MASTER HEALTH RESEARCH

INSTITUTE OF PUBLIC HEALTH & SOCIAL SCIENCES

MASTER HEALTH RESEARCH

COURSE TITLE	Master health research
SPECIALITY	(Health research, Public health)
COURSE DURATION	Minimum 2 years (including course work duration and Research Dissertation) ,Maximum 4 years (including course work duration)
TYPE OF STUDY	Full time
STUDY SYSTEM	4 semesters Total Contact Session = 6 Total Contact Days = 60 (10 x 6) Thesis 4th Semester
TOTAL CREDIT HOURS	Total Program Credit Hours = 60 Credit Hours per semester = 18 Credit Hours per session = 9
DISTRIBUTION OF COURSES AND CREDIT HOURS	Credit Hours per semester = 18 Credit Hours per session = 9 4th Semesters = 6 credit Hours (Research)
Course Load per Semester for Regular Full-Time Students	All credit hours are mandatory for students
TEACHING INSTITUTION **DEGREE AWARDING INSTITUTION**	Institute of Public Health and Social Sciences (IPH&SS) Khyber Medical University Peshawar (KMU)
ADMISSION CRITERIA	Doctor, Nurses, Pharmacist, Other Allied Health Professionals, Physiotherapist, Social Scientist, Public Health Professionals, Dentists, Veterinary, Bio-medical Scientists, Health Care Manager

Vision

To be a leader in public health research and epidemiology with local impact and global significance

Mission

To protect and improve the health of the people of the province and the country. Through interdisciplinary research, we seek to understand the forces that affect public health and the delivery of health services. We prepare the next generation of public health practitioners, epidemiologist, health care managers and scholars. Collaborating with government agencies and other partners, we develop solutions to current and emerging public health problems.

Introduction

The healthcare chain stretches from prevention of illness, diagnosis and care, to cure and maintenance of good health. With its expanding connections with international trends, it is starting to cross national borders as well. The opportunities and need for research within this new healthcare dynamic are endless. The Master in Health Research is designed for educating a new generation of healthcare researchers to be on the cutting-edge of healthcare innovation.

There is an increasing need for research in the health sector, and increasingly health professionals are required to conduct research, evaluation, clinical audit and quality improvement activities as part of their practice. Current policy and practice developments are also placing greater emphasis on the Clinical Academic Career pathway and there are now many health professionals with a clinical/practice and research focus on their roles. These developments point to the need for rigorous, high-quality interdisciplinary and flexible research programs to prepare health professionals for these challenging and rewarding roles. The Master Health Research provides this.

Emphasis on professional research skills

Master in Health Research (MHR) degree program is designed to develop health research capacity among health care professionals with the purpose to promote research in health academic institutions and the health care system. In addition to the theoretical knowledge, students will also improve their practical research skills. So they will not only learn theory but will also learn how to conduct scientific investigations into these topics. They will practice all the stages of academic research, from systematic literature review, research hypothesis and question formulation, application of quantitative and qualitative methods, developing research project/proposals considering ethical and governance issues, data collection, management, analysis and interpretation of data using different quantitative & qualitative statistical tools, communicating research findings, and lead/ manage, foster research team and program.

The program covers all essential and relevant subjects in direct contact sessions with students which include lectures, workshops, and tutorials and constantly challenging the students to enhance their learning and skills by giving them regular assignments and encouraging guided self learning. The assignments are specifically aimed at developing writing skills and critical appraisal of published literature. Students are encouraged to learn and apply a range of research approaches and skills relevant to health services and clinical problems in developing country setting. After you have completed the program, you'll have all the skills you need start on your scientific career. This program will give you a solid foundation in the interdisciplinary fields, frameworks and methods in socio-economic, social, clinical epidemiological or global health research.

Program Goal

To develops skilled and knowledgeable multi-disciplinary health care researchers, able to understand and confidently use research techniques appropriate to their practice/subject area

Program Objective:

This multidisciplinary course will give you a detailed and comprehensive understanding of how to apply a range of quantitative and qualitative research methods to current, pressing health issues and how to critically assess published research.

The course supports those who wish to access a range of research career pathways, and/or further research training by advancing knowledge, research and practice in different settings. There is a focus on both skills, experience and an emphasis on proactive team and network collaborations.

Learning Outcomes:

At the end of the course students will be able to:

1. Conduct systematic literature review (literature search, appraisal, synthesize and analyze)
2. Formulate research hypothesis and question (focused, answerable)
3. Apply quantitative and qualitative methods to answer a research question/ test hypothesis
4. Plan/design a research study/project (considering study population, setting, outcomes, exposures)
5. Develop research project/proposals considering ethical and governance issues
6. Collection, manage and analyze data using different quantitative & qualitative statistical tools
7. Communicate research findings to a range of audience
8. Able to lead, manage, foster research team and programs
9. Able to create an impact of your research

Program Organization and Structure

The total program duration is two years with a total of 06 contact sessions, each of 10 days. Attendance at these contact sessions is mandatory. The course can be taken as an advanced qualification in its own right or as excellent preparation for doctoral level study. Students can choose to study for P**ostgraduate Certificate, Diploma or Master's degree**. Stand-alone modules are also available for those interested in Continuing Professional Development. The course has been designed to suit students from a diverse range of disciplinary backgrounds e.g. doctors, dentists, nurses, physiotherapists, pharmacists, veterinary, public health professionals, healthcare managers, bio-medical scientists and other allied health professionals.

