Academic Plan

PhD Public Health

(Approved by Higher Education Commission Pakistan, Academic Council of KMU, Syndicate of KMU)

Institute of Public Health & Social Sciences

Khyber Medical University, Peshawar, Khyber Pakhtunkhwa, Pakistan

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Submitted by

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Background

Around the world, there is a strong wave of advocacy for practicing evidence based medicine. This has led academia in pursuit of high level research to generate evidence based medicine for better health. To achieve the above there is an increasing demand of research experts in the field of public health; especially in the context of Pakistan with double burden of disease, devolution of health department, epidemics of new infections, underused primary health care, overburdened tertiary health care, demographic transitions and the international pressure of ending polio. Moreover, natural disasters such as earthquake and floods in Pakistan further increases this demand. Ironically, in spite of the poor situation of public health within the country and the region, only few of the universities in Pakistan offer the doctorate in Public Health. However, there is a strong perceived demand from the public health graduates and professionals within the country for such a program, mainly because of the mounting cost of higher studies abroad. Institute of Public Health & Social Sciences (IPH&SS) at Khyber Medical University (KMU) has been one of the renowned and principal institutions in the province providing quality education in public health. Graduates from this institution are leading research activities in the region and have been recognized nationally as well as internationally. IPH&SS has strong public health faculty and the recent joining of two foreign PhDs in public health have enriched the faculty further. Therefore the institute is equipped to support the launching of a doctoral program in public health.

The doctoral level of training in public health at IPH&SS-KMU will develop a team of experts who will be trained to assess the practical problems of the country and conduct quality research for finding solutions to those problems and incorporating the changes through a sound health policy for better health of the people.

Program Aim and Objectives

The main aim of this PhD program is to produce a trained team of experts with best level of skills in research and academia in the field of public health to prevent disease, promote health, and prolong life among the population as a whole.

The objectives of the PhD in Public health program will be to

- Develop trained human resource in research skills and methodology in the field of public health;
- Conduct quality and credible research in the field of public health;
- Develop leadership for academic, research and service sectors of public health.

Program Structure and Evaluation

The PhD program will require additional PhD level course work of at least 18 credit hours followed by a comprehensive examination at the end of course work as per HEC criteria. Upon success in the comprehensive exam, the candidate will follow his/her research work leading to submission and defense of thesis and if successful the award of PhD degree (Figure 1).

Annual review process

Year 1

First year of PhD is comprised of advanced courses of PhD, spread across two semesters. Each semester will include courses of 9 credits. The final Comprehensive exam (maximum 2 attempts) will be conducted by the examination department of KMU. On successful completion of the course work, the student has to present a research proposal in a Departmental Graduate committee meeting which will be organized by the concerned PhD Coordinator. In addition to the permanent members of the Graduate committee, one or more subject specialist should participate from within or outside KMU. This should be followed by submission of "PhD Student Review Form" (Annexure 1), literature review and defense of research proposal in the annual review meeting of the Advanced Studies Review Board (ASRB), especially arranged for the PhD students.

Year 2 and Year 3

The annual review process of Year 2 and 3 include submission of "PhD Student review form" and a presentation to the institutional Graduate committee on six monthly bases organized by the concerned PhD Coordinator. This is followed by submission of "PhD Student review form", scientific report, and presentation in the annual ASRB meeting. The annual review process should

be completed by students and supervisors by 31st January. Any student starting late will normally be permitted to delay submission of their annual report until 31st March.

Scientific report

A scientific report preferably in the style of a journal article (6 to 10 pages maximum is recommended) summarizing progress made in the last year. It may therefore contain an abstract, introduction, materials and methods, results and discussion. In addition, there should be a 500-1000 word section at the end of the report detailing the following year's work. To be sent to supervisor for assessment and comment (half a page maximum) and subsequently submitted to the PhD Coordinator and ASRB.

Presentation in the ASRB Meeting

All PhD students are required to deliver oral presentation by the end of year in the ASRB annual meeting, especially organized for them. This is followed by discussion with the ASRB members, including minimum of two subject experts. The ASRB will then take decision regarding the registration of student for the next session.

Thesis pending period

Final year interview - Students within a year of the absolute thesis submission deadline will be interviewed specifically on their progress in the ASRB annual review meeting.

Intention to submit form

An Intention to Submit form will be submitted to the PhD coordinator prior to the intended thesis submission date.This form initiates the identification and appointment of a committee of examiners for each thesis.

