
	BQA NCQF QUALIFICATION TEMPLATE	Document No.	DNCQF.QIDD.GD02
		Issue No.	01
		Effective Date	04/02/2020

SECTION A: QUALIFICATION DETAILS													
QUALIFICATION DEVELOPER (S)		University of Botswana Faculty of Health Sciences,											
TITLE	Master of Philosophy in Medical Science										NCQF LEVEL	9	
FIELD	Health & Social Sciences		SUB-FIELD		Medical Science					CREDIT VALUE	256		
New Qualification					<input checked="" type="checkbox"/>		Review of Existing Qualification						
SUB-FRAMEWORK		General Education				TVET				Higher Education		<input checked="" type="checkbox"/>	
QUALIFICATION TYPE	Certificate	I	II	III	IV	V	Diploma	Bachelor					
	Bachelor Honours		Post Graduate Certificate		Post Graduate Diploma								
	Masters				<input checked="" type="checkbox"/>	Doctorate/ PhD							
RATIONALE AND PURPOSE OF THE QUALIFICATION													
<p>RATIONALE: Health research capacity in developing economies is a key ingredient to the overall development strategy of the country and is a precondition to achieving the Sustainable Development Goals. Although Botswana is one of the countries with a high HIV and AIDS burden in sub-Saharan Africa, the amount of research in this area and attendant infections, and non-communicable diseases remains mooted. The limited research taking place in the country is largely driven by foreign institutions and the research agenda is to a certain extent motivated by external interests. This scenario obtaining in the country can be attributed in part to a scarcity of competent indigenous scientists to drive the national research agenda and deliver research outputs that contribute to the health of the nation. According to the Human Resources Development Council (HRDC) National Human Resource Development Plan to 2028 titled 'Preparing our Citizens for a Knowledge Economy and Knowledge Society', production of scientists with requisite research skills to drive generation of new knowledge required to transform the economy is a priority. Vision 2036 provides direction towards building a 'globally competitive nation that would place Botswana among the knowledge economies of the world'. The success of Vision 2036 is underpinned by the development of Botswana's human resource capacity that can take advantage of natural resources and transition to better economic growth for all.</p> <p>While combating the HIV/AIDS pandemic has been specified as one of the eight Millennium Development Goals, non-communicable diseases (e.g. cardiovascular diseases, diabetes, cancer, chronic lung diseases, etc.) are</p>													

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expected to be the leading cause of death in developing countries by 2020. Rising life expectancy and the increasing number of people on HIV antiretroviral treatment will inevitably result in higher prevalence of non-communicable diseases. Research on prevention and control of non-communicable diseases must be stepped up in order to reduce the impact of these diseases on quality of health, social and economic wellbeing of the population. It is hoped that the students enrolled in the proposed degree programmes will focus their research on these areas of national interest.

One of the major challenges faced by many governments in Africa is the high costs of healthcare. This is attributed in part to the high costs of in vitro diagnostics. Diagnostic equipment as well as reagents and other consumables are manufactured in Europe, North America or East Asia. Procurement entails multiple intermediate agents and shipping costs are very high. As a result, the cost per laboratory test is many times higher in Botswana than in countries where reagents are procured. In order to reduce the costs of clinical laboratory investigations in Africa, there is need to develop capacity to manufacture laboratory reagents and in vitro diagnostics equipment on the continent. This is feasible if there is a critical mass of local research scientists who can lead these efforts.


One of the stated strategic goals of the University is to be research-intensive by 2021 in order to address national research priorities, contribute to the social and economic development of the country and to enhance the profile of the University in the global arena of knowledge generation and innovation. In order to achieve this noble goal, there is a need to increase the number of graduate programmes on offer and expand areas of research. This MPhil programme directly addresses this strategy. It is envisaged the programme will contribute towards building, sustaining and strengthening the University's capacity for impact-oriented research for development. Graduate from this programme will contribute to the development of the next generations of researchers.

PURPOSE: The purpose of the MPhil in Medical Science qualification is to develop scholars who can:

- demonstrate skills for critical analysis and synthesis of complex information,
- conduct original research that will result in novel findings and innovative solutions that impacts on the practice of laboratory medicine,
- perform research techniques,
- effectively communicate scientific findings, and
- demonstrate strategic leadership.

ENTRY REQUIREMENTS (including access and inclusion)


- a. The minimum admission requirement for the Master of Philosophy (Medical Sciences) degree shall normally be a Bachelor's Degree Honors or equivalent in medical laboratory sciences, medicine or pharmacy, from a recognized university or equivalent institution.
- b. An applicant with a Bachelor's Degree Honors in pure or applied biological science subject or related science field **plus** relevant experience in a clinical laboratory may also be considered.