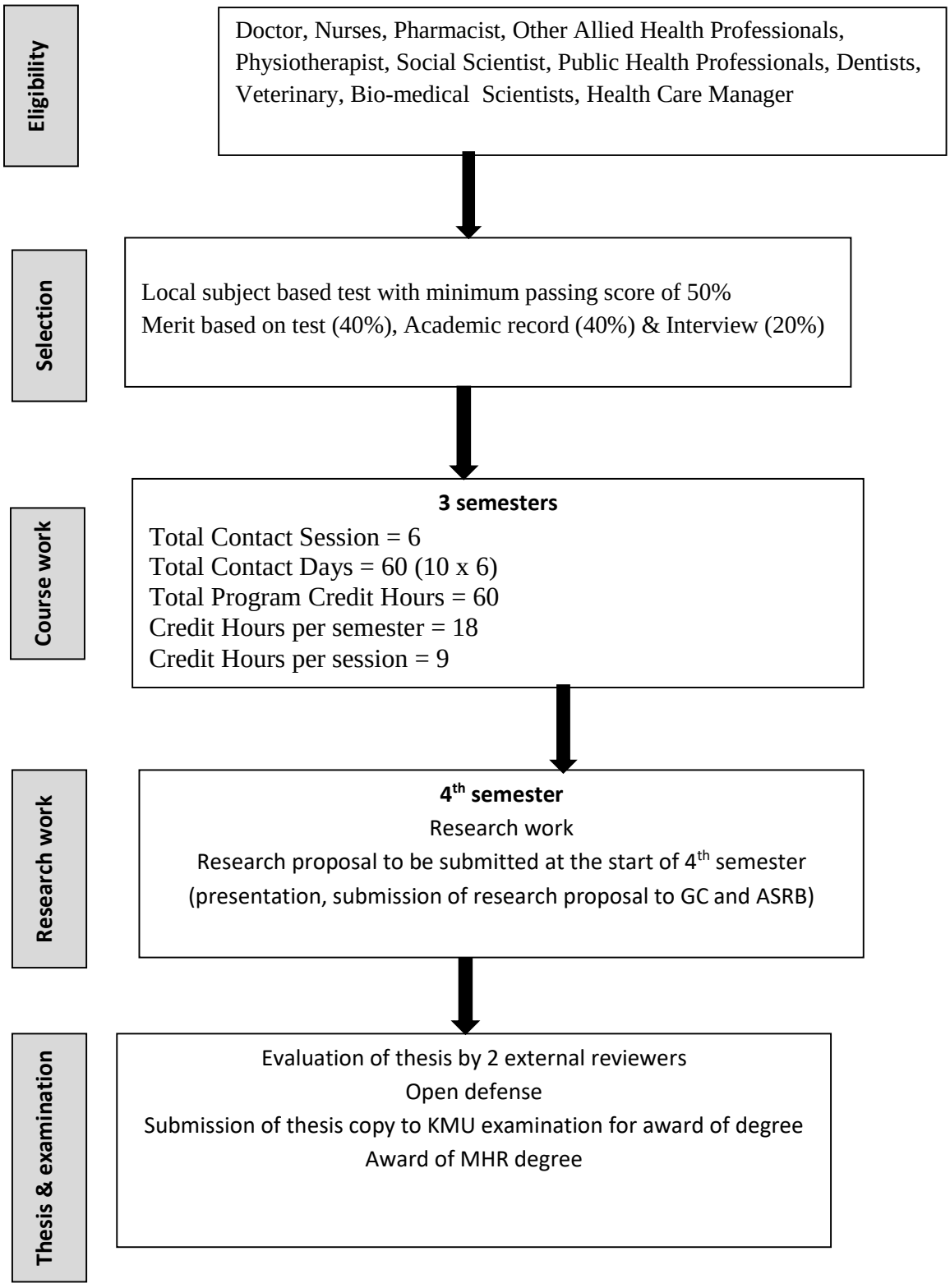
WHAT ARE WE OFFERING

Who is it for?	What we will learn?	What is on offer?	Career Opportunities
Multidisciplinary including : Doctor Nurses Pharmacist Other Allied Health Professionals Physiotherapist Social Scientist Public Health Professionals Dentists Veterinary Bio-medical Scientists Health Care Manager	**Skills** • Systematic literature review • (Literature search, Appraisal, Synthesis, Analysis) • Formulate Hypothesis, Research questioners, (focused, answerable) • Apply qualitative & quantitative method/ approach to answer research question/test hypothesis • Plan/design research Project/ study (Population/Setting/Outcome /Exposure) • Develop Research Proposal, considering ethical & governance issues • Able to data, manage and analyze data using a range of quantitative and qualitative statistical tools • Communicate research findings to a range of audience • Able to lead, manage, foster and research team/ Program • Able to create an impact of your research	**Courses:** Master Health Research Diploma Health Research Certificate Health Research Stand alone Course Extension to PhD	• Academic positions within respective fields • Career advancement within specialties • Industry positions including Pharmaceuticals • Research Managers • Health Policy/ management • PhD

PROGRAMS IN OFFER

Courses	Duration	Details
Master Health Research	2 Years	Credit Hrs: 60 Semesters: 4 Session: 6 Courses: 10 + thesis
Diploma Health Research	18 months	Credit Hrs: 54 Semesters: 3 Sessions: 6 Courses: 5/6 + Assignment
Certificate Health Research	6 Months	Credit Hrs: 09 Sessions: 2 CS of 5 days or 1 CS of 10 days. Courses: 2/4
Stand alone Course:	5-10 days	Depend on the course

Flow diagram of MS Epidemiology & Biostatistics program at IPH&SS KMU



Credit Hours: The program is of 60 credit hours, satisfying both the Higher Education (HEC) and Pakistan Medical and Dental Council (PMDC) criteria for recognition.

