

	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 Science, Geology									
TITLE	Doctor of Philosophy								NCQF LEVEL	10	
FIELD	Natural, Mathematical and Life Sciences			SUB-FIELD	Geology				CREDIT VALUE	360	
<i>New Qualification</i>					<input checked="" type="checkbox"/>	<i>Review of Existing Qualification</i>					
SUB-FRAMEWORK		<i>General Education</i>			<i>TVET</i>				<i>Higher Education</i>		<input checked="" type="checkbox"/>
QUALIFICATION TYPE	<i>Certificate</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>Diploma</i>	<i>Bachelor</i>			
	<i>Bachelor Honours</i>			<i>Post Graduate Certificate</i>				<i>Post Graduate Diploma</i>			
	<i>Masters</i>				<i>Doctorate/ PhD</i>				<input checked="" type="checkbox"/>		

RATIONALE AND PURPOSE OF THE QUALIFICATION

RATIONALE:

The Government of Botswana is fully committed in stimulating and encouraging research that would ensure sustainable management of the nation’s natural resources. The country envisages being a high-income country in the future with an export-led economy driven by diversified mineral sector that is integrated into other sectors of the economy. The National Development Plan Eleven (NDP 11) highlights the intention of developing diversified sources of economic growth through research, innovation, and development. Furthermore, the NDP 11 in chapter 7 highlights the importance of sustainable management of natural resources in growing the country’s economy.

Central to Botswana Vision 2036 is the transition from a natural resource mineral dependent economy to a knowledge-based economy. This will need graduates with the relevant knowledge, skills, and competencies to

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fulfil the human resource needs of an export-driven knowledge-based economy. Research and development are a critical component in knowledge generation. The necessity for offering research-based postgraduate qualifications that embrace science innovation and technology at national universities cannot be overemphasized in a knowledge-based economy. The qualification offers a multidisciplinary approach to resource science education and research which will help address these basic concerns, as well as facilitate the potential development and management of more sophisticated economic initiatives, such as mineral processing for value added products, diversified modes of resource utilization, and recycling of related waste materials. This qualification speaks to the fact that Botswana is endowed with mineral resources whose optimal exploration, exploitation and development can be realised through informed sustainable management.

PURPOSE:

The purpose of the qualification is to produce graduates who have knowledge, skills, and competencies to:

- Initiate and conduct independent complex, original research of international standard that will result in novel findings or innovative solutions to solve problems related to mineral resources and groundwater.
- Carry out most advanced independent investigations on resource science using multidisciplinary approach that will culminate in sophisticated economic initiatives, such as mineral processing for value added products, diversified modes of resource utilization, and recycling of related waste materials.
- Identify and address social issues that affect the society through research.

ENTRY REQUIREMENTS (including access and inclusion)

1. Master's Degree at NCQF Level 9 or equivalent in the geoscience field or a cognate field of study.
2. There will be access into the qualification through Recognition of Prior Learning (RPL) and Credit Accumulation and Transfer (CAT) in accordance with institutional and national policies on RPL and CAT.

SECTION B

QUALIFICATION SPECIFICATION

GRADUATE PROFILE (LEARNING OUTCOMES)

ASSESSMENT CRITERIA

1. Evaluate, analyse critically, and synthesize existing scientific data to develop new interventions.

- 1.1 Critically analyse research papers and topics on different areas of geosciences to identify possible research problems.
- 1.2 Conduct a comprehensive literature review to identify knowledge gaps in the field of interest.
- 1.3 Present highest quality of a research proposal.

