



**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation  
& Assessment**

**Course Specification**

**Medical and economic entomology  
444 Bio**

# National Commission for Academic Accreditation & Assessment

## Course Specification

Institution	<b>King Khalid University</b>
College/Department	<b>College of Science/ Department of Biological Sciences</b>

### A Course Identification and General Information

1. Course title and code:	<b>Medical and economic entomology 444 Bio</b>
2. Credit hours	<b>3</b>
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	<b>Science College- biological sciences programme- Department of Biological Sciences</b>
4. Name of faculty member responsible for the course	<b>Prof. Reda Fadeel Ali Bakr</b>
5. Level/year at which this course is offered:	<b>Level 7</b>
6. Pre-requisites for this course (if any)	<b>General Entomology</b>
7. Co-requisites for this course (if any)	<b>None</b>
8. Location if not on main campus ( <b>the main campus</b> )	

## B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

By the ending this course the students should be able to:

- 1 - know the most important terms used in pest control and how to use them.**
- 2 - Briefing student benefits that accrue to human insect and economic damage they cause.**
- 3 - learn some industries that rely primarily on what is produced in the form of insects secretions or other products.**
- 4 - To study the ways to control pests using methods not harmful to humans and the environment.**
- 5 - Study models of economic pests on some crops, fruit trees and stored grain and timber to see the damage caused and how to avoid them**
- 6 - Know the modes of transmission of diseases by different types of insects.**
- 7 - briefing students the types of diseases transmitted by insects and types of pathogens.**
- 8- Know the ways of diagnosis and classification, biological and distribution of insects of medical importance and the factors helping to spread**

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2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)

- 1. Continues updating the course and the included topics**
- 2. Update scheduled topics using modern technology**
- 3. Using the E-learning system provided by the university**
- 4. Using the recent textbook and references in teaching**
- 5. Making the students to be familiar with the knowledge websites like; Wikipedia, [Nature](#), [American Scientists](#) and [Science Magazine](#)**
- 6. Induction the self-independence in students via giving seminars on the topics of the course.**
- 7. Showing scientific video, film or animations available on the website related to the course topics.**
- 8. Study of some recent applications in the world and try to be linked to the Course**

**C. Course Description** (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1 Topics to be Covered		
List of Topics	No of Weeks	Contact hours
<b>- General definition of entomology and its branches and the importance of teaching in practical colleges</b> <b>-Illustrate the importance of this science in various walks of life</b> <b>-Definition of the vocabulary, scheduled and goals to clarify the plan of study during the semester</b> <b>-Enlighten students knocking evaluation and duties tests and seminars in addition to the scientific side and the distribution of grades and scheduling quarterly tests</b>	1	2
1 - Introduction contain the economic damage and the benefits that accrue to humans from insects. Definition of some economic concepts and terminology used in pest control	2	4
2 –Character of successful pests – Relation between insect and plants - plant scale insect - mechanical insect selection of breadwinner. Natural balance - environmental factors that affect the insects	1	2
3 - The economic importance of some pests of vegetables and agricultural crops	2	4
4 - the economic importance of pests of fruit trees and wood	1	2
5 - the economic importance of palm pests. And stored product pests.	2	4
6 - Introduction to Medical insects and different ways of transmitting the disease - pathogens and forms of damage caused by insects from a medical point.	1	2
7-- The medical importance of Diptera (mosquito-borne diseases) - (sand flies).	2	4
8 - the medical importance of Diptera (tsetse fly).	1	2
9 - the medical importance of sucking lice (human lice) - the medical importance of order fleas (flea)	1	2
10 - the medical importance of Himeptera (bed bugs).	1	2
<b>Total</b>	<b>15</b>	<b>30</b>

1.2 Practicals to be Covered		
List of Topics	No of Weeks	Contact hours
Orders of insects and classification	1	2
Insects of agricultural crops	2	4
Insects of fruit trees	2	4

<b>Insects of stored grains</b>	2	4
<b>Insects of palm and wood</b>	2	4
<b>Parasitic insects</b>	1	2
<b>Predators</b>	1	2
<b>Insects of medical importance homes (flies - bed bugs - fleas</b>	2	4
<b>Mosquitoes and sand fly</b>	1	4
<b>Total</b>	15	30

2 Course components (total contact hours per semester):				
Lecture: 30	Tutorial:	Laboratory	Practical/Field work/Internship	Other:

3. Additional private study/learning hours expected for students per week. (This should be an average :for the semester not a specific requirement in each week)

