Bachelor of Science in Data Science

Programme details:
The programme consists of core (required) and elective modules as indicated below. Some modules may have pre-requisites (i.e., may require students to pass another module or set of modules first). Some modules may be co-requisite (such modules are required to be taken together). The number at the end of the module in parenthesis indicates the credit load of the module. 1 credit is equal to 10 hours of learning (guided, in-class and independent combined); therefore a 10-credit module requires an average of 100 hours of learning from the student.

Core modules:
- E5-PHY-22: Physics (12)
- E5-PCA-22: Pre-Calculus (24)
- C6-CSA-22: Computer Architecture (12)
- D5-WCO-22: Writing and Communication (12)
- C5-PS1-22: Programming Skill 1(6)
- B5-BEN-22: Business and Entrepreneurship (30)
- C6-OPS-22: Operating Systems (12)
- E6-CAL-22: Calculus (12)
- C6-PS2-22: Programming Skill 2 (12)
- C6-COM-22: Computer Networks (12)
- C7-DBS-22: Databases (12)
- E6-DMC-22: Discrete Mathematics for Computer Science (12)
- C6-DSA-22: Data Structures and Algorithms (12)
- C7-DMI-22: Data Mining (12)
- C7-REM-22: Research Methodology (12)
- E7-PAS-22: Probability and Statistics (12)
- C7-PS3-22: Programming Skill 3 (12)
- C7-DVI-22: Data Visualization (12)
- C7-PMA-22: Project Management (12)
- E7-LAL-22: Linear Algebra (12)
- C7-MLE-22: Machine Learning (24)
- C7-ARI-22: Artificial Intelligence (12)
- C7-DAN-22: Data Analytics (12)
- C7-PPR-22: Industrial Attachment (60)
- E7-MUS-22: Multivariate Statistics (12)
- C7-IPD-22: Individual Project in Data Science (24)
- C7-PIE-22: Professional Issues and Ethics (12)

Elective Modules:
- D5-BIO-22: Biology 1 (12)
- E5-CHE-22: Chemistry 1 (12)
- C6-CLC-22: Cloud Computing (9)
- C6-EM1-22: Emerging Technologies 1 (9)
- C6-CRG-20: Cryptography (9)
- C6-MOS-22: Mobile Operating Systems (9)
- C6-CRG-20: Cryptography (9)
- C6-MOS-22: Mobile Operating Systems (9)
- C6-ACN-22: Advanced Computer Networks (9)
- C6-OPT-22: Optimization (9)
- D7-CBI-22: Computational Biology (9)
- B7-CFI-22: Computational Finance (9)
- E7-COS-22: Computational Statistics (9)
- C7-EM2-22: Emerging Technologies (9)
- C7-NLP-22: Nature Language Processing (9)
- C7-BDD-22: Big Data Databases(9)
- C7-AAN-22: Algorithm Analysis (9)
- C7-BDT-22: Big Data Technologies(9)
- C7-AAI-22: Advanced Artificial Intelligence (9)

Recommended full-time study path (4 years):

Semester 1
- E5-PHY-22, E5-PCA-22, C6-CSA-22, D5-WCO-22

Semester 2
- C5-PS1-22, B5-BEN-22, C6-OPS-22 Select one (D5-BIO-22, E5-CHE-22)

Semester 3
- E6-CAL-22, C6-PS2-22, C6-COM-22, C7-DBS-22 Select one (C6-CLC-22, C6-EM1-22)

*The programmes offered in this document are accredited by BQA and offered at Botho University at the time of print. Please refer to your offer letter from the admissions department for any changes in programme name or duration that may occur due to regulatory requirements.

Semester 4
- E6-DMC-22, C6-DSA-22, C7-DMI-22, C7-REM-22 Select one (C6-CRG-20, C6- MOS-22) Select one (C6-ACN-22, C6-OPT-22)

Semester 5
- E7-PAS-22, C7-PS3-22, C7-DVI-22, C7-PMA-22, E7-LAL-22

Semester 6
- C7-MLE-22, C7-ARI-22, C7-DAN-22 Select one (C7-EM2-22, C7-NLP-22,C7-CBI-22, B7-CFI-22)

Semester 7
- C7-PPR-22

Semester 8
- E7-MUS-22, C7-IPD-22, C7-PIE-22 Select one (C7-BDD-22,C7-AAN-22) Select one (C7-BDT-22,C7-AAI-2)

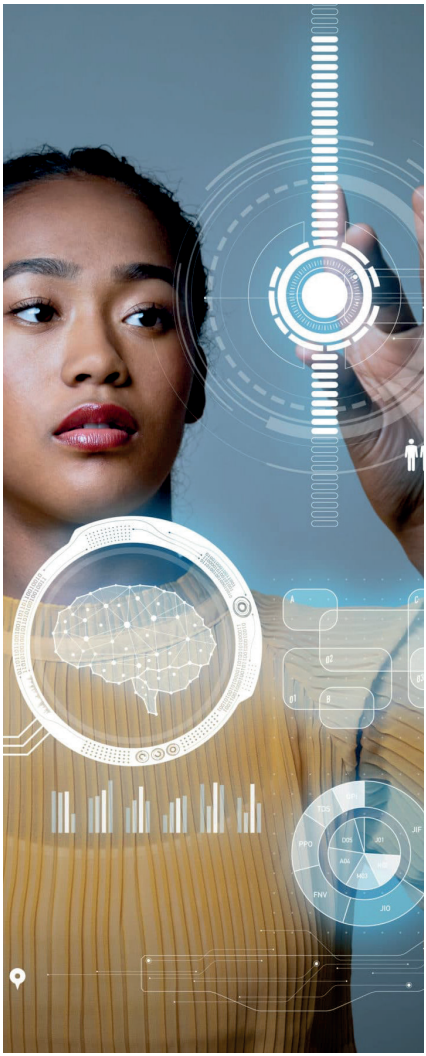
Admissions Criteria

1) Applicants are expected to have successfully completed secondary schooling. The typical entry requirement is BGCSE or IGCSE (in Botswana), LGCSE (in Lesotho) or other equivalent secondary school qualification.

