

# NELSON MANDELA

UNIVERSITY



**FACULTY OF  
SCIENCE**

## PROSPECTUS 2025

**NELSON MANDELA UNIVERSITY**

**FACULTY OF SCIENCE**

**PROSPECTUS 2025**

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**NB:**

Although the information contained in this Prospectus has been compiled as accurately as possible, the Council and the Senate of Nelson Mandela University accept no responsibility for any errors or omissions. This Prospectus is applicable only to the 2025 academic year. Information on syllabus and module outcomes is available on the Nelson Mandela University website.

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# VISION AND MISSION

## OUR VISION

To be a dynamic and engaged African Science Faculty recognized for generating relevant and cutting-edge knowledge for a sustainable future

## OUR MISSION

To offer a diverse range of pure and applied science based educational and research experiences to contribute to a sustainable future



# STAFF

## **OFFICE OF THE DEAN**

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## **FACULTY ACADEMIC ADMINISTRATION**

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## **SUMMERSTRAND SOUTH CAMPUS**

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#### *Lecturer*

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<i>Secretary</i>	Ms C Koen
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*Secretary*

Ms Z Goldman

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*Senior Technician*

VACANT

*Laboratory Technician*

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Vacant

*Administrative Assistant*

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*Head of Department*

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*Secretary*

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**Summerstrand South Campus**

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### **MATHEMATICAL AND COMPUTATIONAL SCIENCES CLUSTER**

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#### **Department of Computing Sciences**

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<i>Lab Assistant</i>	Mrs M Zomba
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<i>Secretary</i>	Ms C Esterhuizen
<i>Administrative Assistant</i>	Ms V Xako
<b>Summerstrand Campus</b>	
<i>Associate Professor</i>	Prof A R Appadu BScHons, PhD (University of Mauritius),
<i>Senior Lecturers</i>	Dr S Juglal BPaed (Arts) (UDW), BAHons (Maths) (UPE), MSc (Maths) (UPE), PhD (Maths) (NMMU), Dr J E Maritz BSc Ed (UWC), BScHons (UPE), MSc (UPE), PhD (UKZN) Dr M Walton BCom (UPE), BComHons (UPE), MCom (UPE), PhD (NMMU), Dr M Weigt BSc (US), BScHons (US), MSc (US), PhD (UCT)
<i>Lecturers</i>	Dr G Goosen BSc (NMMU), BSc Hons (NMMU), MSc (SU), PhD (SU)

Ms T Holtzhausen BSc (NMMU), BScHons (NMMU), MSc (NMMU),

Dr G Goosen BSc (NMMU), BSc Hons (NMMU), MSc (SU), PhD (SU)

Mr C O Parsons BSc (UPE), BScHons (UPE), MSc (UPE),

Mr Q N Petersen BSc (UPE), BScHons (UPE), MSc (UPE),

Mr H Smith BSc (UPE), BScHons (UPE), MSc (UPE),

Dr B J Sokopo BSc (NMMU), BScHons (NMMU), MSc (NMMU), PhD (NMMU)

Mr T E Thelejane BSc (Unitra), BScHons (Unitra), MSc (Unitra),

Dr S J Wagner-Welsh BCom (UPE), BSc (UPE), BSc Hons (UPE), MSc (UPE), PhD (NMMU),

Mr P Zembe BSc (NMMU), BScHons (NMMU), MSc (NMMU)

*Associate Lecturers*

Mr M Conley BSc Ed (UWC), BScHons (UPE)

Mr S P Mzulwini BSc (NMMU), BSc Hons (NMMU), MSc (NMMU)

**Department of Statistics**

*Head of Department*

Dr C Clohessy MSc, PhD (NMMU)

*Secretary*

Ms R Le Roux

*Administrative Co-ordinator*

Ms A Nkahla

**Summerstrand South Campus**

*Professor*

Prof G D Sharp BSc (Hons) (RU), MSc (UPE), PhD (RU)

*Senior Lecturers*

Dr C Clohessy MSc, PhD (NMMU)

Dr J Hugo MSc (UOFS), PhD (UFS)

*Lecturers*

Dr L Kepe HDE (RU), MSc (US), PhD (NMMU)

Dr S Mangisa BSc Hons, MSc (NMMU),

Dr Stéfan Janse van Rensburg, BCom Hons, MCom (NMMU), PhD (NMMU)

Mr A Gqwaka BSc Hons (NMMU), MSc (NMMU)

Ms L Sepato BSc Hons, MCom (NWU)

**PHYSICAL SCIENCES CLUSTER**

*Director of Cluster*

Prof EE van Dyk PhD (UPE), Pr.Nat.Sci.

**Department of Chemistry**

*Head of Department*  
*Secretaries*

Dr AS Ogunlaja MSc (University of Ilorin, Nigeria)  
Ms Z Dyan Dip (Mgt) (NMMU), BTech (Mgt) (NMMU),  
Ms S Tenge BTech (HR) (NMMU)

**Summerstrand North Campus**

*SARChI Chair*

Prof P Watts BSc(Bris), PhD(Bris), CSci, CChem, FRSC

*Senior Lecturer*

Dr G Rubidge DTech (Chem) (PET)

Dr N Vorster PhD (UPE)

*Lecturer*

Ms A Noah MTech (Chem) (PET)

Dr AS Ogunlaja MSc (University of Ilorin, Nigeria)

*Laboratory Technicians*

Mr S Bosman, Mr FM Olivier, Mr JE Thomas,

*Laboratory Assistants*

Ms A Maqoko, Ms P Nkondo, Ms N Zweni

**Summerstrand South Campus**

*Professor*

Prof ZR Tshentu BSc (UPE), BScHons (UPE), MSc (UPE), PhD (NMMU)

*Associate Professors*

Prof B Barton PhD (UPE),

Prof E Ferg DTech (Chem) (PET), Prof SP Hlangothi MSc (UniN), PhD (NMMU)