**15 communicative hours via website of the course**

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

**a. Knowledge**

(i) Description of the knowledge to be acquired

**1- to know the terminology used in pest control.**

**2- briefing damaged and the benefits of insects.**

<p><b>3- Recognize the methods of pest control.</b></p> <p><b>4- Be aware of the environmental and health effects of pesticides and the use of alternative methods are safe.</b></p> <p><b>5- To know the most important pests in their environment and harms and how to combat it.</b></p> <p><b>6- To know the most important useful insect species and how to use them.</b></p> <p><b>7- Student awareness of diseases they may carry insects and how to prevent them.</b></p> <p><b>8- Provide students with the ability to educate and protect the community in which they live and how to deal with the environment and solve problems.</b></p>
<p>(ii) Teaching strategies to be used to develop that knowledge</p> <ul style="list-style-type: none"> <li>• <b>Lectures</b></li> <li>• <b>Link the practical concepts with the theoretical part</b></li> <li>• <b>Multi-media, videos, animations .....etc.</b></li> <li>• <b>Stir some relevant scientific topics discussed</b></li> </ul>
<p>(iii) Methods of assessment of knowledge acquired</p> <p><b>1-Two theoretical and two practical exams per semester accounts for 50% of final assessment.</b></p> <p><b>2-End of the semester examination with combination of different types of questions such as matching, multiple choice and short essay accounts</b></p>
<p><b>b. Cognitive Skills</b></p>
<p>(i) Description of cognitive skills to be developed</p> <p><b>1- The development of the relationship between humans and the components of the surrounding environment and respect for this environment.</b></p> <p><b>2- To draw attention to the importance of knowing and studying the environmental components that surround the insects.</b></p> <p><b>3- Distinguish different insects harmful and beneficial</b></p>

<p>(ii) Teaching strategies to be used to develop these cognitive skills</p> <ul style="list-style-type: none"> <li>• Lectures</li> <li>• Field trips</li> <li>• Witting reports on their field trips</li> </ul>
<p>(iii) Methods of assessment of students cognitive skills</p> <ol style="list-style-type: none"> <li>1. Mini-tests</li> <li>2. Theoretical examinations and reviews</li> <li>3. Interaction between staff member and students.</li> </ol>
<p><b>c. Interpersonal Skills and Responsibility</b></p>
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</p> <ol style="list-style-type: none"> <li>1. Work independently and as a team work</li> <li>2. Manage recourses, time and other members of the group</li> <li>3. Communicate results of work with others.</li> </ol>
<p>(ii) Teaching strategies to be used to develop these skills and abilities</p> <ul style="list-style-type: none"> <li>• Link the theoretical concepts with practice through reports on many aspects, and field visits</li> <li>• Follow-up rearing beneficial insects</li> <li>• collect some insects and use some of the keys identified and classified</li> <li>• Stirring one of the topics on the scene related to the decision and discussed</li> </ul>
<p>(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility</p> <ol style="list-style-type: none"> <li>1- the questions to solve problems containing 10% of the questions</li> <li>2 - The ability to write some short articles on topics relevant to decision</li> <li>3- Analysis of some natural phenomena relevant to decision</li> <li>4 - Forecasting resolve a problem caused by insects</li> <li>5 - Assessment of individual and collective duties which require experimental tools</li> </ol>

<b>in solving some of the problems</b>
<b>d. Communication, Information Technology and Numerical Skills</b>
<p>(i) Description of the skills to be developed in this domain.</p> <p><b>1- The use of communications technology and the search for information and view reports</b></p> <p><b>2- The use of computer programs</b></p> <p><b>3- Use some statistical programs</b></p> <p><b>4- Analysis of some of the results in ways that simple statistical</b></p>
<p>(ii) Teaching strategies to be used to develop these skills</p> <p><b>1-Explain what is in the curriculum to develop the skills of communication and numerical skills of the student, examples ...</b></p> <p><b>2-Require the duties required of a good level of student standards for the use of communications technology and information technology.</b></p> <p><b>3-Require coursework of the student an appropriate method, with the use of properly listed references standard known images.</b></p> <p><b>4- The use of computer programs</b></p> <p><b>5- The use of different microscopes and other tools needed for practical training</b></p>
<p>(iii) Methods of assessment of students numerical and communication skills</p> <ul style="list-style-type: none"> <li>• <b>Short tests</b></li> <li>• <b>Practical and theoretical tests</b></li> <li>• <b>Test questions require simple interpretation of statistical information</b></li> </ul>
<b>e. Psychomotor Skills (if applicable)</b>
<p>(i) Description of the psychomotor skills to be developed and the level of performance required</p> <ul style="list-style-type: none"> <li>• <b>How to deal with the hardware and tools in the laboratory</b></li> </ul>