2. Initiate and conduct independent original research that will result in novel findings or innovative solutions to solve problems related to mineral resources and groundwater

- 2.1 Develop a complete research proposal in the field of geoscience with well-defined problem statement, clear objectives, and research questions as well as the significance of the research.
- 2.2 Identify problems and formulate researchable idea to address the problems which will be assessed from proposed research.
- 2.3 Identify methods and analysis techniques suitable for the proposed research

<p>3. Communicate scientific research findings effectively through written and oral presentations.</p>	<p>3.1 Publish research findings in international peer-reviewed journals.</p> <p>3.2 Make a minimum of two presentation of research findings in departmental, national, regional, or international scientific meetings.</p> <p>3.3 Participate in peer-reviewed seminars</p>
<p>4. Demonstrate advanced information and communication technology (ICT) literacy.</p>	<p>4.1 Apply at least three applied-ICT related software or tools in research data analysis.</p> <p>4.2 Use at least three applied-ICT related software or tools to access and share information resources to support their research activities and their own professional development.</p> <p>4.3 Use at least two search engines, and online databases to find resources and people for collaborative projects.</p> <p>4.4 Use at least two computer software and tools to support geoscience activities.</p>
<p>5. Demonstrate strategic leadership, with full responsibility and accountability for resource management.</p>	<p>5.1 Work independently to plan and execute one complete research project.</p> <p>5.2 Develop a successful detailed research budget for one successful research project.</p> <p>5.3 Make a successful fundable proposal.</p>

SECTION C	QUALIFICATION STRUCTURE				
COMPONENT	TITLE	Credits Per Relevant NCQF Level			Total <i>(Per Subject/ Course/ Module/ Units)</i>
		Level []	Level [9]	Level [10]	
FUNDAMENTAL COMPONENT <i>Subjects/ Courses/ Modules/Units</i>					
CORE COMPONENT <i>Subjects/Courses/ Modules/Units</i>	Thesis			10	360
ELECTIVE/ OPTIONAL COMPONENT <i>Subjects/Courses/ Modules/Units</i>					

SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL


TOTAL CREDITS PER NCQF LEVEL

NCQF Level	Credit Value
10	360
TOTAL CREDITS	360

Rules of Combination:

(Please Indicate combinations for the different constituent components of the qualification)

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ASSESSMENT ARRANGEMENTS

The assessment will be summative only in terms of thesis examination which will be conducted by BQA-registered and accredited assessors. The rest of the assessment will be formative.

MODERATION ARRANGEMENTS

There shall be internal and external moderation of assessments. Moderation processes will be carried out by moderators who are registered and accredited by BQA or any relevant and recognised institution.

RECOGNITION OF PRIOR LEARNING

There shall be provision for the award of Doctor of Philosophy (Geology) through Recognition of Prior Learning (RPL), in accordance with the institutional and national policies on RPL.

CREDIT ACCUMULATION AND TRANSFER

There shall be provision for the award of Doctor of Philosophy (Geology) through Credit Accumulation and Transfer (CAT), in accordance with institutional and national policies on CAT.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Learning pathways


Horizontal Articulation - related qualifications at NCQF Level 10 or equivalent that graduates may consider):

- Doctor of Philosophy in Geophysics
- Doctor of Philosophy in Geoscience.

Employment pathways

Geological knowledge and skills that offers employment across the energy, mining, engineering, environment, agriculture, water, and health sectors. They will work as, amongst others:

- Geologists
- Surveyors
- Researchers
- Geoscientists

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QUALIFICATION AWARD AND CERTIFICATION

The minimum credits for the award of Doctor of Philosophy (Geology) shall be 360 credits.
 Learners who meet the condition for the award of the qualification shall be issued with a certificate and transcript.

REGIONAL AND INTERNATIONAL COMPARABILITY

The proposed Doctor of Philosophy (Geology) is comparable with other qualifications offered at NCQF Level 10 or equivalent regionally and internationally.

Benchmarking has been done against the Doctor of Philosophy (Geology), offered by University of Johannesburg, Doctor of Philosophy in Geophysics offered by the Witwatersrand (WITS) University, and Doctor of Philosophy in Earth Sciences, University of Tasmania (Australia). University of Tasmania indicated that their PhD in Earth Sciences is internationally benchmarked using criteria based upon published work of the National Quality Assurance bodies in South Africa and Australia respectively. These degrees involve research and dissertation only, which is like the proposed Doctor of Philosophy (Geology).

The proposed Doctor of Philosophy (Geology) is comparable with the same titled qualifications in South African universities, all with 360 credits. These qualifications are more specialized and comparable to the one being proposed.

REVIEW PERIOD

Every five years the qualification will be reviewed.