CURRICULUM

FOR DOCTOR OF PHILIOSOPHY (Ph. D)

IN HUMAN ANATOMY &CELL BIOLOGY PROGRAMME

According to HEC guidelines

AT THE LIAQUAT UNIVERSITY OF MEDICAL AND HEALTH SCIENCE

(LUMHS), JAMSHORO, PAKISTAN

2026

CURRICULUM

FOR Ph. D IN HUMAN ANATOMY &CELL BIOLOGY PROGRAMME

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1.Vision and mission statement

1.1 Institutional vision and mission statement

1.1.1 Vision of LUMHS

Liaquat University of Medical & Health Sciences seeks to be a top-tier healthcare institution, producing ingenious academic leaders, medical researchers, and healthcare advocates to serve global community.

1.1.2 Mission of LUMHS

Fostering ideal learning environment to ensure modern scientific evidence based practices by imparting critical knowledge, analytical and psychomotor skills, and professional dedication among healthcare students, under the umbrella of virtuous professional, moral and ethical standards.

1.2 Departmental vision and mission statement

1.2.1 Vision of Department of Anatomy

To be a center of excellence in anatomical sciences, fostering innovative education, impactful research, and professional leadership while producing competent, ethical, and compassionate healthcare professionals who contribute to national and global health.

1.2.2 Mission of Department of Anatomy Mission

The Department of Anatomy is committed to providing an innovative, student-centered, & evidence-based learning environment that integrates gross anatomy, embryology, histology, and clinical anatomy. We strive to develop critical thinking, scientific inquiry, practical skills,

professionalism, & ethical values through quality teaching, research, & the effective use of educational technologies, hereby preparing graduates to meet evolving healthcare needs.

2. Introduction to program

2.1 Starting Ph. D Anatomy at LUMHS

PhD programs in any subject are designed to act as facilitators for original research to expand the existing body of knowledge in that subject. Award of PhD degree marks the successful culmination of an intellectual pursuit and recognition that it has contributed new knowledge to the benefit of humanity and society. Presently, very few institutions in Pakistan offer a PhD degree in Anatomy among them LUMHS is with those pioneers. Prof Dr Samreen Memon started Ph.D in 2011 and till time 04 Ph.D candidates were awarded with the degree and 05 are in process. In line with the tradition of excellence Lumhs wants Anatomy PhD to be carefully designed highly elaborate program, fostering research outlook and broadening horizons. To provide students opportunity to achieve a high level of scholarly competence to contribute novel research to existing knowledge in the anatomical sciences besides teaching the anatomical disciplines at undergraduate, postgraduate and professional levels.

2.2 Scope of Anatomy Ph.D program

Anatomy is fundamental to medical practice, guiding physicians in diagnosing diseases through physical examination and imaging. It is equally vital in allied health fields for interpreting clinical signs and managing patients. Proficiency in macroscopic and microscopic anatomy enables medical graduates to practice effectively and supports scientists in advancing anatomical research.

Recent decades have seen rapid advancements in imaging technologies such as CT, MRI, endoscopy, and 3D visualization—alongside minimally invasive therapies that require precise

anatomical knowledge for image interpretation and targeted treatment.

Despite this growing relevance, anatomical education faces a crisis due to a shortage of qualified faculty. Given the increasing student demand and the critical need for anatomical expertise, it is essential to establish our own PhD program in Anatomy.

2.3 Goals of PhD Program

To expedite the academic growth and development in undergraduate medical education by providing properly qualified and trained basic sciences teachers.

To institutionalize research by producing more PhDs, particularly in the emerging fields of basic medical sciences.

Better educated and trained health care professionals engaged as academician, researchers and field practitioners for community services.

2.4 Mission of Ph.D Anatomy Program

To develop independent researchers, academic leaders, and innovators in anatomical sciences through advanced research, interdisciplinary collaboration, ethical scholarship, and excellence in teaching, thereby contributing to scientific discovery, medical education, and global healthcare advancement.