Total Semesters = 4
Total Contact Session = 6
Total Contact Days = 60 (10 x 6)
Total Program Credit Hours = 60
Credit Hours per semester = 18
Credit Hours per session = 9 (5 +4)

Breakdown of the credit hours:

S. #	Courses	Credit Hours
1	Direct Contact/Teaching Session	30
2	Assignments (concept note, proposals, report writings, presentations, critical appraisal of articles)	24 (2 per assignment)
3	Thesis	06
TOTAL		**60**

MHR PROGRAM OVERVIEW

Semester	Course Code	Course	Credit Hours	
			Course	Assignment
Semester 1				
Contact Session 1	MHR 711	Introduction to Epidemiology & Health Statistics	5	2+2
Contact Session 2	MHR 712	Applied Health Statistics	3	2
	MHR 713	Introduction to Regression Analysis	2	2
Semester 2				
Contact Session 3	MHR 714	Systematic Reviews & introduction to meta-analysis	2	2
	MHR 715	Research Communication and Medical writing	3	2
Contact Session 4	MHR 716	Randomized Controlled Trials	5	2+2
Semester 3				
Contact Session 5	MHR 717	Qualitative Health Research	3	2
	MHR 718	Measurement in Health & Disease	2	2
Contact Session 6	MHR 719	Bioethics & Research Governance	3	2
	MHR 720	Health Research in Practice	2	2
Semester 4				
	MHR 799	Research and Dissertation Writing	**6**	

Mode of Information Transfer (MIT)

The course uses a variety of modes of information transfer with particular emphasis on problem based learning, hands on training and interactive learning. Following modes of teaching and learning are used:

1. Lectures - Introduce key concepts, principles and knowledge content for each module.
2. Workshops for hands on training and developing critical appraisal skills.
3. Small group tutorials to develop presentations and discussions skills and encourage group working, and peer support
4. Web-based learning and Computer/practical exercises are expected to develop capacity for the optimum use of information and communication technologies in health research and health care;

i. Self-paced Learning - Reading and practical exercises are aimed to help students to work through concepts in more detail, and develop self learning skills.
ii. Manuscripts' writing is aimed at developing analytical skills and writing capacity.
iii. Critical appraisal of published research is expected to develop capacity for critical review of published literature and research proposals.

Web based learning is done through a Virtual Learning Environment (VLE) with support from the course faculty and university I.T staff. Web access to a virtual library is allowed for every student. Other resources and learning materials are made available on the program website.

Program Courses

This program offers the following 10 courses

1. Introduction to Epidemiology & Health Statistics
2. Applied Health Statistics
3. Introduction to Regression Analysis
4. Systematic Reviews & introduction to meta-analysis
5. Research Communication and Medical writting
6. Randomized Controlled Trials
7. Qualitative Health Research
8. Measurement in Health and Disease
9. Bioethics and Research Governance
10. Health Research in Practice

MHR 711: Introduction to Epidemiology and Health Statistics

Overview

This module aims to develop an understanding of basic concepts in epidemiology and health statistics. Students will learn about data sources, study design and their associated strengths and weaknesses; be able to calculate and interpret basic epidemiological and demographic measures; and to critically appraise the relevant literature. Students will gain knowledge and skills for processing and statistical analysis of health research data and the use of research generated evidence in medical practice and decision-making. The students are expected to develop an understanding of selecting and applying appropriate statistical methods for different research designs and of critically appraising the evidence and translating.

Learning outcomes

At the end of the module, students will be able to:

1. Demonstrate understanding of basic epidemiological and statistical concepts and terminology.
2. Calculate and understand commonly used indices of health and disease, and various measures of association.
3. Select appropriate study designs for specific research questions, and demonstrate an understanding of their strengths and limitations.
4. Select appropriate statistical techniques for different types of research studies and hypothesis testing
5. Know which statistical information should be reported from basic summaries and analysis and the most appropriate way to present this.

Course content

Epidemiology:

- Epidemiological concepts and terminology
- Indices of health and disease
- Data sources and collection
- Study types and design, and their limitations
- Measures of association, their calculation and interpretation
- Assessment of cause and effect, confounding and bias
- An introduction to screening and disease prevention
- Chance and the role of statistics

Biostatistics

- Basic data types, distributions and analyses, estimation of confidence intervals
- Sample size calculation
- Hypothesis testing – statistical tests for demonstrating differences, associations and cause and effect relationships
- Parametric and non-parametric tests for comparisons
- Correlations and regression, ANOVA
- Statistical Power- type I and II errors, calculating power
- Effect size calculation-Odds ratio and Relative Risk

Key texts

- Webb, P. and Bain, C. (2010). *Essential Epidemiology: an introduction for students and health professionals.* 2nd edn. Cambridge University Press.
- Bland, M. (2000). *An introduction to medical statistics.* 3rd edn. Oxford: Oxford University Press. (new edition due in 2015).
- Peacock, J. and Peacock, P. (2010). *Oxford handbook of medical statistics.* Oxford: Oxford University Press.

