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**Tentative Course Plan**

**Department of Entomology**

**University College of Agriculture & Environmental Sciences**

**Class:** B.Sc. (Hons.) Entomology **Semester-** 3rd (Section D)

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| **Instructor** | DR. SAJJAD ALI | | **Email:** Sajjad.ali@iub.edu.pk | |
| **Course Title** | APPLIED ENTOMOLOGY | | **Program** | B.Sc. (Hons.) Agriculture |
| **Course Number** | ENT-401 | | **Credit Hours** | 3(2-1) |
| **Lecture** | As per time table of College | | | |
| **Course Objective:** | | | | |
| The basic purpose of this course is to meet the present-day challenges in the field of applied entomology especially in a developing and agro-based country like Pakistan. The content of this course at a glance reveal its value and applicability to increase plant protection efforts across Pakistan. The basic and foremost objective of this course is to make students aware of the applications of entomology to understand the economic losses and benefits of insects. | | | | |
| **Course Outcomes:**  The practical portion is planned to direct students towards collection, identification and mode of damage of insect pests of crops, fruits, vegetables, stored grains and household. The use of insecticides, different formulations and their computation and application equipment will be the part of practical. | | | | |
| **Methods of Teaching** | | | | |
| • Audiovisual lectures  • Assigned readings  • Group activities & Discussion (Analytical and critical thinking)  • Web-assisted instruction  • Student Questions Encouraged  • Well moral and educational ethics during the class | | | | |
| **Resource**  **Material** | Books Prescribed: | | | |
| * Saleem, M. A., H. A. Shah, 2010. Applied entomology A Pakistan perspective. 3rd edition. Pak Book Empire, Lahore. ISBN 978-969-8238-19-3. * Atwal, A.S., 2005. Agricultural Pests of Southeast Asia and their Management. Kalyani Publishers, Ludhiana. * Pedigo, L.P., 2002. Entomology and Pest Management 4th ed. Prentice and Hall Intl. Limited, London. * Shah, H.A. and M.A. Saleem, 2002, Applied Entomology, 2nd ed. Izhar Sons Printers, Lahore. * Hashmi, A. A., 1994. Insect Pest Management. Vols. I, II, III. Pak. Agri. Res. Council, Islamabad. * Mathews, G. A., 1992. Pesticide Application Methods, 2nd Ed. John Wiley & Sons, Inc. N. Y. * Saha, L. R., 1990. Hand book of Plant Protection. Kalyani Publishers, New Delhi. * Pfadt, E. R., 1985. Fundamentals of Applied Entomology, 4th Ed. The Macmillan Co., N. Y. * Ahmad, I.1970. Hashriat “Insects” National Book Foundation, Lahore. * Richards, O.W. and R.G. Davies, 1984. Imm’s General Text-book of Entomology, Vol. I and II, 10th ed. Chapman & Hall, London, N.Y. * Elzinga, R.T. 2003. Fundamentals of Entomology. Prentice Hall. ISBN 0130480304. * Jhonson, N.F., Triplehorn, C.A. Borror and Delong’s. 2004. Introduction to the study of Insects. Brooks Cole. 7th Ed. | | | |
| 2.Reference Book | 3.Research papers | | |
| i | i |  | |
|  | ii | ii |  | |
| 4.Hot Research paper | 5.Web Resources | | |
| i | i |  | |
| ii | ii |  | |
| **Office Help Hours** | Monday to Friday: 8:30 am to 4:30 pm | | | |
| **Grading** | Exam (Date to be announced)  Mid- Exam (30%) Final Exam (50%)  Problem Session/Assignments (20%) | | | |
| **Problem Session** | Monday to Friday: 8:30 am to 04:30 pm | | | |
| **SEQUENCE OF TOPICS TO BE COVERED** | | | | |
| **Week #** | **Topics (outline of main topics and sub topics)** | | | |
| **1.** | Introduction of the applied aspects of Entomology  (Saleem and Shah, 2010 pp. 01-18; Atwal, 2005; Pedigo, 2002; and Elzinga, 2003) | | | |
| **2.** | Economic importance of insect and Causes of insect success and being pests for human  (Saleem and Shah, 2010 pp. 01-18; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994) | | | |
| **3.** | Principles of insect pest control and introduction to IPM  (Saleem and Shah, 2010 pp. 01-18; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994) | | | |
| **4.** | Insecticides and their classification (Saleem and Shah, 2010 pp. 19-85; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994) | | | |
| **5.** | Insecticides formulation and application equipments. (Saleem and Shah, 2010 pp. 19-85; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994) | | | |
| **6.** | Identification, life history, mode of damage, and control of important insect pests of cotton. (Saleem and Shah, 2010 pp. 141-188; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Mathews, 1992; Saha, 1990) | | | |
| **7.** | Identification, life history, mode of damage, and control of important insect pests of cotton. (Saleem and Shah, 2010 pp. 141-188; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Mathews, 1992; Saha, 1990) | | | |
| **8.** | Identification, life history, mode of damage, and control of important insect pests of sugarcane (Saleem and Shah, 2010 pp. 189-210; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Mathews, 1992; Saha, 1990) | | | |
| **9.** | **Mid exams** | | | |
| **10.** | Identification, life history, mode of damage, and control of important insect pests of rice and maize crop (Saleem and Shah, 2010, Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Saha, 1990) | | | |
| **11.** | Identification, life history, mode of damage, and control of important insect pests of fruits. (Saleem and Shah, 2010 pp. 2291-337; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Mathews, 1992; Saha, 1990) | | | |
| **12.** | Identification, life history, mode of damage, and control of important insect pests of vegetables. (Saleem and Shah, 2010 pp. 263-290; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Mathews, 1992; Saha, 1990) | | | |
| **13.** | Identification, life history, mode of damage, and control of important insect pests of stored grains and house hold pests (Saleem and Shah, 2010 pp. 211-242; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Mathews, 1992; Saha, 1990) | | | |
| **14.** | Identification, life history, mode of damage, and control of important insect pests of stored grains and house hold pests (Saleem and Shah, 2010 pp. 211-242; Atwal, 2005; Pedigo, 2002; Shah, H.A. and Hashmi, 1994; Mathews, 1992; Saha, 1990) | | | |
| **15.** | Entomological cottage industries (Apiculture)  (Saleem and Shah, 2010 pp. 421-442; Atwal, 2005; Pedigo, 2002) | | | |
| **16.** | Entomological cottage industries (Sericulture and lac-culture)  (Saleem and Shah, 2010 pp. 421-442; Atwal, 2005; Pedigo, 2002) | | | |
| **17** | **Final Exams** | | | |