*Senior Lecturers*

Dr A Abrahams PhD (NMMU),

Dr R Betz PhD (LMU, Munich)

Dr D Grooff PhD (NWU)

Mr S Gerber MSc (US),

*Lecturers*

Dr N Mama PhD (NMMU)

Dr S Dorfling

Dr B G Hlangothi MSc (Vista), PhD (UJ),

Dr Z Tywabi-Ngeva PhD (DUT)

*Laboratory Technicians*

Dr R Neglur PhD (NMMU)

Mr AA Maclean Dip (Chem), MTech (Chem),

Mrs KA Muller MSc (UFS)

Mr HJ Schalekamp MSc (UPE)

*Laboratory Assistants*

Mr P Gaika,

Ms C Balintulo,

Ms B Mletshe

Mr ES Bashman

**Department of Physics**

*Head of Department*

Prof A Venter MSc (UPE), PhD (UPE)



*Secretary* Ms C Neveling BTech (PRM), NDip (OPS MAN)  
NMMU

### **Summerstrand South Campus**

*Professors* Prof J R Botha BSc (UPE), BScHons (UPE), MSc (UPE), PhD (UPE)

*Associate Professors* Prof EE van Dyk PhD (UPE), Pr.Nat.Sci.  
Prof SV Motlounge BSc (UFS), BScHons (UWC)  
MSc (UWC), PhD (UFS),  
Prof A Venter MSc, PhD (UPE),  
Prof MC Wagener PhD (UPE)

*Senior Lecturer* Dr F J Vorster BSc (UPE), BScHons (UPE), MSc (UPE), PhD (NMMU)  
Dr Z Urgessa PhD (NMMU)

*Lecturers* Mr I Coopersamy HDE (Vista), BScHons (US),  
MEd (Vista), QA (City & Guilds, London),  
Dr N G Hashe BSc (Vista), BScHons (NMMU),  
MSc (NMMU), PhD (NMMU),  
Mr J Jonker BSc (UCT), BSc (Hons) (UCT), MSc (UCT),  
Dr EG Minnaar BSc (NMMU), BSc (Hons) (NMMU), MSc (NMMU), PhD (NMU),

*Associate Lecturer* Mr M C Bacela BSc (Vista), BScHons (Vista),  
MEd (NMU)

*Senior Technician* Mr ME Claassen

*Laboratory Technicians* Mr H Liu MSc (UFS), BPharm (NMU)

Mr J B Wessels NDip (Elec Eng)

*Laboratory Assistant* Mr W Grauman

### **Summerstrand North Campus**

*Lecturer* Vacant

*Laboratory Assistant* Vacant

### **NATURAL RESOURCE SCIENCE AND MANAGEMENT CLUSTER**

#### **George Campus**

*Director of Cluster* Prof J H Louw BSc (Hons) (Forestry) (US), PG  
Dipl. Terrain Evaluation (PU for CHE), MSc (Forestry) (US), PhD (Botany) (Wits)

*Administrative Assistants* Ms S Roets (Secretarial: Office Mgt), HC Veldfire  
Mgt (NMU),  
Ms K Jagernath N. Dip: Mgt (NMU)

#### **Agricultural Management Department**

Head of Department	Mrs L du Preez BSc(Agric) (UFS), BSc (Agric)(Hons) (UFS), MSc(Agric) (UFS), MBA (UFS)
Senior Lecturer	Dr E Dube (BScHons (Agri) (UZ), MSc (Agronomy) (UZ), PhD (Agronomy) (UFH),
Lecturers	Mr C Bhiya NDip, BTech (Agri Mgt) (NMMU), MTech (Agric Mgt) (NMMU), Mr J W Jordaan BSc (Agric) (UFS), BSc (Agric) (Hons) (UP), Bus. & Admin. (Hons) (US), MBA (US)
	Mrs L du Preez BSc(Agric) (UFS), BSc (Agric)(Hons) (UFS), MSc(Agric) (UFS), MBA (UFS),
	Mr A Gresse BSc(Agric:Animal Science)(UP), MSc(Agric:Animal Science)(UP)

### **Forestry Programme**

Head of Department	Mr C F Pool NDip (Forestry) (PET), Cert (Labour Rel) (UP), Dip (Ter Ed) (UNISA), BTech (Forestry) (PET), MTech (Forestry) (NMMU)
Associate Professors	Prof K Little BSc (Hons) (Geography) (UN), HDE (UN), PhD (Botany) (UN)
	Prof J H Louw BSc (Hons) (Forestry) (US), PG Dipl. Terrain Evaluation (PU for CHE), MSc (Forestry) (US), PhD (Botany) (Wits)
Lecturer & Programme Leader	Dr M Ramantswana BTech (Forestry) (NMMU), MTech (Forestry) (NMMU), PhD(Forest Science) (UP)
Lecturers	Mr C F Pool NDip (Forestry) (PET), Cert (Labour Rel) (UP), Dip (Ter Ed) (UNISA), BTech (Forestry) (PET), MTech (Forestry) (NMMU)
	Mr S J van Zyl NDip (Forestry) (NMMU), BTech (Forestry) (NMMU), MTech (Forestry) (NMMU),
	Dr T Mapeto Dip (Forestry)(Zim College of Forestry), BTech (Forestry) (NMMU), MTech (Forestry) (NMMU), PhD (Forestry) (NMU)
	Ms S Msweli NDip, BTech (Nature Conservation), MSc (Nature Conservation) (NMU)
	Mr S J van Zyl NDip (Forestry) (NMMU), BTech (Forestry) (NMMU), MTech (Forestry) (NMMU)
	Mr R Müller BSc (Wood Science) (US), B Eng (Mech) (US), MSc (Wood Science) (US)
	Mr B Muller BSc (Forestry) (US), MTech (Forestry) (NMMU)