2.5 Program Educational Objectives (PEOs)

PEO 1	Research Leadership and Innovation	Graduates will independently design, conduct, and lead innovative, high-quality research that advances anatomical sciences and contributes to biomedical knowledge and healthcare.
PEO 2	Academic Leadership and Scholarly Excellence	Graduates will demonstrate excellence in teaching, mentorship, curriculum development, scientific communication, and academic leadership in higher education and research institutions.
PEO 3	Professionalism, Ethics, and Global Engagement	Graduates will uphold the highest standards of professionalism, ethics, lifelong learning, interdisciplinary collaboration, and community engagement while contributing to national and international scientific advancement

2.6 Alignment of Ph.D. Anatomy Program with LUMHS Mission and (PEOs)

2.6.1 LUMHS Mission

Fostering an ideal learning environment to ensure modern scientific evidence-based practices by imparting critical knowledge, analytical and psychomotor skills, and professional dedication among healthcare students, under the umbrella of virtuous professional, moral and ethical standards**.**

2.6.2 Ph.D. Anatomy Program Mission

To develop independent researchers, academic leaders, and innovators in anatomical sciences through advanced research, interdisciplinary collaboration, ethical scholarship, and excellence in teaching, thereby contributing to scientific discovery, medical education, and global healthcare advancement.

2.6.3 Alignment of Ph.D. Anatomy Program Mission with LUMHS Mission

LUMHS Mission Component	**Ph.D Anatomy Program Alignment**
Ideal learning environment	Provides a research-intensive academic environment that fosters innovation, interdisciplinary collaboration, and scholarly excellence.
Evidence-based practices	Promotes advanced scientific research, evidence-based teaching, and the translation of research findings into medical education and healthcare.
Critical knowledge	Develops advanced theoretical and practical expertise in anatomical sciences and related biomedical disciplines.
Analytical and psychomotor skills	Strengthens advanced research methodology, critical analysis, laboratory techniques, scientific writing, and problem-solving skills.
Professional dedication	Cultivates academic leadership, mentorship, collaboration, and commitment to excellence in teaching and research.
Moral & ethical standards	Ensures integrity in research, ethical conduct, responsible authorship, and adherence to international standards of scientific practice.

2.6.4 Alignment of Ph.D. PEOs with LUMHS Mission

Program Educational Objective (PEO)	Aligned LUMHS Mission Elements
PEO 1: Research Leadership and Innovation	Evidence-based practices; Critical knowledge; Analytical and psychomotor skills; Professional dedication
PEO 2: Academic Leadership and Scholarly Excellence	Ideal learning environment; Critical knowledge; Professional dedication; Evidence-based practices
PEO 3: Professionalism, Ethics, and Global Engagement	Moral and ethical standards; Professional dedication; Ideal learning environment

2.6.5 Overall Alignment Matrix of Ph.D Anatomy

LUMHS Mission Component	Program Mission	PEO 1	PEO 2	PEO 3
Ideal learning environment	✓		✓	✓
Evidence-based practices	✓	✓	✓	
Critical knowledge	✓	✓	✓	
Analytical and psychomotor skills	✓	✓		
Professional dedication	✓	✓	✓	✓
Ideal learning environment	✓			✓
Moral and ethical standards	✓		✓	✓

2.7 Ph.D. Anatomy Program Learning Outcomes (PLOs)

Upon successful completion of the **Ph.D. Anatomy** program, graduates will be able to:

PLO 1	Advanced Scholarly Knowledge	Demonstrate mastery of anatomical sciences and generate original knowledge through advanced interdisciplinary research
PLO 2	Independent Research and Innovation	Independently formulate research questions, secure ethical approval, design innovative studies, apply advanced methodologies, analyze data, and produce original scholarly contributions.
PLO 3	Scientific Leadership	Lead multidisciplinary research teams, supervise postgraduate students, mentor junior researchers, and contribute to academic leadership and institutional development.
PLO 4	Critical Analysis and Evidence Synthesis	Critically appraise scientific literature, synthesize evidence, and develop innovative solutions to complex biomedical and educational challenges.
PLO 5	Scholarly Communication	Disseminate research findings effectively through high-quality publications, conference presentations, grant writing, and scientific communication at national and international forums.
PLO 6	Professionalism and Research Ethics	Demonstrate the highest standards of research integrity, ethical conduct, social responsibility, and professionalism in all academic and scientific activities.
PLO 7	Lifelong Learning and Global Engagement	Engage in lifelong learning, international collaboration, and continuous professional development to advance anatomical sciences, medical education, and healthcare.