Submission of thesis

The research work and award of degree will be supervised by a HEC recognized PhD supervisor and co-supervisor from related areas of expertise. Upon admission to PhD program a supervisor will be allotted to the enrolled student who will guide the student in the selection of his area of

research along with the development of research proposal and protocol. The supervisor and co-supervisor will also ensure that the student develop essential skills according to his area of research.

Publication / acceptance of manuscript for publication of at least one research paper in HEC approved/recognized journal (X category) is essential before the submission of dissertation.

The requirements for PhD degree shall normally be completed within four years from the date of registration. The maximum time for the completion of PhD degree shall be six years from the date of registration in the PhD program. Only under exceptional circumstances, to be described in detail by the PhD candidate and supported by the supervisor, the PhD advisory committee may allow extension of up to one year beyond the maximum time limit of six years.

Evaluation of the doctoral thesis by 2 eminent foreign examiners from scientifically advanced countries, approved by HEC. The Plagiarism test must be conducted on the Dissertation before its submission to the two foreign experts. An open defense of Dissertation is essential part of PhD Program after positive evaluation. Viva voce examination by 2 national experts, approved by HEC. A copy of Ph.D. Dissertation (both hard and soft) must be submitted to HEC for record in Ph.D. Country Directory and for attestation of the PhD degree by the HEC in future.

Registration in the University

i. A scholar for PhD degree program shall be registered in teaching department / institution of the University.

ii. Registrar of the university shall maintain a register of PhD research scholars and assign a registration number to each scholar at the time of provisional admission.

iii. A "notification of registration" for each candidate approved /allowed for admission to PhD program shall be issued by the University.

iv. Registration may be renewed on payment of the prescribed fee if a scholar is re-admitted within a year after having been struck off the rolls for any valid reason.

v. A person registered for the PhD degree program shall be called PhD research scholar.

vi. Each student so selected shall be required to register and pay the dues within 30 days from the date of issuance of the notification of registration, failing which the admission of the selected candidate shall be deemed as cancelled. The tuition fee and other dues shall be determined by the university from time to time.

PhD courses

Semester 1

BMS: 803   Advances in Epidemiology and Biostatistics (2+1 Credit Hrs)

BMS: 804   Advances in Research Methodology and Bioethics (3+1 Credit Hrs)

PH: 801 Principles of Public Health (1+1 Credit Hrs)

Semester 2

PH: 802 Advances in Systematic review and meta-analysis (2+1 Credit Hrs)

PH: 803 Advances in Data Handling and Appraisal (2+1 Credit Hrs)

PH: 804 Advances in Qualitative research method (2+1 Credit Hrs)

Courses semester 1

BMS: 803 Advances in Epidemiology and Biostatistics (2+1 Credit Hrs)

Upon completion of course the students will be able to:
- Comprehend basics of epidemiology and principles of various study designs
- To design a study and describe the validity and reliability of a study design

- Comprehend concepts and methods of statistics in Biomedical research
- Have good command on use of statistical computer softwares for data analysis

Course Contents:

The course contents will include; Descriptive epidemiology, analytic epidemiology and epidemiological inference, Classification, morbidity and mortality rates, ratios, incidence, prevalence, sampling, screening, epidemiological models, Types of study design; their importance, uses, and limitations, field trials, controlled epidemiological surveys, sources of bias and causal models.

Introduction to statistics, types of statistical applications, population and samples, data analysis and presentation, variables, elementary statistical methods, tabulation, chart and diagram preparations, measures of central tendency and dispersion, sampling techniques and sample size estimation, probability and proportions, Tests of significance; normal test, t test, Chi square test, correlation and its applications, linear regression and multiple regression, logistic regression, sign test, Wilcoxon signed rank test, Mann Whitney test, Kruskal Wallis test, Spearman rank correlation, Clinical trials and intervention studies, Measures for developing health statistical indicators: morbidity and mortality statistics, Use of latest statistical computer softwares for data analysis.