### **Conservation Management Department**

Head of Department	Dr A Coetzee BSc(Hons) (US), PhD (Ecology) (US)
Associate Professors	Prof JA Venter Dip (Nature Cons) (TSA), BTech (Nature Cons) (PET), MTech (Nature Cons) (NMMU), PhD (UKZN)
Senior Lecturer	Dr A G Schmidt BSc (UN), BSc (Hons) (Wildlife Mgt) (UP), MSc (Wildlife Mgt) (UP), PhD (Zoology) (NMMU)
Lecturers	Dr A Coetzee BSc(Hons) (US), PhD (Ecology) (US) Mr W Matthee Dip (Nature Cons) (NMMU), BTech (Nature Cons) (NMMU), MSc (Botany) (NMMU) Mr JG Sekonya BenvM (UNIVEN), Mphil (Env Soc Sust) (UCT)

### **REGISTERED ENTITIES**

#### **Telkom Centre of Excellence - Distributed Multimedia Applications Unit**

Head	Prof D Vogts BSc (UPE), BScHons (UPE), MSc (UPE), PhD (NMMU)
Vice-Head	
Administrative Assistant	Mrs D E van der Walt Dip (Education) (PECE), Cert in Org and Work Study (Tech Pta)

#### **Telkom Centre of Excellence - Optical Fibre Research Unit**

Head	Dr D Waswa PhD (NMU)
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#### **Telkom Centre of Excellence - Photovoltaics Unit**

Head	Prof E E van Dyk PhD (UPE), PrSciNat
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#### **Centre for African Conservation Ecology**

Director	Prof G I H Kerley BSc (UPE), BScHons (UPE), MSc (UP), PhD (UPE)
Deputy Director	
Staff	Dr A F Boshoff BSc (RU), BSc (Hons) (UP), PhD (London) Prof E E Campbell BSc (US), BScHons (UPE), MSc (UPE), PhD (UPE)

Dr D R du Preez BSc (Wits), BScHons (Wits),  
MSc (UPE), PhD (UPE)

Dr A G Schmidt BSc (UN), MSc (UP), PhD (NMU)  
Dr S L Wilson BSc (UPE), BScHons (UPE), MSc  
(UPE), PhD (UPE)

*Administrator*

Vacant

***InnoVenton and the Downstream Chemicals Technology Station***

*Director (Acting)*

Mrs L Hamilton, N. Dip (Analytical Chemistry)  
(PET),

*Deputy Director*

Dr G Dugmore DTech (Chemistry) (PET)

*Staff*

Dr C Davison, PhD (Biochemistry) (NMU),

Mrs N Dokwana, BTech (NMMU),

Mr S Duma, BSc (Chem. Eng.) (CPUT),

Dr M Gouws, DTech (Chemistry) (NMMU),

Dr S Gouws, DTech (Chemistry) (PET),

Mr P Grant, MSc (Chemistry) (UP),

Mrs L Hamilton, N. Dip (Analytical Chemistry)  
(PET),

Mr D Hislop, N. Dip (Electrical Engineering)  
(PET/OTC),

Mr J. de Jongh, BSc (Chemistry and Polymer  
Science) (US),

Dr C Kampman PhD (Chemistry) (NMMU)

Mrs M. Mpalala

Mrs N. Mtwa, BTech (Chemistry) (NMMU),

Mrs P Nyabasa, N. Dip (Metallurgical Assaying)  
(Zimbabwe School of Mines.)

Mr J. Plaatjies

Mr M Setloboko, MSc (Forensic Science) (SHU)

Mr P van Zyl

*Receptionist*

Mrs S. Balkisoon

***Centre for High Resolution Transmission Electron Microscopy***

*Director*

Prof J H Neethling BSc (UPE), BScHons (UPE),  
MSc (UPE), PhD (UPE), MAcad

*Project Co-ordinator*

Dr G Marx BSc (NMMU), BScHons (NMMU), MSc  
(NMMU), PhD (NMU)

*Research Associate*

Prof J A A Engelbrecht PhD (UPE), MAcad,  
PrSciNat

***Sustainability Research Unit (George and Summerstrand South)***

*Head: George Campus*

Prof H Fritz

*Academic Staff: Summerstrand South  
Campus*

Prof J B Adams BScHons (UPE), MSc (UPE),  
PhD (UPE), PrSciNat

*Administrative Assistant:  
George Campus*

Ms C Loubser

## **GENERAL INFORMATION AND REGULATIONS**

Every student of this faculty is also bound by Nelson Mandela University's regulations as contained in the General Prospectus. The Dean of the Faculty will take disciplinary action in the event of contravention of departmental and general regulations. **It is the responsibility of every student to acquaint him/herself with the contents of the General Prospectus.** Senate may, with the approval of council, determine the minimum number of new students who must register for a programme/module for it to be offered.

## GENERAL ADMISSION REQUIREMENTS (UNDERGRADUATE)

The admissions requirements for undergraduate programmes offered by Nelson Mandela University consist of:

- the statutory minimum requirements based on the National Senior Certificate (NSC), or equivalent school-leaving certificate;
- the Applicant Score (AS), a composite score based on school subject achievement; and
- specific school subject and other requirements (e.g., departmental selection, portfolios, interviews)

These requirements are relevant for the following local and international qualifications: NSC, Senior Certificate, Cambridge qualifications, International Baccalaureate, Namibian and Kenyan Senior Secondary Certificates, and the NC(V) 4.

### **NSC MINIMUM STATUTORY ENTRY REQUIREMENT**

#### *Qualification Minimum Statutory Entry Requirement:*

Currently the statutory requirement for admission to a higher certificate, diploma or degree programme is a National Senior Certificate with the appropriate endorsement as well as the minimum language of teaching and learning requirement of the Higher Education Institution.

