Rawalpindi Medical University

PhD Curriculumin

Public Health

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Introduction to the Rawalpindi Medical University (RMU)

Rawalpindi Medical College was established in Faisalabad on 18th March 1974 and later shifted to Rawalpindi on 5th November 1974 in an incomplete building at TipuRoad (Science block of Gordon College Rawalpindi), that was later handed over to Rawalpindi Medical College.

The founder principal of RMC, Prof. Abdul Latif, worked hard to establish the institution. First Rawalian Principal, Prof. Mohammad Umar after taking over the office in 2013, started working on multi-dimensional approach to further develop the institution.

Since 1974 more than 7900 students have graduated and are serving nationallyand internationally. RMC was privileged to claim top positions in university examination several times. Best of the best graduate in UHS is also a Rawalian. Because of the untiring and dedicated efforts of Prof. Muhammad Umer Rawalpindi Medical College was upgraded to Rawalpindi Medical University recently by Government of Punjab, Health Department on 6th may 2017. Higher Education Commission has given NOC to RMU.

The institute has strived to be upgraded to the level of an independent university after which the annual system of MBBS degree has been changed to the internationally preferred modular system. Now after the successful launching Of MD/MS program by VC RMU we are ambitious to get the MPhil and Ph.D. program approved by PMDC.

Rawalpindi Medical University

As a Vice Chancellor of Rawalpindi Medical University this is moment of real pride for me that my team and dedicated faculty of the Rawalpindi Medical University is working hard to uplift this newly formed public sector medical university for academic uplift, excellence, research and innovation. In spite of recent pandemics and Public health issues, the PhD in Public health team has worked hard and successfully in the period of launching this programme. Now the dedicated team is going to launch three year PhD in Public health programme first time in the region. Rawalpindi Medical University has taken this initiative to promote research capacity of the healthcare providers and public health experts of this institution and others of the region, hence missing part in generation of new Public health and research knowledge could be played by the talented section of medical community of this region. Research builds up science which has been and will be fundamental in improving and relieving health sufferings of mankind.

I congratulate team on accepting this challenging task and performing with passion & commitment. I expect the learners of this course will employ their learning in their work settings, so they could share in health development of the people of the region and bring good name to their institution and the country.

Professor Dr. Muhammad Umar

(Sitera-e-Imtiaz Pakistan)

Vice Chancellor, Rawalpindi Medical University

Preface

The appalling state of all Public health indicators and the pace of the country en route to achieve millennium development goals compel to produce a force of public health professionals, researchers and academicians to face the challenges of the 21st century. Ironically, in spite of the poor situation of public health and the transforming health systems within the country and the region, a few of the universities in Pakistan offer the PhD in Public Health. Currently, there is hardly any reputable and recognized programme for doing PhD in Public health in Pakistan. Nonetheless, there is a strong perceived demand from the public health graduates and professionals within the country for such a programme, mainly because of the escalating cost of higher studies abroad. So far a variety of masters programmes in public health within the country, region and internationally have been serving the needs and quest of the public health professionals to acquire managerial and decision making positions in the health system. RMU has been one of the eminent and leading institutions in the country providing quality education in public health under the auspices of Pakistan Medical & Dental Council, Islamabad. Its standards of education and student led research have been recognized nationally as well as internationally. RMU has strong Public health faculty in Department of Community Medicine and Public Health and entities that can support the launching of a PhD programme in Public health. Background The main goal of this PhD program is to develop superior level of skilled human resource to develop scientific basis for disease prevention and control, health promotion and well-being of populations, demonstrating an excellence in research, service and academic leadership. The objectives of the PhD in Public health programme will be to develop human resource with research skills and knowledge in Public health in the country and region; Program Goal & Objectives The doctoral level of training imparted in Public health at RMU will develop a strong team of experts who will be able to solve practical problems and conduct quality research for finding solutions for common Public health problems, reorienting the health systems and brining policy level changes in the health sector of the country and the region.

Course Director

Prof. Dr. Syed Arshad Sabir

Course Co-Directors

Dr. Khaula Noreen (Associate Prof.)

Dr. Mohammad Imran Younus (Assistant Prof.)