MHR 712:Applied Health Statistics:

Overview:

It expands on the basic introduction to statistical methods provided in the Introduction to Health Statistics module. This module aims to develop knowledge and skills for processing and statistical analysis of health research data using different statistical soft wares. The students are expected to develop an understanding of selecting and applying appropriate statistical methods for different research designs and of critically appraising the evidence and translating.

Learning Outcome:

At the end of the module, students will be able to:

1. Select and use appropriate computer software for data processing and analysis and communication of research results
2. Select appropriate statistical techniques for different types of research studies and hypothesis testing
3. Be able to read health research papers and understand the statistical analysis employed including their rationale, interpretation and appropriateness.

Course content

Sessions will include:

- Introduction to statistical soft wares (SPSS STATA)
- Data processing and undertaking statistical analysis using statistical soft wares
- Advanced statistical skills

Key texts

- Peacock, J. and Kerry S. (2007). *Presenting medical statistics from proposal to publication: a step-by-step guide.* Oxford: Oxford University Press.
- Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics.* SAGE.
- Pallant, J. (2013). *SPSS survival manual: a step by step guide to data analysis using IBM SPSS*. 5th edn. Open University Press.

MHR 713: Introduction to Regression Analysis

Overview

It expands on the basic introduction to statistical methods provided in the Introduction to Health Statistics module. If your research project has a substantial quantitative component to it and you would like to acquire essential skills to enable you to explore your data this is the course for you.

Learning outcomes

At the end of the module, students will be able to:

- Demonstrate understanding of the principles underlying inferential statistics with an emphasis on linear and logistic regression and non-parametric statistics.
- Be able to carry out linear and logistic regression and non-parametric statistics.
- Be able to critically appraise reports of research which have used a range of methods including linear and logistic regression.

Course content

The course assumes basic knowledge of descriptive statistics and basic inferential statistics**.**

- **Estimation:** Standard error and confidence intervals
- **Linear Regression Analysis:** Introduction to Linear regression (Simple and Multiple) Linear regression and Analysis of Variance
- **Logistic Regression Analysis;** Revisit binary outcomes: OR, RR, Risk difference, Introduction to Logistic regression
- Introduction to Non-parametric tests
- Sample Size Issues
- Writing a statistical report

Key texts

Recommended text for students

- **Altman DG. *Practical statistics for medical research*. London: Chapman and Hall, 1995.**
- Bland M. *An introduction to medical statistics* (3rd ed) Oxford: Oxford University Press (2000)
- Cumming, Geoff (2012). Understanding the new statistics: effect sizes, confidence intervals, and meta-analysis. New York ; London : Routledge

MHR 714: Systematic Reviews and Introduction to Meta Analysis

Overview:

Health policy, clinical and public health practice should be informed by the available evidence. Systematic reviews or evidence syntheses are comprehensive, rigorous and critical summaries of the available research evidence on a specific topic. Relevant studies are systematically identified, their data extracted and synthesized in narrative form and, where appropriate, statistically or thematically pooled, taking care to minimize error and bias. This module provides students with appropriate knowledge and training required for finding, interpreting and conducting systematic reviews.

Learning outcomes

At the conclusion of the module the student will:

1. Understand the importance of systematic reviews and how to find them.
2. Understand the key features of a systematic review.
3. Be able to critically analyse research reviews, identifying possible biases and interpret their findings.

4. Be able to deploy of a range of searching, appraisal and analytical skills and knowledge in order to: specify a review question, plan and conduct a systematic review of randomized controlled trials, observational studies or qualitative studies.
5. Be able to synthesize the results of studies identified in a review, narratively, quantitatively and qualitatively and explore sources of heterogeneity.

Course content

This module provides students with appropriate knowledge and training required for finding, interpreting and conducting systematic reviews. The module sessions are as follows:

- Why systematic reviews are so important and how they have influenced policy and practice. Identifying uncertainties and review questions
- Databases and searching (where to find systematic reviews, where and how to search for studies (practical session)
- Study selection, data extraction, primary study validity
- Narrative synthesis
- Meta-analysis: methods for quantitative data synthesis
- Exploring sources of heterogeneity and checking for publication bias
- Meta-analysis practical session
- Critical appraisal of systematic review reports
- Systematic reviews of qualitative studies and qualitative synthesis

Key texts

- Centre for Reviews and Dissemination. (2009). Systematic Reviews: CRDs guidance for undertaking reviews in health care CRD. University of York. [Online]. Available at: http://www.york.ac.uk/inst/crd/index_guidance.htm
- Higgins, J.P.T. and Green, S. (Eds.). (2011). *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]*. The Cochrane Collaboration. [Online]. Available at: http://www.cochrane-handbook.org/
- Littell, J.H., Corcoran, J. and Pillai, V.K. (2008). *Systematic Reviews and Meta-Analysis*. 2nd end. Oxford University Press.

MHR 715: Research Communication and Medical writing

Overview

This module aims to equip participants with the knowledge and skills to understand the requirements of scientific writing for medical journals, policy documents and conferences. The students will develop skills to communicate clearly and logically the results of research.

