entomologist. 3. Having ability to deal and identify the different kinds of insects (harmful and benefit insects). 4. Knowing the different methods used in insect studies and their control. 5. Providing the foundations essential for further training and for development of skills and knowledge in our students future careers, whether in specific areas of biology or in another discipline or vocation.
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	<p>6. Demonstrating basic knowledge of toxicology.</p> <p>7. Demonstrating basic knowledge of insecticides.</p> <p>8. Learning the different kinds of insecticides.</p> <p>9. Knowing the mechanisms insecticides resistance.</p> <p>10. Demonstrating the mode of action of insecticides.</p> <p>11. How we can they detect resistance.</p>
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2-Intended learning outcomes of course (ILOs)

a-Knowledge and understanding	<p>By the end of the course, students should be able to:</p> <p>a 1. Define the related terminology, nomenclature related to toxicology</p> <p>a.2. Characterize the relation between insect s and insecticide and the environment.</p>
b-Intellectual skills	<p>By the end of the course, students should be able to:</p> <p>b1. Select the subject-related knowledge to solve problems of insect pests.</p> <p>b2. Assess the interrelationships and impact of insecticide on the ecosystem</p> <p>b3. Maintain the prevention and control of the studied pests infecting various hosts.</p>
c- Professional and practical skills	<p>By the end of the course, students should be able to:</p> <p>c1. Use appropriate laboratory equipment, instruments and tools efficiently in a safe, ethical and responsible manner to investigate living organisms and biological systems.</p> <p>c2. Solve problems using a range of formats and approaches to deal with scientific problems relevant to contemporary approaches in insect control.</p> <p>c3. Apply field and/or laboratory investigations of living systems in a responsible, safe and ethical manner that enable the student to choose suitable insecticides and insect control protocols .</p>
d- General and transferable skills	<p>By the end of the course, students should be able to:</p> <p>d1. Think independently, set tasks and solve problems on insect control.</p> <p>d2. Work in a group and communicate with others positively.</p> <p>d3. Use effectively scientific models, systems and tools in Dealing with property of chemical insecticides rights legally and ethically.</p>

3- Contents:

Topics	No. of Hours	Lecture	Practical
Introduction to insecticides Toxicological concepts	6	4	2
Classification of insecticides	4	2	2
Organochlorine & mode of action Organophosphate & mode of action	2	2	0
Carbamate & mode of action	2	2	0
Pyrethroids & mode of action	2	2	0
Resistance & bioassay	4	2	2
Measurement toxicity	4	2	2
Hazards and toxicity	4	2	2
Histo-toxicity	6	2	4
Insecticides formulations and uses	4	0	4
Total hours	38	20	18

4- Teaching and learning methods

4.1. lectures

4.2- laboratory lessons (practical examination to the biological samples)

4.3. Assays and reporting in different topics

5- Student assessment:

5.1. Methods	5.1.1. Written exam (short & final)	- To assess: knowledge & understanding - Intellectual skills
	5.1.2. Oral exam	- To assess: knowledge & understanding - Intellectual skills
	5.1.3. Practical exam	- To assess: Professional & practical skills
	5.1.4. Work sheets and essays	- To assess: General & transferable skills
5.2. Assessment schedule	Assessment 1: Short exam	- Along the term
	Final written exam	- Week: 14
	Assessment 2: Oral exam	- Week: 8

	Assessment 3: Final lab exam	- Week: 10
	Assessment 4: Semester work	- Along the term
5.3. weighting of assessments	Final written exam %	50%
	Final lab exam %	30%
	Semester work & short exam %	14%
	Oral exam %	6%
	Total %	100%