Qualification	Minimum Statutory entry requirement
Higher Certificate	Pass the NSC, with a minimum of 30% in the language of learning and teaching of the higher education institution, together with any other university requirements.
Diploma	Pass the NSC with a minimum of 30% in the language of learning and teaching of the higher education institution, coupled with an achievement rating of 3 (40–49%) or better in four recognised NSC 20-credit subjects, together with any other university requirements
Bachelor's Degree	Pass the NSC with a minimum of 30% in the language of learning and teaching of the higher education institution, coupled with an achievement rating of 4 (50–59%) or better in four NSC 20-credit subjects together with any other university requirements.

**NC(V)4** applicants must meet the minimum requirements for higher certificate, diploma or degree entry as well as the AS and subject admission requirements.

Applicants with **alternate**, **international** or **foreign** qualifications must satisfy the requirements laid down by the Matriculation Board to qualify for a certificate of exemption for a particular alternate, international or foreign school-leaving qualification. These requirements

are contained in Government Gazette No. 31674, 5 December 2008 and can be found on the HESA website <http://www.hesa-enrol.ac.za/mb/forpres.htm>. Applications for such certificates must be made to the Matriculation board directly: <https://mb.usaf.ac.za/>

### THE APPLICANT SCORE (AS)

For **NSC applicants** with **seven** Grade 12 subjects, the AS is calculated by adding the percentages for the six 20-credit subjects (**Note** that the Life Orientation percentage is not included as it is a 10-credit subject). This gives a score out of 600.

For those applicants taking **eight or more** subjects the AS is calculated as follows:

- add the percentages obtained for the three compulsory / fundamental subjects (the two languages and Mathematics or Mathematical Literacy),
- plus the percentage(s) for any subject(s) required by the programme,
- together with the percentage(s) for the next best / highest subject(s), to a maximum of six subjects.

For those applicants from Quintile 1 to 3 schools who attain 50% or higher for Life Orientation, 7 points are added to their score out of 600 to arrive at their final AS.

The table below provides an example of how to calculate the AS for:

- **Applicant 1** has 7 NSC Grade 12 subjects and is applying for a programme with Life Science and Physical Science as required subjects; and
- **Applicant 2** who is applying for the same programme, but who took 8 subjects in Grade 12.
- **Applicant 3** who is applying for the same programme, but who is from a Quintile 1 school.

NSC Subject	Applicant 1		Applicant 2		Applicant 3 from Quintile 1 school	
	% obtained	% used to calculate the AS	% obtained	% used to calculate the AS	% obtained	% used to calculate the AS
isiXhosa Home Language	78	78	78	78	78	78
English 1st Additional	60	60	60	60	60	60
Mathematics	65	65	65	65	65	65
Life Science	62	62	62	62	62	62
Physical Science	50	50	50	50	50	50
History	-	-	60	60	60	-
Geography	55	55	55	-	55	55
Life Orientation	88	-	88	-	88 LO>50%	7
<b>APPLICANT SCORE (AS)</b>		<b><u>370</u></b>		<b><u>375</u></b>		<b><u>377</u></b>

For **South African and International applicants with International, NC(V) 4 or Foreign School-Leaving certificates**, use the table below to calculate an equivalent Applicant Score (AS) for admission, based on percentages obtained in such certificates.

Applicants will have to comply with the minimum Applicant Score (AS) set for the Undergraduate qualification they wish to apply for, as well as meet any other additional subject requirements directly.

The Applicant Score (AS) uses the symbols/achievement rating/percentages obtained in an applicant's school-leaving examinations in order to convert them to an equivalent achievement standard on the National Senior Certificate (NSC). The AS is calculated using six subjects, which must include the language(s), and subject requirements for admission, but excluding Life Orientation.

**International/Foreign/NC(V) 4 Equivalency Conversion Table**

Subject % to use when calculating the Applicant Score	Senior Cert HG	Senior Cert SG	HIGCSE NSSC HL	IGCSE	O-LEVEL	AS	A-LEVEL	IB HL	IB SL	KCSE	NC(V)4 Fundamental	NC(V)4 Vocational
115							A*, A	7			Use the actual percentages obtained on the statement of results / certificate of the applicant	
105							B	6				
95	A		1			A	C	5	7	A+, A		
85	B		2			B	D	4	6	A-		
75	C	A	3	A	A	C	E	3	5	B+		5 (90-100%)
65	D	B		B	B	D		2	4	B, B-		5 (80-89%)
55	E	C	4	C	C	E		1	3	C+		4 (70-79%)
45	F	D		D	D				2	D		3 (50-69%)
35	FF	E		E	E				1	E		2 (40-49%)
25	G, GG, H	F, FF, G, GG, H		F, G						F, G		1 (0-39%)

**Key:**

NSC	National Senior Certificate	O-Level	Ordinary level
Senior Cert HG	Senior Certificate Higher Grade	AS	Advanced Subsidiary
Senior Cert SG	Senior Certificate Standard Grade	A-Level	Advanced level



HIGCSE	Higher International Graduate Certificate of Secondary Education	IB HL	International Baccalaureate Schools (Higher Levels)
IGCSE	International Graduate Certificate of Secondary Education	IB SL	International Baccalaureate Schools (Standard Levels)
NSSC HL	Namibian Senior Secondary Certificate Higher Levels	KCSE	Kenyan Certificate of Secondary Education
NSSC OL	Namibian Senior Secondary Certificate Ordinary Levels	NC(V)4	National Certificate Vocational Level 4

### **SCHOOL SUBJECT AND OTHER REQUIREMENTS**

The Undergraduate Programmes General Information & Admissions Requirements Guide, University website or Faculty Prospectus provides information on the required subjects and what the minimum AS required for admission is for each undergraduate programme offered by Nelson Mandela University

**Candidates who satisfy the minimum requirements and who apply online before the official early closing date (August 3) are given preference.**

Applications will be considered until the 30<sup>th</sup> of September.