Recommended Readings:

- Gordis, L. Epidemiology. Pennsylvania: W.B. Saunders Company. Latest Ed.
- Rothman KJ. Modern Epidemiology. Boston: Little, Brown and Company, Latest Ed.
- Kelsey JL, Thompson WD, Evans AS. Methods in Observational Epidemiology. New York: Oxford University Press, Latest Ed.
- Kleinbaum DG, Kupper LL, Morgenstern H. Epidemiologic Research: Principles and Quantitative Methods. Belmont, CA: Lifetime Learning Publications, Latest Ed.
- Lilienfeld DE, Stolley PD. Foundations of Epidemiology. New York: Oxford, Latest Ed.
- Daniel WW. Biostatistics: A Foundation for Analysis in the Health Sciences. Latest Ed. John Wiley & Sons. Inc. New York.
- Larson R and Farber B. Elementary Statistics: Picturing the World. Latest Ed, Prentice Hall Publications. USA.
- Oliver, M. and Combard MS. Biostatistics for Health Professions. Latest Ed. Prentice Hall Publications, New Jersey.

- Statistical Software: SPSS; EPIINFO; STATA; SAS

Journals:

- British Medical Journal

- Epidemiologic Reviews

- Annals of Epidemiology

- American Journal of Epidemiology

- International Journal of Epidemiology

- European Journal of Epidemiology

- BMC Public Health

BMS: 804   Advances in Research Methodology and Bioethics (3+1 Credit Hrs)

Upon completion of course the students will be able to:

- Comprehend basics of research methodology

- Comprehend basic knowledge of the ethical issues in biomedical research

- Select and design a research project

- Critically analyze and communicate scientific data

- Review and write research articles in journals of international standards

- Analyze literature critically and comprehend the foundations of Bioethics theory

- Know how to deal with patients within the boundaries of ethics

- Know how to improve the basic health care services on ethical grounds

Course Contents:

The course contents will include: Selection of a field for research, drivers for health research, participation in collaborative international research, participation in pharmaceutical company research, research ideas, criteria for a good research topic, types of research design, selecting research design, defining and refining research questions, generating research hypothesis, study sample and size, qualitative research, questionnaire design, research in health economics, ethics in research design, writing the research protocol, submitting a research proposal; application for funding & components of research proposal, implementing the research project, describing and analyzing research results, interpreting research results, communicating research, writing a

scientific paper and dissertation or thesis, publishing a scientific paper, making a scientific presentation, assessment and evaluation of research.

The Bioethics part will include: death and dying; health professional patient relationship; method and theory in bioethics; ethics and children; organ transplantation, concepts of distributive justice in health care; defining health care needs; research ethics; reproduction and fertility; genetics and the human future.

Recommended Readings:

- Mahmoud F. Fathalla. A Practical Guide for Health Researchers. WHO Regional Office for the Eastern Mediterranean Cairo, 2004.

- Catherine Dawson. Introduction to Research Methods: A Practical Guide for Anyone Undertaking a Research Project. How to Books Ltd. Latest Ed.

- Arlene Fink. Conducting Research Literature Reviews: From the Internet to Paper. Sage Pubns, Latest Ed.

- Bjorn Reino Olsen, Petter Laake, Haakon Breien Benestad. Research Methodology in the Medical and Biological Sciences. Academic Pr. Latest Ed.

- Bausell R. Barker. Advanced Research Methodology: An Annotated Guide to Sources. Scarecrow Pr. Latest Ed.

- Debbie Holmes, Peter Moody, Diana Dines. Research Methods for the Biosciences. Oxford University Press.

- John Arras and Bonnie Steinbock. Ethical Issues in Modern Medicine, Mayfield, Latest Ed.

- Françoise Baylis, Jocelyn Downie, Benjamin Freedman, Barry Hoffmaster, and Susan Sherwin. Health Care Ethics in Canada. Harcourt Brace, Latest Ed.

- Tom L. Beauchamp and James F. Childress. Principles of Biomedical Ethics. Latest Ed. Oxford University Press.

- Jonathan Glover, Causing Death and Saving Lives. Penguin Books, Latest Ed..

- Glenn C. Graber and David C. Thomasma. Theory and Practice in Medical Ethics. Continuum, Latest Ed.

- Thomas A. Mappes and David Degrazia. Biomedical Ethics, 4th ed. McGraw-Hill, Latest Ed.

- Ronald Munson and Christopher A. Hoffman. Intervention and Reflection: Basic Issues in Medical Ethics. Latest Ed. Wadsworth.

- Gregory E. Pence. Classic Cases in Medical Ethics. 2nd ed., McGraw-Hill, 1990.