3 Admission process

3.1 Advertisement

Advertisement shall be given by Ph.D Admission Committee of LUMHS after ascertaining the availability of facilities and number of seats in different disciplines.

The Ph.D program shall be advertised in the beginning of each academic session. The advertisement shall normally appear in the newspapers and LUMHS website.

3.2 Eligibility

Those who already have completed their M.Phil or equivalent (candidates need to provide equivalence from PMDC or HEC) can apply for Ph.D provided they have ≥3.0 CGPA in semester system and 1st division in annual examination.

A subject test shall be conducted by the LUMHS in the area of specialization chosen at the Ph.D level must be cleared prior to admission for the Ph.D Programme with a minimum 70% passing score shall be required at the time of admission to Ph.D programme.

Interview: Admission Committee shall be responsible to organise/arrange the interviews. All candidates shall be informed regarding the date and the venue of the interview.

The recommendations made in the interview shall be shared and approved from the Ph.D Committee and with the final approval of the Vice-Chancellor the candidate is offered to have provisional registration in Ph.D programme.

3.3 Age limit:

The private candidate should be under 40 years and In-service candidate should not be more than 50 years of age.

3.4 Enrollment:

All candidates should enroll themselves within one month of their admission.

3.5 In-service candidates

In-service candidates shall be required to apply through proper channel with no objection certificate from their employer. In case of failure to comply with the rules their application shall not be entertained.

3.6 Admission decision

The decision concerning admission is made by Admission Committee and Ph.D committee and is based on an overall evaluation of the applicant.

3.7 Teachers to student's ratio

Number of Students per supervisor should 4-5 PhD students in basic sciences of any post graduate program at any given time.

4. Program specification

4.1 Duration of program

The PhD program will be minimum three (03) years duration and maximum Eight (08) years duration.

4.2 Credit hours

Ph.D for those who have already acquired M. Phil or equivalent degree in the relevant discipline. This mode has three years of education where candidate is supposed to complete minimum 18 credit hours course work. (20x16= 320 clock hours).

The PhD Candidate (MPhil/MS degree holders) must undertake eighteen (20) Credit hour of coursework. The coursework components will consist of designated courses that are compulsory within 12 months of enrolment in the program.

4.3 Coursework- (20 credit hours of coursework + research)

Course #	Course Title	Credit Hours
Ana 301	Advanced Embryology (Special Embryology)	3
Ana 302	Advanced Histology (Special Histology)	3
Ana 303	Advanced Gross Anatomy	3
Ana 304	Advanced Cell Biology	3
Ana 401	Molecular Cell Biology (Cell Function, DNA, Gene Regulation, Cell Signaling)	3
Ana 402	Advanced Molecular Biology and Biotechnology (Recombinant DNA Technology, Genomics, Proteomics & Beyond)	3
	Fahm-ul-Qur'an	2
	Total Coursework	**20**

4.4 Course Contents

4.4.1 Advanced Embryology (3 CH)

- Molecular regulation of embryogenesis
- Gastrulation and neurulation
- Organogenesis
- Developmental genetics
- Stem cells in development
- Congenital anomalies and teratogenesis
- Epigenetics in embryonic development
- Regenerative developmental biology

4.4.2 Advanced Histology (3 CH)

- Functional histology of organ systems
- Stem cell niches
- Tissue regeneration
- Extracellular matrix
- Histopathology correlations
- Immunohistochemistry
- Electron microscopy
- Digital pathology

4.4.3 Advanced Gross Anatomy (3 CH)

- Clinical and surgical anatomy
- Radiological anatomy
- Functional anatomy
- Anatomical variations
- Applied neuroanatomy
- Anatomical basis of diseases
- Cadaveric research techniques
- Three-dimensional anatomy

4.4.4 Advanced Cell Biology (3 CH)

- Cell structure and ultrastructure
- Cell cycle regulation and cell signaling pathways
- Cell adhesion
- Cell migration

- Apoptosis
- Stem cell biology
- Cellular aging
- Cell differentiation

4.4.5 Molecular Cell Biology (3 CH)

- DNA structure and organization
- DNA replication and DNA repair mechanisms
- RNA transcription
- Translation
- Gene regulation
- Epigenetics
- Cell signaling
- Molecular basis of disease

4.4.6 Advanced Molecular Biology and Biotechnology (3 CH)

- Recombinant DNA technology
- PCR and real-time PCR
- DNA sequencing (NGS)
- CRISPR-Cas9 gene editing
- Genomics
- Transcriptomics
- Proteomics
- Metabolomics
- Bioinformatics
- Gene therapy
- Ethical issues in biotechnology

4.4.7 Fahm-ul-Qur'an (2 Credit Hours)

Course Objectives

- Develop an understanding of selected Qur'anic verses with emphasis on their meanings and application.
- Promote ethical values, professionalism, and social responsibility in academic and professional life.
- Encourage reflection on Islamic perspectives related to knowledge, research, human dignity, and service to humanity.