Applicants who apply in January will have to apply through Central Application Service Hub (CASH).

Final acceptance is based on official final school-leaving results. Applicants currently at school receive provisional, subject to submission of final results.

### **NATIONAL BENCHMARK TEST (NBT)**

Generally, most programmes offered at the Nelson Mandela University do not require applicants to write the National Benchmark Test (NBT). However, there are a very small number of qualifications which require NBT results. If under the requirements of the programme you are interested in, states that NBT results are required, please consult the NBT website (<https://www.nbt.ac.za>) to book a test date. Applicants interested in programmes requiring NBT results are encouraged to book and write these tests as early as possible. A reference letter from the University is not required.

## **GENERAL ADMISSION REQUIREMENTS (POSTGRADUATE)**

### **LEVELS AND TYPES OF POSTGRADUATE STUDY**

Postgraduate qualifications are structured as follows:

- Postgraduate certificate or diploma
- Bachelor honours degree
- Master's degree
- Doctoral degree

A **postgraduate certificate or diploma** provides an opportunity to undertake advanced study that will strengthen and deepen your knowledge in a particular discipline or profession. Completion of the qualification gives graduates access to a related master's degree programme. The programmes consist mainly of coursework modules and may include conducting and reporting research under supervision.

Duration of study: one year full-time

The bachelor **honours degree** is the initial postgraduate specialisation qualification, preparing students for research-based postgraduate study. This qualification typically follows a bachelor's degree and serves to consolidate and deepen the student's experience in a particular discipline, and to develop research capacity in the methodology and techniques of that discipline. It demands a high level of theoretical engagement and intellectual independence. In some cases, a bachelor honours degree carries recognition by an appropriate professional or statutory body. Bachelor honours degree programmes usually include conducting and reporting research under supervision, in a manner that is appropriate to the discipline or field of study. Not all honours programmes at Nelson Mandela University involve conducting research, but all of them include a research methodology course as part of the coursework component. Completion of a bachelor honours degree meets the minimum entry requirement of admission to a cognate Master's degree. Entry into a master's degree programme is usually in the area of specialisation of the bachelor honours degree. A qualification may not be awarded for early exit from a bachelor honours degree.

Bachelor honours programmes usually take one year of full-time study.

A **master's degree** may be earned in one of two ways: (i) by completing a single advanced research project, culminating in the production and acceptance of a dissertation, or (ii) by successfully completing a coursework programme and a smaller applied research component. The admission requirement is a relevant honours degree. Professional or advanced career-focused bachelor's degrees, such as BEng, BPharm, BCur, BPsych, may also be recognised as the minimum entry requirement to a related master's degree programme. Duration of study: Coursework master's degree: one year full-time. Research master's degree: one year to 4 years.

A **doctoral degree** requires a candidate to undertake research at the most advanced academic level, culminating in the production of a thesis. The research outcome has to make a significant and original academic contribution to a discipline or field. The degree may be earned through pure discipline based on multi-disciplinary or applied research. The degree may include a coursework component as preparation to the research, but does not contribute to the credit value of the qualification. Duration of study: 2 to 6 years

## RE-ADMISSION REQUIREMENTS FOR UNDERGRADUATE PROGRAMMES

The purpose of **Policy on Academic Progression and Readmission to Undergraduate Programmes** is to indicate both the process by which Senate determines readmission

requirements and who has the authority to refuse readmission to a student who fails to satisfy such minimum requirements for admission.

The policy furthermore addresses the importance of reviewing student progress, where a student can obtain information on readmission requirements, the support afforded to students with conditional readmission, and the process to be followed to appeal a readmission refusal decision.

Nelson Mandela University upholds academic excellence in its endeavour to equip students with transformative and sustainable graduate attributes. Among the principles underpinning learning at the University is that lecturers have high expectations that students will succeed in their studies. Academic progression can be viewed as persistence and motivation to achieve a mark of 50% or more in the modules enrolled for. It is the responsibility of lecturers, professional academic support staff, and students to co-create learning experiences that promote excellence and foster student success.

Furthermore, in accordance with sound educational practices related to enhancing academic success, procedures need to be in place to regularly review the academic progress of students. Monitoring students' academic performance, psycho-social status and possible aggravating factors on an ongoing basis is a key strategy to enhance student success and throughput.

Each Faculty Board must thus approve a process to review the performance of students at a module and/or programme level in their Faculty, submit the process to the Learning and Teaching Committee for approval, and monitor the implementation of the review process.

Minimum requirements for readmission must be determined by faculties, submitted for approval to Senate and published in the faculty prospectus where applicable.

The following general principles will apply:

- Faculties should consider not only a level (i.e., number of credits accumulated per year of registration), but also a range in which conditional readmission will apply;
- Faculties should have the discretion to determine the minimum credit value for readmission to a particular programme;
- Where the maximum study period has been reached, but a student is close to graduating in that he/she only requires a few credits to graduate, the Faculty should have clear criteria in place to apply discretion to readmit the student;
- Faculties should have the discretion to deal with possible exceptions.

### **Process to determine if readmission requirements have been met and to refuse readmission**

The following process must be followed when reaching a decision whether the readmission requirements have been met:

- The performance of all students registered for a programme in a faculty must be reviewed against the readmission requirements.
- Unless the Faculty Board decides otherwise, this review will normally take place at the end of an academic year.
- Students who have not yet reached the maximum years of study for their programme must be notified by Faculty Academic Administration if they have been readmitted as they met their requirements or if they have been conditionally readmitted and what the conditions are.
- The Head of Department/Director of School/Executive Dean has the delegated authority to refuse the readmission of students who have reached the maximum year of study for their qualification but did not manage to complete the qualification.
- The Head of Department/Director of School in collaboration with Faculty Academic

Administration must convey the fact that readmission has been refused and the reasons for this must be attached to the Student Record.