Department of Community Medicine and Public Health, RMU

RMU Mission Statement

- To impart evidence-based research oriented medical education

- To provide best possible patient care

- To inculcate the values of mutual respect and ethical practice of medicine

Vision and Values

Highly recognized and accredited center of excellence in Medical Education, using evidence-based training techniques for development of highly competent health profession

1 Programme Details

Standardized Scheme of Studies for Degree Programs Offered In RMU

Course Title	PhD
Speciality	Public Health
Course Duration	Minimum 3 years (including course work duration and Research Dissertation) ,Maximum 3-8 years (including course work duration) with approval of Director Research/Registrar/Controller of Examinations
Type Of Study	Full time
Study System	Semesters system (Minimum of 16 weeks of teaching excluding examinations) ○ 2 Regular semesters for coursework (1 year) ○ 4 semesters for research work
Total Credit Hours	18 (Credit Hours of Course Work + a PhD dissertation which must be evaluated by at least two PhD experts from technologically /academically advanced foreign countries in addition to local Committee members)
Distribution OF Courses And Credit Hours	• 1st semester (09 Credit hours) ○ 3 Compulsory courses (9 Credit hours) • 2nd semester (09 Credit hours) ○ 3 Compulsory courses (9 Credit Hours) • 3rd, 4th, 5th, 6th Semesters (6 credits) Research, Dissertation

Course Load Per Semester For Regular Full-Time Students	09 Credit Hours of Advanced Courses in the specific field and Research Methods
Teaching Institution Degree Awarding Institution	Rawalpindi Medical University
Admission Criteria	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 a PMDC/HEC recognized university/institution.

2 Introduction and Background of PhD in Public Health Programme

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, a natural disaster 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 PhD 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. Rawalpindi Medical University (RMU) 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. RMU has strong public health faculty and the recent joining of a foreign PhD in Public health have enriched the faculty further. Therefore, the institute is equipped to support the launching of a PhD program in Public health.

PhD Public Health Programme

The main goal of this PhD program is to develop superior level of skilled human resource to develop scientific basis for disease prevention and control, health promotion and well-being of populations, demonstrating an excellence in research, service and academic leadership.

3 Programme Mission

The mission of PhD level of training in Public health at RMU is to 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.

4 Overview

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 PMDC 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.

5 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.
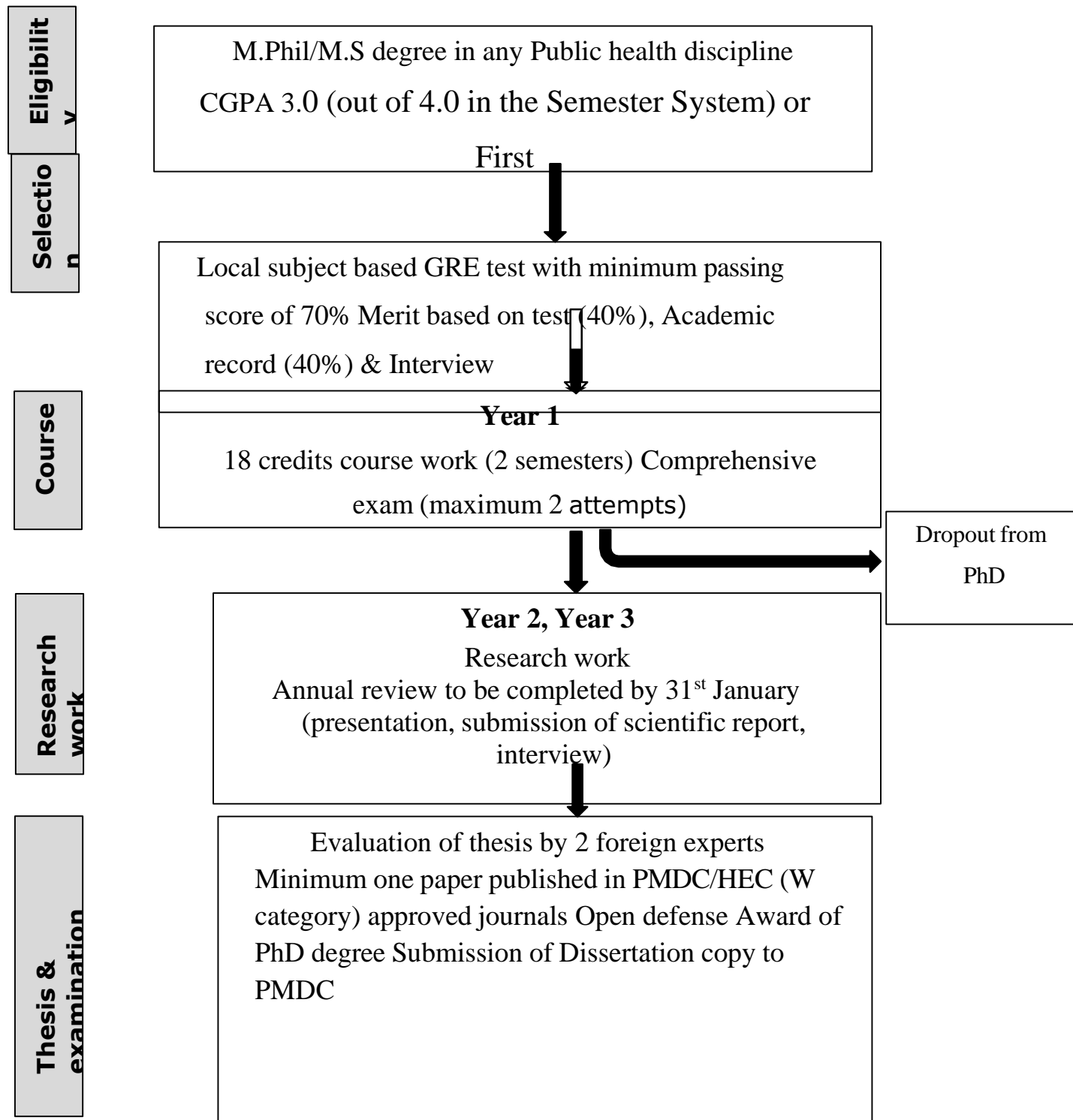
The objectives of the PhD in Public health program will be to:

1- Develop human resource with research skills and knowledge in public health in the country and region;

2- Produce quality and credible evidence in public health research

3- Nurture leadership for academic, research and service sectors of public health;

4- Conduct quality and credible research in the field of public health;

6 Program Structure and Evaluation

A brief outline of the PhD program in Public Health is as follows**:**

Figure 1: Flow diagram of PhD program at RMU

Eligibility	M.Phil/M.S degree in any Public health discipline CGPA 3.0 (out of 4.0 in the Semester System) or First
Selection	Local subject based GRE test with minimum passing score of 70% Merit based on test (40%), Academic record (40%) & Interview
Course	**Year 1** 18 credits course work (2 semesters) Comprehensive exam (maximum 2 attempts)
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 PMDC/HEC (W category) approved journals Open defense Award of PhD degree Submission of Dissertation copy to PMDC

Dropout from PhD

7 Annual review processes

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 RMU. 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 RMU. 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 Board of Advanced Studies and Research (BASR), 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 BASR 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 BASR.

Presentation in the BASR Meeting

All PhD students are required to deliver oral presentation by the end of year in the BASR annual meeting, especially organized for them. This is followed by discussion with the BASR members, including minimum of two subject experts. The BASR 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 BASR 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 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.

Acceptance/publication of at least one research paper in PMDC approved/recognized journal 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 must be done by 2 eminent foreign examiners from scientifically advanced countries, approved by PMDC. 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 must be conducted by 2 national experts, approved by PMDC.

A copy of Ph.D. Dissertation (both hard and soft) must be submitted to PMDC/HEC for record in PhD country directory and for attestation of the PhD degree by the PMDC/HEC in future.

Advisors

Students shall be assigned advisors on admission by the specific department. The PhD coordinator shall serve as advisor before selection of subject specific advisors. The advisor and the student together will develop a flexible comprehensive plan of study that will be implemented in each semester. The

advising file will be updated each semester and will include copies of transcripts and GPA earned.

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/FCPS degree in any Public Health discipline from a PMDC/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.

Attendance

The policy for minimum attendance (>75 %) in a course is mandatory to complete the requirements of a course. The instructor shall report a student's absences and the student shall be placed on attendance probation by his/her Dean/HOD and it will be notified by the department. A student shall be dropped from university for violating the terms of such probation.

Cancellation of enrolment

If a student fails to attend any lecture during the first four weeks after the commencement of the semester as per announced schedule, his/her admission shall stand cancelled automatically without any notification.

Fees and other Dues

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

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.