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- c. A post-Graduate Diploma (NCQF level 8) in the same or a cognate field of study may also meet admission requirements provided that at least 20 credits at level 8 have been allocated to research methodology within or additional to the qualification.
- d. Applicants who have obtained other qualifications and have relevant experience may be considered according to University RPL policies. Applicants may be required to pass a qualifying examination before a final decision on the applicant's acceptability is made.

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SECTION B QUALIFICATION SPECIFICATION	
GRADUATE PROFILE (LEARNING OUTCOMES)	ASSESSMENT CRITERIA
1. Demonstrate skills for critical analysis of existing literature; synthesis of complex information, problems, concepts and theories to develop new knowledge or interventions	1.1 Formulate a research question 1.2 Conduct critical appraisal of existing knowledge, facts and theories in the field of study. 1.3 Design an appropriate research methodology 1.4 Develop a research proposal that can be used to seek funding and obtain ethical approvals.
2. Initiate and conduct a supervised original research of international standard that will result in novel findings or innovative solutions to problems of the community and nation.	2.1 Conduct research under supervision. 2.2 Demonstrate an understanding of research methods. 2.3 Select appropriate research methods and specialized analytical techniques. 2.4 Adhere to ethical research and academic integrity when conducting research
3. Demonstrate mastery of relevant research techniques for collecting, analyzing, synthesizing and interpreting data.	3.1 Implement a research project. 3.2 Analyze research findings 3.3 Synthesize scientific findings. 3.4 Demonstrate sound judgment on the basis of evidence generated from research. 3.5 Contribute new knowledge in a chosen field. 3.6 Critically evaluate medical science literature.
4. Interpret and communicate effectively using professional language, science and technology to a diverse audience.	4.1 Write reports using scientific academic writing 4.2 Publish at least one manuscript in reputable international-peer reviewed journals with a known impact factor 4.3 Present research findings at national, regional or international scientific meetings 4.4 Compose an original research master thesis that places research within the broader context of research.

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5. Demonstrate strategic leadership, expertise and professional integrity in research.	5.1 Conduct group tutorial classes for undergraduate and Master's learners requiring additional assistance in the field of study. 5.2 Mentor undergraduate learners undertaking research projects in your area of study. 5.3 Independently retrieve and process advanced information relating to the selected field of study. 5.4 Work autonomously in specialized, complex, ill-defined and unpredictable contexts
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SECTION C	QUALIFICATION STRUCTURE				
COMPONENT	TITLE	Credits Per Relevant NCQF Level			Total (Per Subject/ Course/ Module/ Units)
		Level []	Level []	Level [9]	
FUNDAMENTAL COMPONENT Subjects/ Courses/ Modules/Units					
CORE COMPONENT Subjects/Courses/ Modules/Units	Critical Appraisal and Research Seminars			30	30
	MPhil Thesis			226	226

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ELECTIVE/ OPTIONAL COMPONENT Subjects/Courses/ Modules/Units					
	Nil				

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SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL	
TOTAL CREDITS PER NCQF LEVEL	
NCQF Level	Credit Value
9	256
TOTAL CREDITS	256
Rules of Combination: (Please Indicate combinations for the different constituent components of the qualification)	
<p>The Master of Philosophy in Medical Science has no taught component and the learning programme comprises a research project based on an approved topic. A thesis, which gives evidence of the research capability of the candidate, is required.</p> <p>Critical Appraisal and Research Seminars (30 Credits)</p> <p>This course involves development of skills to critically review, assimilate and present scientific reports/journal articles to an audience that includes a scientific community. The students will undertake guided scientific readings and present a summary of the works at journal clubs or research seminars organized by the Department. The Supervisor will select the readings and these shall normally be recent publications representing cutting edge research in the scientific area the student is engaged in.</p> <p>MPhil Thesis (226 Credits)</p>	

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A MPhil Thesis must provide evidence of sound scholarship and constitute an original contribution to the advancement of knowledge in the subject chosen. It should demonstrate that the candidate has mastered relevant research techniques for collecting, analyzing and interpreting data; acquired a wide knowledge and understanding of literature in the field of study; developed a capacity for critical appraisal of existing facts, ideas and theories; and is capable of producing a treatise through the analysis and synthesis of the relevant data, concepts and theories. The contribution to knowledge should be original.

Each MPhil candidate should produce at least one paper/article published in international peer-reviewed journals (or produce evidence of acceptance of manuscripts) before submission of the Thesis for examination. The candidate should be the first author (or single author) in at least one such publication. The publications shall be based on the work undertaken as part of the MPhil studies.

- It is not permitted to present a Thesis that has been submitted to another University or Institute of Higher Education.