- Michael Yeo. Concepts and Cases in Nursing Ethics. Broadview, Latest Ed.

- Françoise E. Baylis. The Health Care Ethics Consultant. Humana Press, Latest Ed.

Journals:

- BMC Medical Research Methodology

- Health Services and Outcomes Research Methodology

- Bioethics

- Cambridge Quarterly of Healthcare Ethics

- Hastings Center Report

- Journal of Clinical Ethics

- Journal of Medical Ethics

- Journal of Medicine and Philosophy

- Kennedy Institute of Ethics Journal

- Nursing Ethics

PH: 801 Principles of Public Health (1+1 Credit Hrs)

This course aims to introduce the key concepts of public health;

- To explore the determinants of health status in different community settings

- To analyze how different populations carry different kinds and amounts of disease burden, and to use that knowledge for improving health by preventing disease

- Discuss the roles of public health in addressing health disparities and the needs of vulnerable populations

- To appraise specific public health activities and challenges

- To discuss the future of Public Health

COURSE OUTLINE

The course contents will include, lessons from the history of public health, the practice of public health, origins of public health, success of public health measures, local public health, public health relationship to 10 essential health services, infectious disease control, rising public health risk of unvaccinated children, injuries and noninfectious diseases, improving access to medical care, accountability and evidence-based public health, public health system improvement, what are the barriers to public health in meeting its mission, global health threats and public health, challenges for public health

Additional Resources and Reading Resources:
Textbook: Schneider, Mary Jane. Introduction to Public Health, 3rd edition, 2011.

Materials from this textbook will be supplemented with manuscripts from the peer-reviewed literature and other pertinent documents.

Courses semester 2

PH: 802 Systematic review and meta-analysis (2+1 credits)

- This course aims to provide skills to students for designing and conducting high quality systematic reviews and meta-analyses. The coursework includes presentation and computer based exercises using STATA

- To discuss the basic principle and process of systematic review and meta-analysis

- To explore bias and heterogeneity in meta-analysis

COURSE OUTLINE

The course contents will include, introduction to and rationale of systematic reviews of health research, question formulation, protocol development, performing searches, planning searches, critical appraisal, introduction to statistical methods, introduction to software for meta-analysis, publication and reporting bias, systematic reviews of complex interventions, systematic reviews in context, assess the risk of bias in a randomized controlled trial, explain the basic methods of meta-analysis, use STATA software to perform meta-analysis, summarize the findings of a systematic review or meta-analysis, and critically appraise a systematic review.

Textbook:

Higgins, JPT, Green, S, editors. Cochrane Handbook for Systematic Reviews of Interventions. Chichester: Wiley, 2008.

Khan K, Kunz R, Kleijnen J, Antes G. Systematic reviews to support evidence-based medicine. 2nd edition. London: Royal Society of Medicine, 2011.

Journals:

- Jadad AR, et al. Methodology and reports of systematic reviews and meta-analyses: a comparison of Cochrane reviews with articles published in paper-based journals. JAMA. 1998 Jul 15; 280(3):278-80.

- Lindsay S. Uman. Systematic Reviews and Meta-Analyses.

  http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3024725/pdf/ccap20_1p57.pdf

- Cochrane: **http://www.cochrane.org/**

- PRISMA: **http://www.prisma-statement.org/usage.htm**

PH: 803 Data handling and appraisal (2+1 Credit Hrs)

- To equip students with practical experience of analysis of data using a statistical computing package (STATA and SPSS)
- To equip students with practical experience of interpretation and presentation of data analysis
- Recognize the importance of good practice in managing research data in general and apply it within your own work context.
- Apply knowledge gained to be able to draw up a data management plan and maintain it throughout the project life.
- Be able to organize and document your data efficiently during the course of your project.
- Be aware of the options available to you to securely store and back up your data.

COURSE OUTLINE

The course contents will include, research data explained, data management plans, organizing data, file formats and transformation, documentation and metadata, storage and security, data protection, rights and access, preservation, sharing and licensing, consort (consolidated standards of reporting trials), strobe (strengthening the reporting of observational studies in epidemiology), prisma (preferred reporting items for systematic reviews an meta-analyses), moose (meta-analyses of observational studies), grade (grading of recommendations assessment, development and evaluation), cochrane collaboration's risk of bias tool, and jadad scale.

Textbook:
Book Review: A Practical Approach to Analyzing Healthcare Data by Jon.