**Student Evaluation criteria:**

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| Attendance | 5% |
| Workshop / Assignments/Case study | 5% |
| Surprise Test/Sudden Test, Quizzes | 5% |
| Class Participation | 5% |
| Mid Term Paper | 30% |
| Final Term paper | 50% |
| **Total** | **100%** |

**Student Responsibilities:**

Students must attend class. Failure to attend class may result in failure in the course. Students must also arrive on time and remain in class for the entire period. Cellular Phones and Beeper must be Turned off (Proper classroom decorum [behavior] adopts, Course outlines and calendars explain requirements and assignments, students are responsible for knowing what they say. Students are also responsible for doing all assigned work on time. Excessive absences (more than 03) will result in “F Grade”. Students may prepare Sketchbook for taking notes and for references.

**Instructor/Tutor**

Approved by:

**Dean/ Chairman/ HOD/ Subject Specialist/ Program Coordinator**

COURSE CONTENTS

**Theory**:

Introduction; Economic importance of insect; Causes of insect success; Introduction to IPM principles and methods of insect pests control; Insecticides and their classification, formulation and application equipments; Identification, life history, mode of damage, and control of important insect pests of crops, fruits, vegetables, stored grains and household; Entomological cottage industries (Apiculture, Sericulture and Lac-culture).

**Practical**:

Collection, identification and mode of damage of insect pests of crops, fruits, vegetables, stored grains and household; Collection; Insecticide, formulations and their computations; Use of application equipment; Practical instructions in Apiculture, Sericulture and Lac-culture.