Teachers Training Workshop:

Laboratory Methods in Biology

Features:

- Objective oriented learning in Biology laboratory methods
- Intensive practical training course for Teachers/Faculty members of Universities/Colleges
- Comprehensive coverage of the HEC revised Curricula for B.Sc./BSc.Hons./M.Sc.
- Hands-on-practice of classical and modern lab techniques in Biology laboratory teaching

Organizing Committee:

- **Dr. Irfan Zia Qureshi, Chairman Dept of Animal Sciences**
- **Dr. Sajid Malik, Organizer and resource person.**

Time and Schedule

March 4-8, 2013; 09:00 AM – 18:00 PM

Organized by:

Department of Animal Sciences
Quaid-i-Azam University





QUAID-I-AZAM UNIVERSITY ISLAMABAD
Department of Animal Sciences

Course detail of the one week
"Teachers Training Workshop: Laboratory Methods in Biology"

1. AIMS AND OBJECTIVES:

a. Refresher course for teachers/faculty members in lab methods in Biology.
b. Covers the HEC approved Biology curricula of B.Sc., B.Sc.(Hons), and M.Sc. programs offered in the all Pakistani Universities.
c. Theoretical presentations, practical demonstrations and hands-on-practice of the fundamental techniques employed in Biology lab/research.
d. Demonstrations on the use, maintenance and safety measures of the basic apparatus/equipments used in Biology experimentation.

2. COMPOSITION OF ORGANIZING COMMITTEE:

S.No.	Teacher	Designation
1	Dr. Irfan Zia Qureshi	Chairman, Department of Animal Science
2	Dr. Sajid Malik	Assoc. Prof., Department of Animal Science

3. RESOURCE PERSONS / COURSE COORDINATORS:

- Dr. Sajid Malik, Assoc. Prof., Department of Animal Science, QAU
- Ms. Fizzah Riaz (M.Phil. Human Genetics), Senior Research Assistant, QAU
- Mr. Abid Ali (M.Phil, QAU), Lecturer FG College H-9, Isl.

4. COURSE DURATION: March 04-08, 2013

5. VENUE: Department of Animal Sciences, QAU Islamabad

6. SEQUENCE OF EVENTS

- **Day 1**
  Opening of the Workshop:
    - Introductory lecture by Chairman Department of Animal Sciences and Dean Faculty of Biological Sciences

  Briefing by the course coordinators and formal opening of the workshop
  Distribution of handouts and course material (Time table, lectures/demo details)

- **Day 2—4**
  Lectures/demonstrations, practical work (09:00 → 18:00)

- **Day 5**
  Closing of the Workshop
  Guest lecture by Prof. (Rt) Dr. Mahmud Ahamd
  Representative of PSF and HEC
  Award distribution ceremony by Dean and/or VC

7. TIME TABLE / ACTIVITY ORGANIZATION

Day	09:00-10:30	10:30-11:00	11:00-13:00	13:00-14:00	14:00-16:00
Monday	Opening session	Tea break	Practical/Demo	Prayer/lunch	Hands on Practical
Tuesday	Lecture	- do -	- do -	- do -	-do-
Wednesday	- do -	- do -	- do -	- do -	-do-
Thursday	- do -	- do -	- do -	- do -	-do-
Friday	- do -	- do -	- do -	- do -	Course Feedback Conclusion

8. REGISTRATION FEE: Rs.1,000/-

The registration fee covers participation, study material and hand-outs, tea and meals.

Participation in all lectures/practicals shall be mandatory. Successful candidates shall be awarded a participation certificate.

Teachers Training Workshop: Laboratory Methods in Biology.
Course contents (one week, 9AM—6PM)

S.No.	Experiment / Method	Description	Curriculum (2002)
1	*Drosophila sp.* culture techniques: preparation and maintenance of permanent fruit fly colony	Trap setting, etherization, live specimen handling, media transfer	B.Sc., B.Sc.(Hons), M.Sc.
2	Study of morphological characteristics and setting crosses of *Drosophila*	Identification of male/female fly, isolating virgin female, setting desired crosses for the study of traits transmission	B.Sc.(Hons), M.Sc.
3	Polytene chromosomes of *Drosophila*	Dissection of *Drosophila* larvae for salivary gland isolation; staining	M.Sc.
4	Mutation induction in *Drosophila*	Chemical mutagenesis; lethal mutation induction, quantifying lethal dose	B.Sc.(Hons),
5	Human karyotyping from photographs and prepared slides	Preparation of ideograms, identifying normal and abnormal karyotypes	B.Sc.
6	Human karyotyping from blood lymphocytes	Culture of blood cells for metaphase chromosome study	B.Sc.(Hons), M.Sc.
7	Study of mitosis and meiosis using onion root tips and flower buds (or grasshopper)	Microscopic study and preparation of permanent slides with metaphase chromosomes	B.Sc., B.Sc.(Hons), M.Sc.
8	DNA extraction and analysis	Extraction from human blood lymphocytes, purification, quantification	B.Sc.(Hons)
9	Gel electrophoresis of genomic DNA	Size separation of DNA molecules	B.Sc.(Hons), M.Sc.
10	Study of blood groups: ABO and Rh factor	Understanding multiple allelic system	B.Sc.,
11	Study of different qualitative and quantitative traits in humans	Human normal physical polymorphisms that segregate as monogenic or polygenic traits	B.Sc.(Hons), M.Sc.
12	Dermatology of normal and mentally retarded individuals	Study of dermatoglyphics for genetic and medical applications	B.Sc.(Hons)
13	Study of Barr bodies in human cell nucleus; Study of sex chromosomes in interphase nuclei	Lyon hypothesis, X-chromosome inactivation study	B.Sc.(Hons), M.Sc.
14	Pedigree analysis, problems solving in genetic counseling	Studying disease transmission in human families, risk estimation	B.Sc.(Hons), M.Sc.
15	Cloning of a gene through Polymerase chain reaction	Demo only	B.Sc.(Hons), M.Sc.
16	DNA fingerprinting technique through RFLP analysis and its application in forensic science	Demo only	B.Sc.(Hons), M.Sc.
17	Determination of DNA sequence through Sanger's method	Demo only	B.Sc.(Hons), M.Sc.