Additional Reading Resources:
- **STATA: http://www.stata.com/**
- **SPSS: http://www-01.ibm.com/software/analytics/spss/**

PH: 804 Qualitative research method (2+1 Credit Hrs)

- To develop qualitative research skills
- To describe basic theories and basic methods for qualitative research

- To describe role of researcher in qualitative research
- To analysis and interpretation of qualitative research data

COURSE OUTLINE:

The course contents will include, overview and introduction to course, experience, interpretation, and qualitative research, research design, gathering data in the field, analyzing and interpreting data, understanding reliability and validity in qualitative research, ethical considerations in field-based research, increasing the generalizability of qualitative research, applied research, writing critical ethnographic narratives, post positivistic assumptions and educational research, computer software & qualitative research, focus groups, thematic qualitative data analysis, the quality of qualitative research, future directions for qualitative research

Text book: Qualitative Research & Evaluation Methods – October, 2001 by Michael Quinn Patton

Journals:

- BMJ 2000;320:114

- International Journal of Qualitative Methods

- International Journal of Qualitative Research

- International Journal of Social Research Methodology

- Qualitative Research

Fees and other Dues

Each PhD candidate shall be required to pay tuition fee and such other charges as may be determined by the KMU from time to time.

Admission to PhD

Qualification

For admission into the PhD minimum CGPA 3.0 (out of 4.0 in the Semester System) or First Division (in the Annual System) in M.Phil/M.S degree in any Public health discipline from HEC recognized university/institution.

Admission criteria and procedures

i. Each candidate shall make an application for admission to PhD program in response to an advertisement by the university on the prescribed form along with documents specified in the form.

ii. The allocation of marks for determining merit for admission to PhD program shall be as following:

Academic record 40%

Admission test 40%

Interview 20%

The candidate must have passed the admission test (public health [70%], English verbal [15%], and analytical reasoning [15%]), developed locally by the University with minimum passing score of 70%.

iii. Successful candidates in the above test will submit a two pager synopsis on the topic that candidate may like to pursue for his/her doctoral thesis. Synopsis must reflect the background, rationale, research question & objectives, proposed methodology and expected outcomes of the research.

The Khyber Medical University Peshawar PhD Regulations 2011

The Khyber Medical University Peshawar PhD regulations 2011 will be followed to govern the matters relating to admissions, registrations and examinations for the PhD program.

Faculty

PhD Holders/supervisors

1. Dr. Zia Ul Haq (PhD Public Health, Glasgow-UK on HEC Scholarship), MPH, MBBS
   Associate Professor (PhD Coordinator)
   Honorary Clinical Senior Lecturer, University of Glasgow, UK

2. Dr. Muhammad Naseem Khan (PhD Public Health, Liverpool-UK on HEC Scholarship), MPH, MBBS
   Assistant Professor

3. Dr. Umer Farooq (PhD Public Health, China on HEC Scholarship, Associate Professor), MPH, MBBS

Other faculty/Non-PhD holders

1. Dr. Hamid Hussain, Associate Professor, MSc Epidemiology & Biostat (Agha Khan), MBBS (Pak)

2. Dr. Ayaz Ayub, Assistant Professor, MPH (Australia), MBBS (Pak)

3. Dr. Ayesha Imtiaz, Assistant Professor, MPH (Australia), MBBS (Pak)

4. Dr. Naheed Mahsud, Lecturer, MPH (Pak), MBBS (Pak)

5. Dr. Waqar Ali, Lecturer, MPH (Pak), MBBS (Pak)

Figure 1: Flow diagram of PhD program at IPH&SS KMU

Eligibility

M.Phil/M.S degree in any Public health discipline

CGPA 3.0 (out of 4.0 in the Semester System) or First Division

(in the Annual System)

Selection

Local subject based GRE test with minimum passing score of 70%

Merit based on test (40%), Academic record (40%) & Interview

(20%)

Course work

Year 1

18 credits course work (2 semesters)

Comprehensive exam (maximum 2 attempts)

Dropout from

PhD

Research work

Year 2, Year 3

Research work

Annual review to be completed by 31st January

(presentation, submission of scientific report, interview)

Thesis & examination

Evaluation of thesis by 2 foreign experts

Minimum one paper published in HEC (X category)

approved journals

Open defense

Award of PhD degree

Submission of Dissertation copy to HEC for PhD Country

Directory