- The Head of Department/Director of School must be able to provide the detailed information that informed the decision, should the decision to refuse readmission be appealed.
- A student who has been refused readmission can appeal.

### **Appeal procedure**

- The student has the right to appeal against a decision to refuse readmission.
- The appeal will normally be handled by the Faculty Management Committee, unless the Faculty Board determines that another faculty committee must consider the appeal. In the latter instance, the Faculty Board must determine the composition of the committee. The decision reached by the appropriate faculty committee regarding the readmission appeal will be final and no further appeal will be permitted.
- The process followed to apply for, consider and deal with a readmission appeal is as follows:
  - A student must submit their appeal in writing on a prescribed readmission appeal form, with full motivation and supporting documentation, to their Faculty Academic Administration Consultant by either the last day of the re-examination period or within five (5) working days of receiving notification of readmission refusal, whichever date is the latest.
  - Faculty Academic Administration must forward the appeal, together with a copy of the student's study record and the letter in which the student was informed that he/she was being refused readmission, to the Faculty Management Committee.
  - The Faculty Management Committee or the committee identified by the faculty to do so will then handle the appeal where consideration could be given to factors such as:
    - Whether the student participated in programmes and activities to enhance their academic progress.
    - Whether there are any special circumstances related to the student's unsatisfactory academic performance that should be taken into account and which could mitigate against refusing readmission.
  - A statement of the outcome of the appeal and a motivation for the decision reached must be communicated to and placed on the student's record by Faculty Academic Administration.

### **Maximum period of study exceeded**

In the event that a student exceeds the maximum allowable period of study, the student will only be readmitted under special circumstances (e.g. when the student, with due consideration of his/her academic record, is likely to complete his/her qualification by the end of the year).

### **Full time:**

The following maximum periods of study are allowed for full-time students:

<b>Programme Credits</b>	<b>Minimum Period of Study</b>	<b>Maximum Period of Study</b>
120 credits	1 year	2 years
360+ credits	3 years	5 years
480+ credits	4 years	6 years

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**Full time Extended Programmes:**

The following maximum periods of study are allowed for full-time students in extended programmes:

<b>Programme Credits</b>	<b>Minimum Period of Study</b>	<b>Maximum Period of Study</b>
120 credits	2 years	3 years
360+ credits	4 years	6 years
480+ credits	5 years	7 years

**Part Time:**

The following maximum periods of study are used as a guideline for part-time students taking due cognisance of personal circumstances:

<b>Programme Credits</b>	<b>Minimum Period of Study</b>	<b>Maximum Period of Study</b>
120 credits	2 years	3 years
360+ credits	4 years	7 years
480+ credits	6 years	8 years

**Progress-based readmission criteria****Full time students**

The following template serves as an example to be used by faculties for full time students:

<b>Period of Registration</b>	<b>3-year programme (360+ credits)</b>		<b>4-year programme (480+ credits)</b>	
	<b>Readmit</b>	<b>Conditional Readmission</b>	<b>Readmit</b>	<b>Conditional Readmission</b>
<b>After 1 year</b>	<b>*72+</b>	<b>≤72</b>	<b>80+</b>	<b>≤80</b>
<b>After 2 years</b>	<b>144+</b>	<b>≤143</b>	<b>160+</b>	<b>≤159</b>
<b>After 3 years</b>	<b>216+</b>	<b>≤215</b>	<b>240+</b>	<b>≤239</b>
<b>After 4 years</b>	<b>288+</b>	<b>≤287</b>	<b>320+</b>	<b>≤319</b>
<b>After 5 years</b>	<b>Refuse readmission, unless special circumstances</b>		<b>400+</b>	<b>≤399</b>
<b>After 6 years</b>			<b>Refuse readmission, unless special circumstances</b>	

(\*Note: The credit values indicated serve as a guideline only).

**Full time students in extended programmes<sup>#</sup>**

The following template serves as an example to be used by faculties for full time students in extended programmes:

Period of Registration	3-year programme(360+ credits)		4-year programme(480+ credits)	
	Readmit	Conditional Readmission	Readmit	Conditional Readmission
After 1 year	*45+	≤45	45+	≤45
After 2 years	72+	≤71	80+	≤79
After 3 years	144+	≤143	160+	≤159
After 4 years	216+	≤215	240+	≤239
After 5 years	288+	≤287	320+	≤319
After 6 years	Refuse readmission, unless special circumstances		400+	≤399
After 7 years			Refuse readmission, unless special circumstances	

(\*Note: The credit values indicated serve as a guideline only)

(#Note: Students that have not completed the foundational modules after the third year of study will be refused readmission to the same programme.)

#### Part time students

The following template serves as an example to be used by faculties for part time students:

Period of Registration	3-year programme(360+ credits)		4-year programme(480+ credits)	
	Readmit	Conditional Readmission	Readmit	Conditional Readmission
After 1 year	*44+	≤44	48+	≤47
After 2 years	90+	≤89	96+	≤95
After 3 years	135+	≤134	144+	≤143
After 4 years	180+	≤179	192+	≤191
After 5 years	225+	≤224	240+	≤239
After 6 years	270+	≤269	288+	≤287
After 7 years	315+	≤314	336+	≤335
After 8 years	Refuse readmission, unless special circumstances		384+	≤383
After 9 years			432+	≤431
After 10 years			Refuse readmission unless special circumstances	

(\*Note: The credit values indicated serve as a guideline only)

## FACULTY MANAGEMENT COMMITTEE

The Faculty Management Committee consists of the Dean, the Deputy Dean, and the Directors of Clusters in the Faculty of Science.

## EXPERIENTIAL LEARNING REQUIREMENTS

To fulfil the requirements of the National Diploma, a student must complete at least one semester of applicable experiential learning.

Guides outlining the requirements for successful completion of experiential learning are obtainable from the relevant Department. In each module, the student is given projects and/or assignments which must be completed and submitted for evaluation.