The Rawalpindi Medical University Rawalpindi PhD Regulations 2017 The Rawalpindi Medical University Rawalpindi PhD regulations 2017(Annexure 2) will be followed to govern the matters relating to admissions, registrations and examinations for the PhD program.

Method of Assessment/Examination for PhD Programme During Studies

The students are evaluated during each course on the basis of:

a) Formative assessment which is a mix of the tests, end of course examination, class and home assignments, class participation, interactive discussions, practical exercises and/or group works depending on the course outline (ongoing assessment);

b) Summative assessment based on the end of semester examination papers. Summative assessments are held at the end of first two semesters and comprise of two semester papers each. In the third semester, the students are examined in the mid-semester summative assessment before the start of the Dissertation work. The dissertation work is assessed through a viva voce examination on the basis of a structured format covering the quality of the project, work performed in the field, data generation and analysis and presentation of results, discussion and

conclusions presented as a written report. In the fourth semester the students go back to their workplaces and apply the skills learned in the first three semesters. At the end of the semester an on-job written report will be submitted by the students in addition to the written appraisal by the designated supervisor/mentor. c) Fifty percent marks shall be reserved for the ongoing (formative) assessment and fifty percent for the semester examination paper and dissertation (summative assessment).

PhD courses

Semester 1

PH: 801 Advances in Epidemiology and Biostatistics (2+1 Credit Hrs) PH: 803 Principles of Public Health (1+1 Credit Hrs)
PH: 805 Advances in Data Handling and Appraisal (2+1 Credit Hrs)

Semester 2

PH: 804 Advances in Systematic review and meta-analysis (2+1 Credit Hrs) PH: 806 Advances in Qualitative research method (2+1 Credit Hrs)
PH: 802 Advances in Research Methodology and Bioethics (3+1 Credit Hrs)

Courses semester 1

PH: 801 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

- Comprehend concepts and methods of statistics in Biomedical research

- Have good command on use of statistical computer software for dataanalysis

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 software for data analysis.

Journals

- British Medical Journal

- Epidemiologic Reviews

- Annals of Epidemiology

- American Journal of Epidemiology

- International Journal of Epidemiology

- European Journal of Epidemiology

- BMC Public Health

PH: 803 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 ofdisease

- Burden, and to use that knowledge for improving health by preventingdisease

- Discuss the roles of Public Health in addressing health disparities and theneeds 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

PH: 805 Data handling and appraisal (2+1 Credit Hrs)

- To equip students with practical experience of analysis of datausing a statistical computing package (STATA and SPSS)
- To equip students with practical experience of interpretationand presentation of dataanalysis
- Recognize the importance of good practice in managing research data in general and apply it within your own workcontext.
- Apply knowledge gained to be able to draw up a data management plan and maintain itthroughout 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 jaded scale.

Courses semester 2

PH: 804 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.

PH: 806 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

PH: 802 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.

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

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.

Annexure 1 - PhD annual review form

Annexure 2 – Rawalpindi Medical University PhD regulations 2017

For Medical Graduates: Written exam: At the end of 1ˢᵗ year the student will appear in comprehensive written exam to be conducted by internal examiner appointed by the RMU Rawalpindi. Those who score >70% in the year 1 comprehensive exam will then take 18 credit hours of advanced PhD course work and appear in

two semesterexams at the end of second year.

For MPhil/FCPS qualified candidates: They will take 18 credit hours of advanced PhD course work and appear in a comprehensive exam (summative assessment) at the end of second year.

Formative assessment in the form of term tests will be taken on regular 3 monthly bases and six monthly progress reports will be submitted to the university.

Final PhD Exam

Final PhD defense of thesis exam will be held at the end of 3 years for qualified candidates. This exam will be conducted as per regulation for PhD Defense of thesis specified by PMDC.

The PhD dissertation will be evaluated by at least two external experts who may be either (i) Pakistan-Based Distinguished National Professors, Meritorious Professors, or Tenure Track Professors, or (ii) PhD experts from academically advanced countries (approved list of academically advanced countries for evaluation of PhD Dissertation is provided in Annex 4.4(b) of PMDC guidelines for PhD); provided, however, that if the PhD candidate publishes his or her dissertation research in a peer reviewed journal that is classified by the PMDC, the PhD dissertation will only require evaluation by one external expert.

Each PhD researcher shall be required to publish at least one research paper as its first author during his or her doctoral studies in a PMDC listed journal for the award of PhD degree.