Course Contents

- Introduction to Fahm-ul-Qur'an and principles of understanding the Qur'an.
- Selected Surahs and verses related to:
    - Knowledge and learning.
    - Scientific inquiry and reflection on creation.
    - Human development and embryological references in the Qur'an.
    - Ethics, honesty, and integrity in research.
    - Professionalism and accountability.
    - Compassion, justice, and community service.
- Application of Qur'anic teachings in healthcare, medical education, and research.
- Contemporary issues in biomedical sciences from an Islamic perspective.

4.5 Committees for supervision of the Ph.D- Anatomy program

1. Advanced Studies & Research Board (AS&RB)
2. Research Ethical Committee (REC)
3. PhD Synopsis Review Committee
4. Postgraduate Medical Education Committee (PGMEC)

5.1 Mode of teaching curriculum

Annual

5.2 Program delivery methodology

- Tutorials
- Interactive Lectures
- Small Group Discussions / CBL/ PBL
- Guided Self-study & SDLs
- Practical & OSPE Sessions
- Histology slides preparation and microscopy
- Presentations
- Seeking information through Journal clubs, library and Internet.
- TeachinAttending workshops, seminars, conferences
- Research work
- Assigning responsibilities of teaching the undergraduates (MBBS, BDS and M.Phil).
- Arranging regular quiz sessions for students
- Flip classroom technique
- Peer assisted learning (PAL)
- Assisting/Supervising Research projects of undergraduates and M. Phil students.

5.3 Workshops for Ph.D program candidate

5.3.1 Academic writing

- Introduction to literature review
- Critical analysis of literature
- Thesis writing
- Research proposal writing

- Original article writing
- Introduction to academic writing

5.3.2 Research methodology / epidemiology

- Introduction to research (basic)
- Introduction to research (advance)
- Study designs in basic and clinical research
- Introduction to research data management
- Designing questionnaire

5.3.3.IT skills

- Advance MS word
- Introduction to PowerPoint & designing poster in PowerPoint
- Endnote/Mendley
- SPSS/ prism
- Image J
- Ai tools

5.3.4 Communication skills

- Oral presentation skills
- Communicating with posters
- Preparing for viva
- Preparing for open defense

5.3.5 Ethics and Plagiarism

- Ethics in research
- How to avoid plagiarism in research?

5.3.6 Biostatistics

- Introduction to biostatistics
- Handling data
- Descriptive statistics
- Univariate analysis
- Multivariate analysis

6. Methods of evaluation

Program Output Evaluation

6.1 Program output evaluation

6.1.1 Formative Assessment

Mandatory to pass as prerequisite to summative assessment. The performance of every student shall be continuously monitored and assessed throughout the training. During training student's performance shall be evaluated by following and will be maintained as log book.

Assessment	**Weightage**
Mid-term Examination 1	20%
Mid-term Examination 2	20%
Seminar Presentation	20%
Journal Club	10%
Assignments	20%
Practical/Laboratory Skills	10%
Total	**100%**

6.1.2 Summative Assessment (through comprehensive Examination)

At the end of the year 1, the candidates are supposed to appear in the first year review examination. The examination shall be arranged and conducted by Postgraduate Examination department. Candidates need to provide evidence of completion of credit hours certificate issued by the Ph.D Co-ordinator.

6.2 Format of comprehensive examination

The examination shall be comprised of theory papers and a viva voce(OSCE) examination.

Paper 1		**Paper 11**		**Paper 111**
SBQs 50	Short Essay 50	SBQs 50	Short Essay 50	OSCE 100
Total 100		Total 100		

6.3 Result

The candidates are supposed to secure at least 60% marks to get through.