It is imperative for students to register for the experiential learning component. This can be done at the beginning of the term or prior to leaving the campus at the end of the preceding term. Special registration forms for this purpose are obtainable from the Faculty Administrator.

Although Nelson Mandela University will help as far as possible to arrange practical learning, in the final instance the onus in this respect will be on the student. Many firms sponsor students, and, in these cases, the experiential learning is naturally arranged by the sponsoring firm.

## CLASS ATTENDANCE

### Minimum Attendance

Due to the practical nature of the classes offered, students have to attend a minimum of 80% of lectures to gain admission to the examination, unless special leave is granted.

### Absenteeism

The following rules apply in particular to the students of this Faculty:

1. Students who fail to attend lectures, need to supply their lecturers with reasons for their absence. This should be done before (if possible) or within three (3) days of the date of absenteeism.
2. If students have valid reasons, they should put it in writing. The relevant lecturers will keep it on the student's record for consideration when applying the 80% attendance criterion. In the case of illness, an official Nelson Mandela University medical certificate is required and submitted within three days of their return to the relevant Head of Department/lecturer.

If students do not write a test, submit a project, etc. as a result of absenteeism, and have not followed rules (1) and (2), they will be given a nil for that particular exercise. If a student has a valid reason for his/her absenteeism and has followed the correct procedure, lecturers may use their discretion.

## DEPARTMENT OF COMPUTING SCIENCES

### **GENERAL RULES**

A series of tutorial and programming assignments will form part of the modules offered by the Department. Students must show satisfactory progress with these assignments during scheduled practical sessions in venues designated by the University. Part-time candidates who have access to approved computer facilities may apply for exemption from practical classes at the University on condition that the practical assignments and projects are performed satisfactorily. A subminimum of 40% is required for the class mark, as well as a subminimum of 40% for the examination in each module. In the case of insufficient computer facilities, the Department reserves the right to select students.

### **WRFV101/WRFV1X0 Exemption**

Students who have passed CAT in Grade 12 with a final mark of at least 80% receive automatic exemption from WRFV101/WRFV1X0.

### **COMPETENCY TESTS**

Competency Tests can be applied for to test whether a candidate can be exempted from modules WRFV1X0/WRFV101/102 and WRAV101/102. Refer to the exemption rules in the Prospectus.

## STATEMENT ON THE UNIVERSITY'S INTERVENTION IN THE EVENT OF POSSIBLE DISRUPTIONS TO ACADEMIC ACTIVITIES

From past experience the University knows that circumstances beyond our control may disrupt our academic activities. The University therefore reserves the right to implement certain emergency measures when deemed necessary to manage such situations. Please note that the University shall not be held liable for any inconvenience, damage or other negative consequence resulting from the implementation of such emergency measures.

## CERTIFICATES



## HIGHER CERTIFICATE IN VELD FIRE MANAGEMENT (NO NEW INTAKE) (QUALIFICATION PHASED OUT IN 2023)

<b>Qualification code:</b>	80001
<b>Offering:</b>	Full-time George Campus (02) <b>OR</b> Part-time George Campus (20)
<b>Aligned NQF Level:</b>	5
<b>Total NQF Credits for qualification:</b>	124

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for higher certificate entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 310.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 325.
- An NSC achievement rating of at least 35% for Mathematics or Technical Mathematics or 55% for Mathematical Literacy.

### **RE-ADMISSION REQUIREMENTS**

Students will be considered for re-admission if they passed more than 50% of the modules during the previous year.

### **DURATION**

The qualification shall extend over one year (full-time) or two years (if attended on a block-release basis).

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Principles of Veldfire Management	Semester 1	FPM1001	15
Veldfire Legislation	Semester 1	FPL1001	6
Urban Interface Management	Semester 1	FUM1001	7
Financial Management Principles	Semester 1	FML1001	8
Veldfire Management Engineering	Semester 1	FVT1001	7
Veldfire Suppression	Semester 1	FVS1001	11
Human Resource Management A	Semester 2	FHR1001	8
Human Resource Management B	Semester 1	FHR2002	8
Fire Ecology and Conservation	Semester 2	FEC1002	12
Incident Command	Semester 2	FIC1002	13
Integrated Fire Management	Semester 2	FIF1002	13
Fuel Management Techniques	Semester 2	FFT1002	7

		Presented	Module Code	Credit Value
	Fire Management Planning	Semester 2	FMF1002	9
	<b>Total Credits</b>			<b>124</b>

## EXTENDED QUALIFICATIONS

### DIPLOMA IN AGRICULTURAL MANAGEMENT (EXTENDED) (NO NEW INTAKE) (QUALIFICATION PHASED OUT IN 2023)

<b>Qualification code:</b>	2062
<b>Offering:</b>	Full-time George Campus (83)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	355

#### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

#### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 310.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 325.
- NSC achievement rating of at least 35% for Mathematics or Technical Mathematics or 55% for Mathematical Literacy.
- NSC achievement rating of at least 45% for Life Sciences OR 35% for Physical Sciences or Technical Science OR 50% for Agricultural Sciences.
- Admission is subject to Departmental selection.

#### **STATUTORY AND OTHER REQUIREMENTS**

*Additional requirement:*

The modules with zero credit values are compulsory. Students have to pass these modules before the qualification will be awarded.

*English Proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject English B before graduating.*

No student registered on the Extended Programme will be allowed to register for any 2<sup>nd</sup> level subjects, unless he/she has passed all the non-credit-bearing subjects (Communication in English B, Numeric Calculations, Basic Science and Life Skills).

**Experiential training:**

Please note that the 2<sup>nd</sup> semester of the 3<sup>rd</sup> year and the 1<sup>st</sup> semester of the 4<sup>th</sup> year is experiential training (practical work experience) that consists of four subjects: Agricultural Practice IIIA, Agricultural Production Techniques II, Agricultural Practice IIIB, and Agricultural Production Management II.