Learning Outcomes

The students will be able to develop an

- Understanding of different types of medical writing
- Knowledge of journals. ccess to published literature and publication issues
- Understanding of different ways of research dissemination

Skills Development

The students will be able to develop the following skills:

- Write different types of manuscripts
- Prepare oral and poster presentations
- Present research results in different forums
- Critically review published literature

Contents

- Why communicate-verbal & written communications
- Medical writing special features
- Journal publication-types of journals and Journal Indexing, citation & Impact Factor
- Types of publications, original papers, reviews, research reports & theses
- Oral presentations & Poster presentations
- Writing style
- Open access and online publishing
- Scientific misconduct
- Current issues in publishing

- Systematic reviews
- Grey Literature
- Reporting of qualitative research
- Knowledge divide and the 10/90 gap in health research

MHR 716: Randomized Controlled Trials

Overview

Randomised controlled trials (RCTs) form the basis for evidence-based medicine and healthcare. Their use has radically transformed patient care. Many thousands of RCTs are completed each year and their results change clinical practice and inform clinical guidelines. Although the principles of a RCT are relatively straightforward, it is important that they are designed and conducted to the highest standard so we can rely on their results. In this course the core methods

are explained and you will be exposed to different RCT designs to enable you to critically appraise published RCTs and to design your own.

Learning outcomes

At the end of the module, students will:

1. Be able to design a randomized controlled trial.
2. Be able to write a funding proposal for a randomized trial.
3. Be able to critically review published randomized trials.

Course content

The module will include covering the following:

- Weaknesses of observational Studies, Regression discontinuity; Random allocation Pragmatic trials. Sources of bias in trials
- Sample size, outcomes
- Ethics Research Governance, writing a trial protocol, statistical aspects of trial design
- Cluster design, factorial trials
- Zelen's method, Preference, Placebo trial designs, n = 1, cross-over, balanced design
- Unequal allocation, trial quality, Increasing response rates to follow-up
- Data management; pilot trials, cohort trial, Trial Recruitment
- Trial cost, Economic evaluation alongside trials, Stepped wedge, publishing trials

Key texts

- Torgerson, D. and Toergerson, C. (2008). *Designing Randomised Trials in Health, Education and the Social Sciences*. Palgrave Macmillan.

MHR 717: Qualitative Research

Overview

This course will enable you to design and conduct your own qualitative research with confidence. By focusing on the philosophical origins of qualitative research and its appropriateness in answering different types of research question, the course offers a framework in which to assess credibility in qualitative research design, which can then be applied to your work.

There is a particular emphasis on using reflexive understanding as a means of generating theoretically informed and practically grounded qualitative research. This mix of theoretical and practical debate is a particular feature of the course and all aspects of research design, along with a range of qualitative techniques are discussed.

Learning outcomes

By the end of this module, students will be able to:

1. Understand the epistemological and ontological assumptions informing qualitative methodologies.
2. Define the types of research questions that can be appropriately addressed using qualitative methodology.
3. Explore the range of qualitative techniques for collecting material and know the circumstances under which they are likely to be successful.
4. Understand the process of qualitative analysis.
5. Critically evaluate the conduct and presentation of qualitative research.
6. Understand the potential limitations of descriptive accounts, when presenting qualitative research.
7. Discuss the multi-faceted nature of reflexivity and apply such understanding to methodological practices.
8. and more generally: Develop a constructive scepticism towards all types of research design through an understanding of how we produce and construct research findings.

Course content

The module is designed to cover all of the necessary aspects required to design, conduct and critically appraise a qualitative research question. Each teaching week will include both lecture format and small group project work:

Lecture	**Practical Session**
1. What is qualitative research/theoretical underpinnings	Formulating qualitative research questions
2. Design, ethics and PPI	Designing a topic guide
3. Data collection I: Interviews and focus groups	Interview exercise in groups
4. Data collection II: Observation and using documents	Guidance and discussion on summative assessment
5. Data analysis I: Overview of analysis techniques	Preparation for formative assessment
6. Data analysis II: Documentary analysis, writing up qualitative research	Formative assessment: 5 minute presentations on data analysis exercise; feedback from staff/students
7. Credibility in qualitative research	Assessment of a qualitative paper
8.Qualitative research and systematic reviews	
9. Mixed methods	Designing a mixed methods study

Key texts

- Barbour, R. (2008). *Introducing Qualitative Research: A student guide to the craft of doing qualitative research*. London: Sage.
- Green, J. and Thorogood, N. (2009). *Qualitative methods in health research*. London: Sage.
- Hammersley, M. and Atkinson, P. (1995). *Ethnography: Principles in Practice*. London: Routledge.
- Silverman, S. (2013). *Doing Qualitative Research*. 4th edn. London: Sage.

MHR 718: Measurement in Health Research and Disease

Overview

The course will concentrate on the use of measurement instruments in health research, the methodology and techniques of designing and evaluating measurement instruments, and the critical appraisal of reports on the properties of measurement instruments. The module will concentrate on the statistical principles behind and application of health measurement instruments in scientific research including the critical appraisal of reports using health measurement instruments.

Learning outcomes

At the end of the module, students will be able to:

1. Understand the nature of measurement error and observer variation and their measurement.
2. Understand the uses and interpretation of different types of measurement and agreement between measurements.
3. Understand the construction of composite measurement scales.