6.4 Re-sit

There is only one re-sit allowed. If candidate fails in the re-sit his/her course admission shall be terminated automatically.

6.5 Regulations of submission of synopsis

6.5.1 General rules

All registered Ph.D candidates are required to submit a synopsis/ research proposal before commencement of the study. Candidate must present the synopsis in seminar conducted by Dean BMS for submission approval. Two hard copies of the synopsis should be submitted to Director Postgraduate center.

6.5.2 Preparation and submission of synopsis

Word limit

The synopsis should not be more than 4000 words (inclusive of appendices, footnotes, tables, and bibliography).

Content of Synopsis

Title page

Summary of the project

Introduction/ background

Material & Methods/ Methodology

Strengths and limitations

Summary of the project

The summary should state a clear outline of the research project in no more than 250 words.

The summary should include statements regarding:

- Research problem
- Main objective (s)
- Theory
- Methodology

Introduction

Must include followings:

- Introduction of the project
- Literature review defining the gap
- Rationale of the project
- Hypothesis

This section should not exceed 1000 words

Methodology

This section should give clear description of the methods, which must include:

- Description of samples
- Equipments required/Questionnaire
- Chemicals required
- Methods of data collection
- Methods of data analysis

This should not exceed 1000 words

Strengths and limitations of the project

6.5.3 General guideline for synopsis writing

- Synopsis must not exceed 25 pages using A4 size paper
- Text should be type written with a margin of at least 2 inches, on the left side of the page, and of at least 1 inch on other sides.
- Typing specifications

  Line space:

  Double space line

  Font size:

Title Page	18-22
Headings / subheadings	14-20
Text	10-12
Footnotes	8-10

  Footnotes be given on the same page where reference is quoted

  Font type:

  Ariel, Times New Romans or Verdana

- Binding specifications

  Synopsis should be soft or spiral bound

- References should be given in Author date/ Harvard style

6.6 Ph.D Thesis

6.6.1Thesis requirements

- The degree of Doctor of Philosophy (Ph. D) shall be awarded to a candidate on the basis of original research work incorporated in a thesis, approved by the examiners and successfully defended by the candidate in viva voce and open defence.
- It is mandatory that the scholar has completed the credit hours as per HEC guidelines.
- The thesis shall demonstrate that the scholar has technical expertise in research and the field of study. The thesis shall be a novel contribution to the existing literature.
- The thesis shall be written in English.
- The candidate must have got one article published in HEC recognised journal from Ph.D research work.
- A thesis cannot be submitted as joint work by more than one candidate.
- Research Work or parts of a research work that has been approved as the basis for previous examinations or degrees may not be submitted for assessment. The thesis may not be submitted for assessment in more than one academic programme at LUMHS.

6.6.2 Submission of the Ph.D thesis

The following documents must be enclosed with the application:

- The thesis prepared in the approved format in accordance with LUMHS Ph.D rules.
- Undertaking that the doctoral work has not been submitted for assessment at another institution duly signed by all supervisors and student.
- Prescribed fee challan.
- Examination form signed by the supervisor.

6.6.3 Preparation and submission of thesis

Word limit

The thesis should not be more than 100,000 words (inclusive of appendices, footnotes, tables, and bibliography); the University may withhold from examination a thesis that exceeds this word limit.

Content of Thesis

The thesis normally follows the pattern of an original article. The usual flow of thesis contents is as follows:

Abstract

Introduction/ background

Material & Methods (Separate chapters where ever required)

Results

Discussion

Conclusion

However, for individual research projects thesis layout can be modified as per requirement of the project with agreement of the supervisor.

Presentation of thesis

Soft bound version for Examination

Theses should be presented on A4 paper, normally with 12 font typescript. There should be a margin of at least 1.5 inches, preferably 2 inches (5cm), on the left side of the page, both for typescript and diagrams, to allow for binding. Other margins should be of at least 1 inch (2.5 cm).

Hard bound Version

Thesis should be presented on A4 paper, normally with 12 font typescript, and good quality printing. There should be a margin of at least 1.5 inches, preferably 2 inches (5cm), on the left side of the page, both for typescript and diagrams, to allow for binding. Other margins should be of at least 1 inch (2.5 cm), printed on single side.