6-List of references

6.1. Course Note (If available)	<p>- Course notes prepared by the lecturer</p> <ul style="list-style-type: none"> ❖ Zayed AB. 2007-2008. <u>Insecticides and toxicology</u>. Zoology Department, Faculty of Science, Al-Azhar University (Girl Branch).
6.2. Text Book	<ul style="list-style-type: none"> ❖ (Busvine RJ. 1980. <u>Insects and hygiene</u>. Chapman & Hall, London, NewYork. ❖ Chavasse DC and Yap HH. 1997. <u>Chemical methods for the control of vectors and pests of public health importance</u>. WHO/ CTD/ WHOPES/ 97.2. ❖ Corbett JR. 1974. <u>The biochemical mode of action of pesticides</u>. Academic Press, London, 330pp. ❖ Cremlyn R. 1978. <u>Pesticides, preparation and mode of action</u>. John Wiley & Sons, New York, 240 pp. ❖ Dent D. 1991. <u>Insect pest management</u>. Redwood Press, 604 pp. ❖ Hassall KA. 1990. <u>The biochemistry and uses of pesticides</u>. Macmillan Press. HongKong. ❖ Georghiou GP & Saito T. 1983. <u>Pest resistance to pesticides</u>. Plenum Press, NewYork ❖ Matsumura F. 1985. <u>Toxicology of Insecticides</u>. (2nd edd). Plenum Press, New York. ❖ Wilkinson CF. 1976. <u>Insecticide biochemistry and physiology</u>. New York: Plenum
6.3. Additional References	<ul style="list-style-type: none"> ❖ WHO. 2006 <u>Chemical methods for control Arthropod with medical important</u>. WHO, Geneva.
6.4. Periodical Journals,.... etc.	<p>Journal of Economic Entomology. American Journal of Entomological Society. Egyptian Journal of Entomological Society. http://www.ent.iastate.edu/List/ http://www.amonline.net.au/insects/research/index.htm</p>

7- Facilities required for teaching and learning

<ol style="list-style-type: none"> 1. Chemical glasses. 2. Insecticides and other chemicals. 3. Alive insect samples. 4. Computer and specific software. 5. Data show.

8- Matrix between course specification ILOs and ILOs of Entomology (Special) program

Knowledge and understanding		Intellectual skills		Professional and practical skills		General and transferable skills	
ILOs of course	ILOs of program	ILOs of course	ILOs of program	ILOs of course	ILOs of program	ILOs of course	ILOs of program
a1	A4	b1	B3	c 1	C2	d1	D2
a2	A6	b2	B4	c2	C3	d2	D4
		b 3	B9	c 3	C7	d3	D7

9- Curriculum map

Contents	Weeks	Course ILOs				Teaching & learning methods	Assessment methods	Evidence
		a	b	c	d			
Introduction to insecticides Toxicological concepts		a1, a2	b1			Lectures &	- Short & final written exams Oral exam	
Classification of insecticides -		a1, a2,	b1, b 2	c2	d 1 d2 d3	Lectures & practical labs	- Short & final written exams - Oral exam Semester work+ practical exam	
Organochlorine & mode of action - Organophosphate & mode of action		a 1, a 2	b 1, b 2 b 3	,c2,	d 1, d2	Lectures & practical labs Discussion	- Short & final written exams - Oral exam Semester work	
Carbamate & mode of action		a 1, a2,	b 1, b 2 b 3	c 2	d 1, d2	Lectures & practical labs	Short & final written, practical exam	
Pyrethroids & mode of action		a 1 a2	b 1, b2	c 2	d 1 d2	Lectures & practical labs Discussion	- Short & final written, practical	

							exam, Oral exam Semester work+	
Resistance & bioassay		a 1 a2	b 1 b3	C1 C2 C3	d 1 d2	Lectures & practical labs - Discussion	- practical exam, Oral exam - Semester work+	
Measurement toxicity		a 1	b 1 b2	C1 C3	d 1 d2 d3	Lectures & practical labs	- Short &final written, practical exam	
Hazards and toxicity		a 1 a2	b 1 b2 b3	C2	d 1	Lectures & practical labs	- Short &final written exams - Oral exam Semester work -	
Histo-toxicity		a 1	b 1	C1 C2		Lectures & practical labs	- Short &final written exams - Oral exam Semester work+ practical exam -	
Insecticides formulations and uses		a 1	b1	C1 C2	d 1	Lectures & practical labs	- practical exam, Oral exam - Semester work+	

Course coordinator:

Name : Prof. Dr. Abdelbaset Zayed

Head of Zoology Department:

Name: Prof. Dr. Zinab Aid