Course content

Sessions will cover:

- Measurement Error
- Observer Variation
- Limits of Agreement
- Agreement using Cohen's Kappa
- Composite Scales and Scores
- Diagnostic Tests
- Validity of measurement instruments
- Reference intervals

Key texts

- Streiner, D.L. and Norman, G.R. (2003). *Health measurement scales: a practical guide to their development and use.* 3rd edn. Oxford: Oxford University Press.
- Bland, M. (2015). *An Introduction to Medical Statistics*. Oxford University Press.

MHR 719: Bioethics and Research Governance

Overview

In this module students will develop an understanding of the nature of ethical decision-making and its role in research ethics. They will also acquire an appreciation of what research is and of how it is regulated. The course will introduce students to the ethics of human subject research. Ethical theory and principles will be introduced, followed by a brief history of research ethics. Topics covered in lectures and moderated discussions include informed consent for research participation, role and function of institutional review boards, just selection of research subjects, ethical aspects of study design, and privacy and confidentiality. This module will also help students to develop an understanding of the principles and practice of health research management and governance and skills to plan, implement, monitor and oversee the implementation of health research projects.

Learning Outcomes:

After completion of this course, students will be able to:

- An awareness of some of the international codes of research ethics that have been developed in response to scandals and abuses in research.
- A critical understanding of the main principles of bioethics and how these principles should be applied in research, particularly in conduct of human subject research.
- An appreciation of the reasons for conducting ethical review of research and role of the research ethics committee, and of the implications of these view for the evaluation of research.
- Identify, through case studies, ethical issues that arise in different contexts and begin to reason through an appropriate course of action.
- Develop and implement research plans
- Develop and train research teams
- Understand ethical requirements of research and over see the ethical implementation of research projects

Course Content:

1. Introduction to bioethics, basic principal of research ethics
2. Research involving human subjects
3. Ethical issues in study designs, data acquisition and management
4. Reporting and Reviewing Research **(**Authorship, Publication, Peer Review, Ethical Review board)
5. Research misconduct
6. Conflict of interest and commitment
7. Ethical Issues in Public Health
8. Research and ethics in context of developing countries
9. Project Management Process
10. Research Governance
11. Priority setting for health research
12. Intellectual Property Rights and Patients
13. Academia Industry linkages
14. Requirements for auditing and monitoring research

Readings:

A guide to research ethics. University of Minnesota. Center for Bioethics, 2003

Introduction to the Responsible Conduct of Research. Nicholas H. Steneck. Revised Edition, August 2007. U.S. Department of Health and Human Services (HHS).

Syllabus on Ethics in Research. Addendum to the European. Textbook on Ethics in Research. Directorate-General for Research Science, Economy and Society, 2010.

MHR 720: Health Research in Practice

Overview

This module aims to facilitate learning for students who engage with research data or with the research process, developing skills in the critical analysis of research. The learning content addresses engagement with existing research produced by others, and application of such findings to practice.

The module will also prepare you for the conduct of the early stages of the research process, so that you will be able to use research, informed by insights gained through your own experience of starting to do research. The module assumes no detailed prior knowledge of the research process, but does require you to come with an open and enquiring mind.

Learning outcomes

By the end of the module, students will be able to:

1. Develop an understanding of research as a process from systematic examination of existing knowledge and research question construction, through research design, data collection and analysis, to reporting and dissemination.
2. Describe how concepts such as uncertainty, validity, bias, chance, complexity and causality apply to the evaluation of existing research data and to the design of new health research studies.
3. Develop a research question iteratively through systematic review of existing research.
4. Describe the range of research designs used in health sciences, and be able to provide a justification for using a particular research design to address a given research question.
5. Demonstrate awareness of the practicalities of doing health research and be able to use planning skills in the development of a study protocol.
6. Communicate an understanding of ethical issues in study protocol development, including research integrity and validity issues.
7. Design an observational, intervention or qualitative study protocol which addresses an important health problem.

Course Content

The learning outcomes are strongly connected to engagement with existing research produced, and application of such findings to practice. The module prepares students for the conduct of the early stages of the research process, so that students will be able to use research, informed by insights gained through their own experience of starting to do research. This module can thus be characterized as involving a 'learning by doing' approach.

Session Number	**Topic**
Session 1	Introduction to module, the research process & basic concepts in research methods
Session 2	Research protocols & their development
Session 3	Information retrieval and handling
Session 4	Systematic reviews
Session 5	Randomised controlled trials
Session 6	Observational studies
Session 7	Qualitative studies
Session 8	Ethics in health research
Session 9	Integrating session: doing and using research

Key texts

- Bowling, A. (2009). *Research Methods in Health: Investigating Health and Health Services*. Milton Keynes: Open University Press.
- Robson, C. (2013). *Real World Research.* 3rd edn. Chichester: Wiley.

5. Students Evaluation:

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

1. Internal Assessment
2. Course Assignments evaluation
3. Final Examination
4. Research Thesis Evaluation

Examination and Methods of Assessment

Internal Assessment

Internal assessment will include class participation, interactive discussions, presentations and group work during the contact sessions. This assessment will be weighted towards 10% of the total grade for the module.

Assignments

There are total twelve assignments of ten courses (two assignment per 10 days course and one assignment for 5 days course). The assignments will be given after the contact session of each module. After attending the contact sessions, the students will be provided three months time for the approval of assignment in each course; failing may lead to repetition of contact session. The assignments of each course will be submitted on MOODLE. It will be assessed and marked on MOODLE. It will be graded for 40% of the total grade for the course.
Note: Assignments will only be given to students who will attend the contact session of the course.