Submission

Candidates must submit four soft-bound copies of their thesis eg spiral-bound or plastic binding to Director Post Graduate center, which shall forward the thesis to the Ph.D coordinator and Ph.D committee.

After approval of the thesis students are advised to submit four hard bound thesis to the Ph.D Co-coordinator

1 copy of a summary of thesis (not more than two pages)

1 copy of the title page

These copies are in addition to those which you are required to bind into the thesis.

6.6.4 Appointment of thesis evaluation committee

The Principal Supervisor is informed by the controller of postgraduate examination to propose names of at least 06 Ph.Ds with expertise in the field of respective research areas including 3 experts from technologically advanced countries and 3 from within the country. The controller of postgraduate examination shall send recommendations to select thesis evaluation committee of at least three members (at least two members from technologically advanced countries and one from within the country) for the assessment of the thesis to the Vice Chancellor for final approval. The controller shall also send the recommendations of examiners for the viva-voce examination proposed by the main supervisor to the Vice Chancellor for approval. The Vice Chancellor shall be the final authority to select the thesis evaluation committee.

The Examination Committee and Examination department set a deadline for the report from the thesis evaluation committee. Normally, the deadline must not exceed three (3) months.

If a member withdraws from the thesis evaluation committee, the Controller of Postgraduate Examination may appoint an alternative member to the thesis evaluation committee.

6.6.5 Correction of formal errors in the thesis

Once submitted, a thesis cannot be withdrawn until a final decision has been reached as to whether or not it can be approved for defense of the Ph.D degree. The Ph.D candidate has the opportunity to correct formal errors in the thesis after comments from thesis evaluation committee. The options for the correction of errors would be:

1. Minor errors- candidate need to submit within a month. In this regard minor errors would be defined as spelling and grammar errors, re-adjustment of figures and images, correction of referencing format and formatting of the headings and subheadings.
2. Minor errors- candidate need to submit within three months. In this regard minor errors would be defined as re-writing of any part of the thesis which should not be more than 10% of the thesis, adding or exclusion of any part where examiners do not agree.
3. Major errors- candidate need to submit thesis in six months. In this regard major corrections would be defined as re-writing of part of the thesis which should not exceed 50% of the thesis work or addition of some more work which needs revising data.
4. Major errors- candidate need to submit in one year. In this regard major corrections are defined as re-writing of the part of thesis which comprised of more than 50% of the thesis.

6.6.6 Viva voce examination

After the approval of thesis, the candidate appears in the viva voce examination. The examiners for viva voce examination include one internal examiner from within the university and other from any university from within the country. The examiners must be Ph.D in the relevant subject or closely related subject. The controller shall send the recommendations of examiners for the viva-voce examination proposed by the main

supervisor to the Vice Chancellor for approval. The Vice Chancellor shall be the final authority to select the thesis evaluation committee. The examiners shall submit a joint report to the controller of postgraduate examination. The controller of postgraduate examination shall then notify the outcome of the viva voce examination.

The outcome of the viva voce examination would be:

1. Successful candidate proceeds for the open defense
2. Re-sit within three months

6.6.7 Re-sit

Only one re-sit shall be allowed.

6.6. 8 Open defense of the thesis (disputation)

After passing the viva-voce examination, the Ph.D candidate shall be required to publicly defend the thesis within two months of declaration of result. The Ph.D candidate must submit a short summary of the thesis to the examination committee. The summary of the thesis shall be forwarded to all invitees before the open defense by examination committee.

The time and location of the open defense must be announced at least ten (10) working days in advance.

6.6.9 Approval of the doctoral examination

Following open defense and the recommendations made by all examiners the candidate shall be declared successful. However, another open defense may be recommended by the examiners.

6.6.10 Re-sit

The re-sit of the open defense shall be allowed within three months of the first. However single re-sit of the open defense shall be allowed.

6.7 Conferral of the degree

On the basis of the approved required coursework or other academic training, the research work, the academic thesis, viva-voce and the public defense; the degree of Doctor of Philosophy is conferred by the LUMHS on the candidate. The controller of postgraduate examination issues the Degree and marks Certificate. In the marks certificate, information must be provided about the required coursework, credit hours or other academic training in which the candidate has participated, the title of the thesis, and the names of supervisors.