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ASSESSMENT ARRANGEMENTS

Formative assessment


A student's performance shall be reviewed every semester for progress. The review shall consist of:

- Regular formal discussions with the supervisor(s) to demonstrate progress and highlight research challenges that are encountered
- A written progress report by the student every semester.
- A written commentary by the Supervisor on the student's progress. The Supervisor may be required to submit a supportive or corrective action plan being pursued to ensure that the student completes studies within the given time.
- Number of journal club presentations in the Department.
- Scientific presentations at national or regional or international meetings.
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Summative assessment

There are no written final examinations. Assessment focusing on the exit-level outcomes is done by means of Master's Thesis on the selected topic within the field of medical science. The thesis should clearly demonstrate evidence of original work that contribute to the knowledge of and insight into the field of study.

- **Publications**
Publication of at least one data-based manuscript in a reputable international peer-reviewed journal with a known impact factor is mandatory.

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- **Oral Examination**

Oral Examination is mandatory for MPhil degree and shall be held in English. The main purposes of the Oral Examination is to:

- To provide the candidate an opportunity to clarify issues
- To further assess the Thesis and find out whether the candidate can explain his/her work.
- To test the candidate on general knowledge of the subject
- To provide an opportunity for a panel of experts to discuss the research with the student

- **Thesis**

Submit a master's thesis containing the report of the research and prepared according to University General Academic regulations.

MODERATION ARRANGEMENTS

Internal moderation requirements

- There shall be one Internal Examiner to examine the MPhil Thesis before the Oral Examination and submit independent written report, including recommendations on whether the Thesis should be:
 - Accepted
 - Accepted pending amendments
 - Failed

External moderation requirements

- There shall be one External Examiner to examine the MPhil Thesis before the Oral Examination and submit independent written report, including recommendations on whether the Thesis should be:
 - Accepted
 - Accepted pending amendments
 - Failed


RECOGNITION OF PRIOR LEARNING

- Exemption may be granted to a student for relevant work experience and recognised prior learning upon satisfactory performance of their knowledge, skills and experience in the area in line with University policies on recognition of prior learning. A student that has performed such tests shall be awarded a may be awarded a maximum of one-sixth of the total credits required for the qualification.

CREDIT ACCUMULATION AND TRANSFER

Transfer from MPhil to PhD

- A candidate provisionally registered for the MPhil shall apply to transfer registration and proceed to the PhD, after completion of at least a period of 9 months but not more than 24 months (full-time students), or at least 9 months but not more than 36 months (part-time students), if the supervisor so recommends. The recommendation shall be based on the work that has already been done by the student within the said period. The student may transfer up to a maximum of one third of the total credits required for the qualification.

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Transfer from another University

- Transfer to an MPhil from another recognized University or equivalent Institution of higher education may be considered on production of satisfactory documentation and references. No more than one-third of the total number of credits required for the programme can be credited from study at another university.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Horizontal Articulation

- The MPhil in Medical Science degree is comparable to other Master of Philosophy qualifications offered at the same level nationally, regionally and worldwide.

Vertical Articulation

- A learner who has successfully completed the MPhil in Medical Science may articulate to a programme of advanced study and original research leading to PhD in Medical Science degree in a similar field of study at the University of Botswana or at any other institution, pending approval and recognition of certain credits by the institution offering the latter programme.
- At the recommendation of the Supervisor, a candidate registered for the MPhil in Medical Science degree can apply to transfer registration and proceed to PhD in Medical Science after completion of at least a period of 9 months but no more than 24 months or 36 months, for full-time or part-time students, respectively. The recommendation shall be based on the work that has already been done by the student within the said period.

Employment Pathways


There are employment opportunities for MPhil in Medical Science graduates in the country and beyond. Graduates can join:

- Academic institutions as lecturers and/or research scholars
- Research institutions as medical science researchers
- Ministry of Health public health institute as researchers/consultant laboratory scientists
- Manufacturing industry of in vitro laboratory diagnostic reagents

QUALIFICATION AWARD AND CERTIFICATION

Minimum standards of achievement for the award of the qualification

- One data-based publication in international peer-reviewed journal with a known impact factor.
- Submission of MPhil Thesis prepared according to University guidelines.
- Attend an oral defence of the Thesis.

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Certification

- The graduate will be awarded the MPhil in Medical Science qualification under the seal of the University after successful completion of the study programme and accumulating 256 credits.
- The MPhil in Medical Science degree shall not be classified.

REGIONAL AND INTERNATIONAL COMPARABILITY

The Master of Philosophy in Medical Science programme is comparable to similar qualifications offered regionally and internationally. The main exit outcomes and assessment criteria are comparable to or surpasses similar qualifications offered in most countries. For this MPhil in Medical Science qualification, a candidate must publish at least one paper based on the research work before completing the programme, whereas other institutions only require that the work should meet requirements for publication. The minimum entry requirements, number of credits and articulation options are comparable. Similar to other programmes, this programme has no coursework. The qualification was benchmarked against comparable qualifications offered at the following institutions:

- Master of Philosophy in Sport Science, University of Johannesburg, South Africa
- Master of Biomedical Science (Research), University of Auckland, New Zealand

REVIEW PERIOD

After every five years

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