Final Examination:

The material covered on the examinations will come from the lecture notes, problem sets and required reading. For the Final Examination the course supervisors will prepare two question papers in the University approved format and submit these to the Course Director of the Institute in a sealed envelope. The Course Director will forward these papers to the University Examination Section. The Final Exam question paper will be issued by the University Exam Section. The final

exam will be weighted towards 50% of the total grade for the course. The format of paper for the final exam will include multiple choice questions, short answer questions

If a student fails a periodic assessment (assignments, proposal writing etc), the course supervisor will advise and organize help for him to improve his/her grade on resubmission of the assignment etc. If a student fails in the final exam, , the student needs to appear in the next final examination.

3. MHR 799: Research Thesis Evaluation

The Program requires all students to develop a research protocol, collect and analyze data and write a thesis. This provides the students an opportunity to gain first-hand experience of conducting a complete research study. Thesis committees supervise the students' research projects. Each thesis committee comprises of a thesis supervisor and at least one other faculty member from within the Program or within the University. In order to fund their MHR thesis research, students are encouraged apply to the University or to national and international funding agencies.

ASSESSMENT

S#	Title of Courses	Assessment (Weightage)			
		Internal Assessment (%)	Assignments (%)	Final Exam (%)	Total (%)
1	Introduction to Epidemiology & Health Statistics	10	40	50	100
2	Applied Health Statistics	10	40	50	100
3	Introduction to Regression Analysis	10	40	50	100
4	Systematic Reviews & introduction to meta-analysis	10	40	50	100
5	Research Communication and Medical writing	10	40	50	100
6	Randomized Controlled Trials	10	40	50	100
7	Qualitative Health Research	10	40	50	100
8	Measurement in Health and Disease	10	40	50	100
9	Bioethics and Research Governance	10	40	50	100
10	Health Research in Practice	10	40	50	100
11	Research and Dissertation Writing	Thesis Review and Viva			

5.2 Grading

Grading of students is done through letter grades as defined in Table 1. Grades are assigned by the course supervisor on the basis of the assessment scores of the students.. The course supervisor signs and submits the grades to the course coordinator, who forwards the same to the Director of the MHR Course. The Director forwards them to the Controller of Examination at the University.

The numerical scoring in the continuous assessment, and final exam are converted to a letter grade and grade points as follows:

Table 1: Grade Points

Numerical Score (in percent)	Letter Grade	Grade Points
>= 85	A	4.0
72 - 84	B	3.0
60 – 71	C	2.0
< 60	F	0.0
Incomplete	I	NA
Withdrawn	W	NA

Students receiving an F grade in any course will have to repeat the course whenever it is offered again. A student obtaining a D grade in the course may also repeat that course, if necessary to improve his/her cumulative grade point average (CGPA). In case of repeated courses, all grades earned by the student appear in the Transcript/Detailed Mark Certificate (DMC); however, only the latest grade is counted for calculating the CGPA. If a large number of students fail a course, that course may be offered again during the Summer

Grade I (Incomplete) is awarded to a student only if he/she has missed the Final Examination, Project Report Submission, Thesis Defense, etc., due to genuine reason, but has completed all the other work of the course successfully. The award of grade I doesn't cover a student's irresponsible attitude, willful absence, or bad performance in class.

Grade I needs to be converted to an appropriate letter grade by the end of the next semester, otherwise it would stay permanent and the student will have to repeat the course. The course instructor concerned should specify the conditions for conversion of grade, in the Grade Conversion Form (FORM-GCF) to be supplied by the Controller of Exams at the University, and explain the same to the student while assigning grade I.

The Cumulative Grade Point Average (CGPA) is calculated for all courses taken to date in a similar manner. In case a course is repeated, all grades will be reported on the transcript; however, only the latest grade will be used to calculate the GPA.

The written thesis and the thesis defense is graded as pass or fail. The pass or fail grade is not counted towards the calculation of the GPA or the CGPA.

Students at the Masters level are expected to maintain a CGPA of 2.5 during the course of study.

A student who obtains a GPA of less than 2.5 for two consecutive modules will be issued a warning letter by the Director.

An example of the GPA calculation for a generic semester in the MHR program is given in Table 2.

Table 2: Example of GPA calculation for a semester

Course Code **A**	**Credit Hours** **B**	**Numerical Score** **C**	**Letter Grade** **D**	**Grade Points** **E**	**Quality Points** **B x E**
410	3	87	A	4.0	**12**
421	3	76	B	3.0	**9**

430	3	70	C	2.0	**6**
440	3	84	B	3.0	**9**
Total	**12**				**36**
GPA = 36 / 12 = 3.0					

Academic Quality:

1. **A student must have 80% of the attendance in each contact session.**
2. A student who has missed more than two days in the contact session will repeat a contact session.
3. A student will attempt one extra assignment in addition to three assignments, if missed one day of contact session. (Total assignments to be attempted = Four)
4. A student will attempt two extra assignments in addition to three assignments, if missed two days of contact session. (Total assignments to be attempted = Five)

Exit policy at Stand alone module, Certificate, Diploma, and Master Levels.

The following is the exit policy as under;

Master in Health Research

The Master in Health Research will be granted to those students who will attend all the contact sessions, completed the assignments and getting an aggregate of 60% marks in the modules and successfully completing the thesis work.