6.8 Ph.D publication policy

For award of PhD degree, a PhD researcher shall be required to publish research articles meeting the following criteria: At least:

1.One research article in W category journal or two research articles in X category journals.
2.The PhD researcher shall be the first author of these publications. That will be followed by supervisor, co-supervisor and any other contributor.
3.The research article shall be relevant to the PhD research work of the PhD researcher.
4.The article shall be published after approval of the research synopsis.
5.The article shall be published in a relevant research journal.

6.9 HEC requirements at completion of degree

The following documents will be submitted to the HEC following the completion of studies: A duly filled completion form will be sent to the HEC from the Office of the Controller of Examinations of the university notifying the HEC that the PhD scholar has completed all the requirements for the award of the PhD degree. A Copy of PhD Dissertation for including in PhD Country Directory and for attestation of the PhD degree by the HEC.

6.10 PMDC requirements at completion of degree

All PG students after completing their PhD Anatomy degree shall be registered by the Council.

7. Training requirements

1.The university offers full time Ph.D program, however, the faculty of the LUMHS is allowed to pursue their Ph.D program, while having their departmental responsibilities intact which includes taking lectures.

2. It is though very clear that during the course they shall not be allowed to take administrative responsibilities.

3.Candidates with external funding or an external workplace must reside at LUMHS for at least 50% of course duration. The main supervisor has the task of ensuring that this training requirement is met.

7.1 Academic supervision by approved academic supervisors

The principal academic supervisor must hold a doctoral degree in the relevant research field, his/ her name must be in enlisted in HEC approved/registered or by University. Supervisors and must be a full time Faculty member of LUMHS. However the adjunct faculty members with doctoral degree and approved by HEC can also be the main supervisor for Ph.D program. The Ph.D candidate must have at least two academic supervisors. The second supervisor can be chosen outside the University depending upon individual candidate's requirements. The students must be assigned both supervisors at the time of admission.

7.2 Co-supervisors

Co-supervisors are experts in the field who provide academic supervision and who share the academic responsibility for the candidate with the main supervisor.

7.3 Change of supervisor

The Ph.D student or main supervisor may apply for a change of supervisor. The application for change of supervisor must be written to the Director PG with full justification. The director PG shall forward the case to the PhD committee for final decision with the approval

of Vice chancellor. The principle supervisor must be notified in connection with a change of supervisor. In special cases, the Ph.D committee may replace the principal supervisor without any request by the Ph.D student.

7.4 Review and progression

The candidate must have regular contact with his or her supervisors. There are twelve mandatory supervisory meetings per year which needs to be documented and presented at the time of semi-annual, annual and final review.

7.5 Act of Plagiarism

In the case of research scholars who have copied, as confirmed by Ph.D committee, a research work/ dissertation/thesis of M.Phil. / Ph.D. degrees, his/her thesis shall be rejected and his/her research registration shall be terminated and also he/she shall be debarred from registering for any other programme in this University.

7.6 Change of regulation

The Academic Council of Liaquat University of Medical & Health Sciences, may revise, amend or change the regulations from time to time.

7.7 Appeal

Appeal against the decision on admission

The university's decision for admission is final and the candidates no right to challenge the decision.

Appeals against examination in the required coursework or research training

Examinations that have been taken as part of the required coursework or research training may be appealed under University Appeal Rules 2012, concerning appeals relating to procedural errors in examinations. Suspicion of academic misconduct or attempted misconduct must be handled in accordance with LUMHS established rules for this.

Appeals against rejection of an application for assessment of thesis/ rejection of thesis

Rejection of an application for assessment of a Ph.D thesis may be appealed under University Appeal Rules 2012, concerning appeals relating to procedural errors in examinations. Details of the grounds for such an appeal must be sent to the Ph.D Committee. The Ph.D Committee may annul or amend the decision if it finds that the appeal is justified.

8.Evaluation & Monitoring of the Training Program

8.1 Progress Report

a) There will be a bi-annual review of research progress of the PhD Scholar by the Supervisor

b) At the end of every six months after confirmed registration, PhD scholar would submit a summary of the progress of the research work through the Supervisor to dean.

c) In case of more than two unsatisfactory reports forwarded to the PhD Committee, the scholar will be notified in written and given reasonable opportunity to respond to the PhD Committee. In Case PhD Scholar fails to satisfy the committee, the committee shall recommend removal of his/her name from university register.