2) BGCSE/equivalent with minimum Pass (D) in 5 subjects including English and Mathematics.

3) Applicants in possession of a Diploma or Higher Diploma in related field may be given exemptions based on the credit point equivalency.

4) For enquiries and more information please visit our website: **www.bothouniversity.com**



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Program Version Course List

14-07-2022

Course Code	Course Description	Credits	Elective List	Pre-Requisite List	Co-Requisite List	PreElect	ResourceList
DSC-8BO-22	**Bachelor of Science in Data Science**			**Weeks:192.00 Credits: 495.00**			
Core							
B5-BEN-22	Business and Entrepreneurship	30.00					
C5-PS1-22	Programming Skill 1	6.00					
C6-COM-22	Computer Networks	12.00					
C6-CSA-22	Computer Architecture	12.00					
C6-OPS-22	Operating Systems	12.00					
C7-DBS-22	Databases	12.00					
C7-PIE-22	Professional Issues and Ethics	12.00					
C7-PPR-22	Industrial Attachment	60.00					
C7-REM-22	Research Methodology	12.00					
D5-WCO-22	Writing and Communication	12.00					
E5-PCA-22	Pre-Calculus	24.00					
E5-PHY-22	Physics	12.00					
C6-DSA-22	Data Structures and Algorithms	12.00		C5-PS1-22 - Programming Skill 1			
C6-PS2-22	Programming Skill 2	12.00		C5-PS1-22 - Programming Skill 1			
C7-DMI-22	Data Mining	12.00		C5-PS1-22 - Programming Skill 1			
C7-DVI-22	Data Visualization	12.00		C6-DSA-22 - Data Structures and Algorithms			
C7-MLE-22	Machine Learning	24.00		C6-DSA-22 - Data Structures and Algorithms			
C7-PS3-22	Programming Skill 3	12.00		C6-PS2-22 - Programming Skill 2			
C7-DAN-22	Data Analytics	12.00		C7-DBS-22 - Databases			
C7-IPD-22	Individual Project in Data Science	24.00		C7-PMA-22 - Project Management			
C7-PMA-22	Project Management	12.00		C7-REM-22 - Research Methodology			

Course Code	Course Description	Credits	Elective List	Pre-Requisite List	Co-Requisite List	PreElect	ResourceList
E6-CAL-22	Calculus	12.00		E5-PCA-22 - Pre-Calculus			
E6-DMC-22	Discrete Mathematics for Computer Science	12.00		E5-PCA-22 - Pre-Calculus			
E7-LAL-22	Linear Algebra	12.00		E6-CAL-22 - Calculus			
C7-ARI-22	Artificial Intelligence	12.00		E6-DMC-22 - Discrete Mathematics for Computer Science			
E7-PAS-22	Probability and Statistics	12.00		E6-DMC-22 - Discrete Mathematics for Computer Science			
E7-MUS-22	Multivariate Statistics	12.00		E7-PAS-22 - Probability and Statistics			
27		**420.00**					

Elective

ELEC	Semester 2 Electives	12.00	D5-BIO-22 - Biology 1, E5-CHE-22 - Chemistry 1				
ELEC	Semester 3 Electives	9.00	C6-CLC-22 - Cloud Computing, C6-EM1-22 - Emerging Technologies				
ELEC	Semester 4 Elective 1	9.00	C6-CRG-22 - Cryptography, C6-MOS-22 - Mobile Operating Systems			C5-PS1-22 - Programming Skill 1, C6-OPS-22 - Operating Systems	
ELEC	Semester 4 Elective 2	9.00	C6-ACN-22 - Advanced Computer Networks, E6-OPT-22 - Optimization			C6-COM-22 - Computer Networks, E6-DMC-22 - Discrete Mathematics for Computer Science	
ELEC	Semester 6 Elective 1	9.00	D7-CBI-22 - Computational Biology, B7-CFI-22 - Computational Finance, E7-COS-22 - Computational Statistics				

Course Code	Course Description	Credits	Elective List	Pre-Requisite List	Co-Requisite List	PreElect	ResourceList
ELEC	Semester 6 Elective 2	9.00	C7-EM2-22 - Emerging Technologies 2, C7-NLP-22 - Nature Language Processing			C6-PS2-22 - Programming Skill 2	
ELEC	Semester 8 Elective 1	9.00	C7-BDD-22 - Big Data Databases, C7-AAN-22 - Algorithm Analysis			C6-DSA-22 - Data Structures and Algorithms	
ELEC	Semester 8 Elective 2	9.00	C7-BDT-22 - Big Data Technologies, C7-AAI-22 - Advanced Artificial Intelligence			C7-ARI-22 - Artificial Intelligence	
8		**75.00**					
35		**495.00**					