<ul style="list-style-type: none"> <li>• <b>The ability to draw and simulate biological samples</b></li> </ul>
<p>(ii) Teaching strategies to be used to develop these skills</p> <ul style="list-style-type: none"> <li>• <b>Explain optimal use of laboratory microscopes and tools</b></li> <li>• <b>The art of dealing with glass slides and insect specimens preserved</b></li> <li>• <b>How to use insect traps of all kinds</b></li> </ul>
<p>(iii) Methods of assessment of students psychomotor skills</p> <ul style="list-style-type: none"> <li>• <b>Testing process by examining samples</b></li> <li>• <b>Describe some samples, drawn and written reports</b></li> </ul>

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	<b>First practical test</b>	<b>6</b>	<b>10%</b>
2	<b>First Theoretical Exam</b>	<b>7</b>	<b>10%</b>
3	<b>quiz and report Exam</b>	<b>9</b>	<b>5%</b>
4	<b>Second Theoretical Exam</b>	<b>12</b>	<b>10%</b>
5	<b>Final Practical Exam</b>	<b>15</b>	<b>15%</b>
6	<b>Final Theoretical Exam</b>	<b>19</b>	<b>50%</b>

#### D. Student Support

<p>1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)</p> <p style="text-align: center;"><b>10 Office hours / week</b></p>
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#### E Learning Resources

<p>1. Required Text(s)</p> <p><b>Hill, S. D. (1997):</b> The Economic Importance of Insects. Chapman &amp; Hill, London.</p> <p><b>Eldridge, B.F. and J.D. Edman, (Eds).</b> 2000 Medical Entomology: A</p>
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<p>textbook on public health and veterinary problems caused by arthropods. Kluwer Press, Boston.-</p>
<p>2. Essential References</p> <ol style="list-style-type: none"> <li>1- Destructive and useful insects. R.L. Metcalf, Mc Graw-Hill Book Company, USA, 1951</li> <li>2- The economic importance of insects. Dennis S. Hill, Chapman &amp; Hall, London, 1997.</li> <li>3- Medical Entomology. 2000. Service, W.</li> <li>4- Foundations of Parasitology. 1996. Schmidt &amp; Roberts.</li> <li>5- Insect Molecular Biology and Biochemistry by Lawrence I. Gilbert (Oct 3, 2011)</li> <li>6- The Biology of Blood-Sucking in Insects by M. J. Lehane (Jul 11, 2005)</li> </ol>
<p>3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)</p> <p><b>Frohlich G. and Rodewald w. (1970):</b> Pest and diseases of tropical crops and their control. Permagon Press</p> <p><b>Kumar R. (1984) :</b> Insect pest control with special reference to African agriculture. Edward Arnold,Pulishers.</p>
<p>4-.Electronic Materials, Web Sites etc</p> <p><b>Websites on the internet that are relevant to the topics of the course</b></p>
<p>5- Other learning material such as computer-based programs/CD, professional standards/regulations</p>

## F. Facilities Required

<p>Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)</p>
<p>1. Accommodation (Lecture rooms, laboratories, etc.)</p> <ul style="list-style-type: none"> <li>• <b>15 seats/ class room</b></li> <li>• <b>Computer access with data show and internet</b></li> </ul>
<p>2. Computing resources</p> <p><b>Computer room containing about 15 computers</b></p>
<p>3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach</p>

list)  
**Data show**  
**Models**

## **G Course Evaluation and Improvement Processes**

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching <ul style="list-style-type: none"><li>• <b>Course evaluation by student</b></li><li>• <b>Student-faculty meeting</b></li></ul>
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department <ul style="list-style-type: none"><li>• <b>Peer consultation on teaching</b></li><li>• <b>Discussion with the group of faculty teaching the same course</b></li><li>• <b>Departmental council discussion</b></li></ul>
3 Processes for Improvement of Teaching <ul style="list-style-type: none"><li>• <b>Conducting Departmental workshops given by experts</b></li><li>• <b>Periodical departmental revisions of each method of teaching</b></li><li>• <b>Monitoring of teaching activities by senior faculty members</b></li><li>• <b>Development of the parent relation between the teacher and the students</b></li></ul>
4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)  <b>Assigning group of faculty members teaching the same course to grade some question for various students</b>
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. <ul style="list-style-type: none"><li>• <b>The course material and learning outcomes are periodically reviewed and the changes to taken are approved by the departmental and the higher councils</b></li><li>• <b>The head of the department take the responsibility of implementing the proposed change.</b></li><li>• <b>Periodical meetings with outstanding students in the course to discuss the problems that face them in the course</b></li><li>• <b>Comparison between similar courses in relevant faculties from different universities.</b></li></ul>