8.2 Evaluation methodologies

- To make sure that students are evaluated fairly, the evaluators will attend workshops on evaluation methodologies.
- There will be structured viva and written assessments. Keys will be provided to evaluators for checking written papers/viva .
- For annual confidential written evaluations of the PGT by the students, Feedback proforma will be designed in which all aspects

related to teaching like Knowledge, punctuality, tolerance level, professionalism, communication skills and behaviour with student will be covered.

- To ensure confidentiality students will be asked to fill proforma without showing their identity, different students will be asked to fill proforma at different times.
- All data will be computerized and a, pass code will be generated so only concerned person will be able to access these feedback proforma.
- A confidential letter will be written to PGT in which details of his/her annual Feedback will be told including all positive and negative aspects.
- He /she will be called in Supervisor's office to discuss areas where improvement is required.
- He/she will be encouraged to convert weaknesses into strengths by addressing his/her problems.

8.3 Students Evaluation

It will be evaluated based on:

- Attendance record (at least seventy-five percent for each year of study).
- Performance of the scheduled / desired activity
- Participation in discussion (tutorial and seminar etc.)
- Efficiency and effort put in the assignment (lectures, demonstration, Computer training, etc.)
- Practical work /Presentation and Computing skills

8.4 Standard of Passing the course work

- Cleared the comprehensive exams.

• Criteria for Award of PhD Degree

PhD level course work of at least 20 credit hours followed by course exam and a comprehensive examination, completion of research work along with thesis defense will be essential for the award of PhD degree.

- The thesis must be examined by two foreigner examiners from technologically/academically advanced countries
- Date of defense of the dissertation should be notified.
- At least one Published research paper in an HEC approved W category or 2 in X category journal is essential for the award of PhD degree.

8.5 Evaluation & Monitoring of the Training Program

The proposed / suggested evaluation of the training program will be done by:

a. The Students
b. The Faculty members (Program team Members)
c. The Supervisor
d. Self-Assessment with External and Internal Evaluators (SAR)

Annexure 1

LIAQUAT UNIVERSITY OF MEDICAL AND HEALTH SCIENCES, JAMSHORO

TITLE OF THE THESIS

A

Synopsis/ research proposal

Submitted to the

Liaquat University of Medical & Health Sciences

Jamshoro, Pakistan

For the Degree

Of

DOCTOR OF PHILOSOPHY

In

(Subject)

By

X.Y.Z (Full name of candidate)

Under the supervision of

Dr. A.B.C. (full name of the Supervisor)

Year

Annexure 11

The title page should be followed by:

The Abstract page

List of published articles

The Acknowledgements page

Table of content (also include legend of tables and figures)

Abbreviations.

The Main Body of the Thesis

References

Professional **black** buckram binding is required. The sheets should be whip-stitched and bound with white end-papers and linen joints into a buckram cover.

The spine should be lettered in gold in such a way as to be readable when the volume is lying flat with the front cover uppermost, the degree for which the thesis is submitted, the year of graduation and the name of the candidate, as follows:

Ph.D 20XX Name of Candidate

The title of the thesis should be embossed in gold letters on the front cover in a position above the centre, as follows:

LKB1 A NOVEL THERAPEUTIC TARGET IN BREAST CANCER MANAGEMENT

Annexure 111

Declaration Statement

I declare that the thesis entitled …...……

……...……

Submitted by me for the degree of Doctor of Philosophy (Ph.D) is the record of research work carried out by me during the period from ……..... to …… under the supervisor of …….. And the co-supervisor of …… (wherever applicable) and has not formed the basis for the award of any degree, diploma associateship, fellowship, titles in this or any other University or other similar institution of higher learning.

Date: **Signature of the candidate**

Place: **(Name)**

Annexure 1V

Research Certificate

certification to be given by the Supervisor /Co-Supervisor (in all copies)

I certify that the thesis entitled …...……... ……Submitted for the degree of Doctor of Philosophy by Mr. /Ms.……..... is the record of research work carried out by him/her during the period from …… to ……. Under my guidance and supervision and that this research work has not formed the basis for the award of any degree, diploma, associate-ship, fellowship or other similar titles in this university or any other university or institution.

Date: **Signature of the Supervisor**

Place: **with Seal**

Date: **Signature of the Co-Supervisor**

Place: **with Seal**