Diploma in Health Research

The Diploma in Health Research will be granted to those students who have attended three semesters (6 contact sessions) and passed the exams for the modules and successively completed assignments for the above modules. It includes doing work for an assignment.

Certificate in Health Research

The Advanced Certificate in Health research will be granted to those students who have attended one module. The award of certificate will be based on attendance of 10 contact days i.e. one contact sessions, completion of assignments and end of module assessment.

Stand alone module: The health research program also provide opportunity to those who want to study a single module in their area of interest.

l. Contact session freezing policy and re-joining MHR course

1. Attending 1st contact session is mandatory. No freezing/dropping shall be allowed in the first contact session. The dropped/freezed contact session shall be counted towards the period required for completing the course work.
2. A student can freeze a contact session, after passing his/her previous modules successfully with all dues clear except S # 1. Moreover, he/she will inform the institute in written at least a week before starting of contact session.
3. A student will re-join the course from the freezed contact session of module with next batch.

Repetition of modules/contact session

1. A student who has not submitted/completed assignments of any module will repeat the contact session along with assignments and paper.
2. A student who failed a module will repeat a contact session of the module he/she failed along with assignments and paper.
3. A student, who is found absent from the contact session for more than three days will repeat a contact session.
4. Fee @ 50% of contact session fee (As per KMU policy) will be imposed on repeating of module.

Re-appear policy

1. If the assignments of student are approved and he/she missed a paper due to any reason, he/she will be allowed to attempt it whenever it will conduct during the following year/years with the next batch. There shall be no Supplementary / Special Examination; if a student fails in a course, he/she is required to repeat it.
2. A fee will be charged on paper attempt (As per KMU policy).

Promotion to Next Contact session

Requirement for promotion to next session shall be as follow;
1. A student who has submitted/completed assignments of the module will be promoted to next contact session.
2. A student, who has not submitted the assignments of 1st Module in due course of time after

attending the 1st contact session, will be considered drop from the program.

Maximum time required for completion of two years program

1. Maximum Four Years duration (from the date of admission) shall be allowed for a student to qualify.
2. A student if failed to complete the program in the maximum four years duration, the Academic Council may, on the written request of the student duly recommended by head of the institution, further extend up to one year with imposition of a fine which shall be doubled of the prescribed fee for the enrolment of the relevant degree program's semester.
3. The institute will decide the deadlines for assignments and final submission of thesis.
4. If a student failed to submit the thesis in due course of time, he/she will write application to his/her supervisor for further extension. The written request will be duly recommended by the supervisor. A fine (As per KMU policy) may be imposed on a student.

FEE STRUCTURE

Year wise breakup

S#	Course	Fee	
		Year -1	Year -2
1.	Master in Health Research (MHR)	Rs.111,800/-	Rs. 110,000/-
2.	Thesis Evaluation fee for MHR	Rs. 30,000/-	
3.	Diploma in Health Research (4 Modules with short thesis)		
4.	Certificate in Health Research (two/three modules)		
5.	Stand alone Module of MHR (Single Module)		

Note:
1. The students will deposit their fee yearly i.e for three contact sessions collectively.
2. Fee deposition in instalments is not allowed as per KMU Policy.
3. The fee can be increased any time as per KMU policy.

Fee Refund Policy (for programs based on Contact Sessions)
1. Full (100 %) Fee will be refund up to 03 days of convene of 1st Contact Session.
2. Half (50 %) Fee will be refund from 04 to 07 days of convene 1st Contact Session.
3. No Fee (0 %) will be refund from 8th Day of 1st Contact Session.

ELIGIBILITY CRITERA

The following are required for admission into the Master in Health Research (MHR) and Certificate in Health Research (CHR) Programs;

MBBS/BDS, MD or equivalent qualification recognized by PMDC, MSc Nursing (Recognised by PNC), DPT/MSc Physiotherapy, MSc Paramedics, Pharm-D, MSc Psychology, MSc Prosthetic & Orthotic, Master of Veterinary Science

Computer literacy in MS Office and Internet.
Interview conducted for eligible candidates.

Application Procedure

The available Admission form on the university website www.kmu.edu.pk should be filled and submitted. The course organizer will finally select the candidates after reviewing the application forms.

Teaching Faculty

Core Faculty:

Dr. Khalid Rehman
PhD Public Health
Assistant Professor, Public Health, Khyber Medical University.

Dr. Zohaib Khan
PhD in Public Health (Epidemiology of Oral Cancer in Pakistan)
Director ORIC, Khyber Medical University, Peshawar

Dr. Ayesha Imtiaz
MPH, (PhD in Progress)
Assistant Professor, Public Health, Khyber Medical University.

Dr. Zeeshan Kibria,
MPH, (PhD in Progress)
Deputy Director ORIC, Khyber Medical University, Peshawar.

Visiting Faculty:

Dr. Hamid Hussain, Gandhara University. Peshawar.

Dr. Kamran, York University, UK

Dr. Ommara, York University, UK

Dr. Asif Ali, (University of Glasgow, UK PhD Pathology, Institute of Cancer)
Assistant Professor, Institute of Basic Medical Sciences, KMU, Peshawar

Dr. Usman Mehboob, Doctorate in Health Professions Education
Assistant Professor, Institute of Health Professions Education & Research, KMU, Peshawar

Dr. Saadia Fatima, PhD, Human Nutrition (Child Health) (Biochemistry)
Assistant Professor Biochemistry, Institute of Basic Medical Sciences, KMU, Peshawar