

First Semester 2009

Compulsory Course for MPhil/PhD Students

ASR 702: Research Methodology II (3+0)

| Activity | Dates | Class Schedule |
|--------------------------|---------------------------|---------------------------|
| Introduction day | February 3 | Wed, Sat 1411h – 1540h |
| Teaching | February 4 – May 9 | Council Room, Office of |
| Mid-term (Presentations) | February 23 – March 7 | Dean, Faculty of Sciences |
| Semester Examinations | May 11–30 | Office Hours |
| Vacations | June 1 – July 15 (Summer) | Friday 1110h – 1149h |

| | Course Coördinator | Course Faculty |
|-----------------|---|-------------------------------------|
| | Prof. Dr. Syed Arif Kamal, Dept. of Mathematics | Prof. Dr. Shahana U. Kazmi, Micro- |
| Telephone: | 9926 1300-6 ext. 2380 (Tue, Thu 1600h – 1700h) | biology & Dean, Faculty of Sciences |
| Homepage: | http://ngds-ku.org/kamal | Prof. Dr. Farhat Moazzam, Center |
| e-mail : | kamal(at the rate of)ngds-ku.org | for Biomedical Ethics, SIUT |
| Office: | Room No. G-5, Dept. of Mathematics | Administrative Assistants |
| Directions: | http://www.ngds-ku.org/kamal/contact.htm#Directions | Nooruddin, Humaira (ext. 2255) |

Course Objectives

To give the students a sound background in the methodology of research, taking the students from simple (scientific record keeping) to complex (critical evaluation of research) topics. Guests from various R&D organizations shall cover specialized topics. After completing this course the students should be able to differentiate good-quality work from poorly-conducted one.

Course Outline

Scientific Record Keeping: Lab notebook, duplicate record, date

Ownership of Data: Institutional property, personal rights, patenting, intellectual-property rights

Handling of Research Material: Placement and storage, utilization, disposal

Public Safety: Health, safety and environmental affairs, potential hazards, risks, accidents, remedies, laboratory design, gadgets

Environmental Conservation: Management of laboratory-environment parameters, humidity, temperature, air quality, illumination, noise

Research Ethics/Informed Consent: Confidentiality, deception, de-hoaxing and desensitization

Efficient Use of Computers and Internet: Search engines, digital libraries, archives

Communication of Science: (Oral) Technical presentation, keynote address, invited lecture, popular lecture; (Written) Language, diction and contemporary style, data presentation and documentation – students are supposed to give one short presentation with accompanying writeup

Research Misconduct: Fradulent research, plagiarism, retraction and cleansing, legal burdens

Scientific Integrity: Precision, reporting, credits, authorship, mentoring

Critical Evaluation of Research: Accuracy, precision, reproducibility (stability and objectivity), reliability, quality, originality, bias and distortion, non-deliberate bias, sampling bias

Publication: Paper, audience and journal, basic structure of research paper, full-length paper, short communication, notes, case report, review and case-series analysis, editorial, book review, letter to editor

 ${\bf Class\ Representatives:}\ {\bf Tafheem\ Malik,\ Huma\ Ikram,\ } {\it Biochemistry}$

Administrative Assistant: Noorduudin

For course announcements and assignments, go to *Pedagogical Section*, click on "Courses (offered during the current semester)".

Web addresses of this handout: https://www.ngds-ku.org/DFS/ASR702 09.pdf