Students will not be allowed to go on experiential training unless they have passed Agricultural Management I, II and IIIA, Plant Production I, II and IIIA or Animal Production I, II and IIIA.

Students are responsible for finding their own placement for experiential training for the year; this may not be done in the students' family business.

**DURATION**

The qualification shall extend over four years of full-time study.

**CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Communication in English B	Year	BKI1130	0
	Basic Science	Year	EBS1110	0
	Numeric Calculations	Year	MNU11X0	0
	Life Skills	Year	GLS1110	0
	Agricultural Law I Module A	Semester 1	SAL1001	12
	Agricultural Law I Module B	Semester 2	SAL1002	12
	Computer Skills I	Semester 1	SCC1001	5
	Pasture Science I	Semester 2	SPS1002	10
	<b>Credits First Year</b>			<b>39</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Animal Production I	Semester 1	SAP1001	10
	Animal Production II	Semester 2	SAP2002	10
	Agricultural Management I	Semester 1	SGM1001	10
	Agricultural Management II	Semester 2	SGM2002	10
	Plant Production I	Semester 1	SPP1001	10
	Plant Production II	Semester 2	SPP2002	10
	Soil Classification	Semester 2	SSC2002	10
	Agricultural Soil Science I	Semester 1	SSS1001	10
	<b>Credits Second Year</b>			<b>80</b>

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Computer Applications: Agriculture	Semester 1	SCA2001	10
	Agricultural Engineering: Module IA	Semester 1	SGE1001	12
	Agricultural Management IIIA (major)	Semester 1	SGM3011	12
	Agricultural Practice IIIA (Experiential Training)	Semester 2	SLP3002	48
	Agricultural Production Techniques II (Experiential Training)	Semester 2	SLT2002	12
	Personnel Management Module IA	Semester 1	SMA1001	12
<b>Select one or both of the following modules:</b>				
	Animal Production IIIA	Semester 1	SAP3001	12
	Plant Production IIIA	Semester 1	SPP3001	12
	<b>Credits Third Year</b>			<b>118</b>
<b>Fourth Year</b>				
<b>Compulsory modules:</b>				
	Agricultural Engineering Module IB	Semester 2	SGE1002	12
	Agricultural Management Module IIIB (major)	Semester 2	SGM3002	12
	Agricultural Practice IIIB (Experiential Training)	Semester 1	SLP3001	48
	Agricultural Production Management II (Experiential Training)	Semester 1	SLB2001	12
	Personnel Management: Agriculture Module IB	Semester 2	SMA1002	12
	Production and Operational Techniques I	Semester 2	SPO1002	10
<b>Select one or both of the following modules:</b>				
	Animal Production IIIB	Semester 2	SAP3002	12
	Plant Production IIIB	Semester 2	SPP3002	12
	<b>Credits Fourth Year</b>			<b>118</b>
	<b>Total Credits</b>			<b>379</b>

## DIPLOMA IN AGRICULTURAL MANAGEMENT

<b>Qualification code:</b>	2065
<b>Offering:</b>	Full-time George Campus (02)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	379

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 330.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 345.
- NSC achievement rating of at least level 40% for Mathematics or Technical Mathematics or 60% for Mathematical Literacy.
- NSC achievement rating of at least 50% for Life Sciences OR 40% for Physical Sciences or Technical Science OR 55% for Agricultural Sciences.
- Admission is subject to Departmental selection.

### **STATUTORY AND OTHER REQUIREMENTS**

The modules with zero credit values are compulsory. Students have to pass these modules before the qualification will be awarded.

#### *English Proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject English B before graduating.*

No student registered on the Extended Programme will be allowed to register for any 2<sup>nd</sup> level subjects, unless he/she has passed all the non-credit-bearing subjects (Communication in English B, Numeric Calculations, Basic Science and Life Skills).

#### *Experiential training:*

Please note that the 2<sup>nd</sup> semester of the 2<sup>nd</sup> year and the 1<sup>st</sup> semester of the 3<sup>rd</sup> year is experiential training (practical work experience) that consists of four subjects: Agricultural Practice IIIA, Agricultural Production Techniques II, Agricultural Practice IIIB, and Agricultural Production Management II.

Students will not be allowed to go on experiential training unless they have passed Agricultural Management I, II and IIIA, Plant Production I, II and IIIA or Animal Production I, II and IIIA.

Students are responsible for finding their own placement for experiential training for the year; this may not be done in the students' family business.

### **DURATION**

The qualification shall extend over three years of full-time study.

### **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Agricultural Law I Module A	Semester 1	SAL1001	12
	Agricultural Law I Module B	Semester 2	SAL1002	12

		Presented	Module Code	Credit Value
	Animal Production I	Semester 1	SAP1001	10
	Animal Production II	Semester 2	SAP2002	10
	Computer Skills I	Semester 1	SCC1001	5
	Agricultural Management I	Semester 1	SGM1001	10
	Agricultural Management II	Semester 2	SGM2002	10
	Plant Production I	Semester 1	SPP1001	10
	Plant Production II	Semester 2	SPP2002	10
	Pasture Science I	Semester 2	SPS1002	10
	Soil Classification II	Semester 2	SSC2002	10
	Agricultural Soil Science I	Semester 1	SSS1001	10
	<b>Credits First Year</b>			<b>119</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Computer Applications: Agriculture	Semester 1	SCA2001	10
	Agricultural Engineering: Module IA	Semester 1	SGE1001	12
	Agricultural Management IIIA (major)	Semester 1	SGM3011	12
	Agricultural Practice IIIA (Experiential Training)	Semester 2	SLP3002	48
	Agricultural Production Techniques II (Experiential Training)	Semester 2	SLT2002	12
	Personnel Management Module IA	Semester 1	SMA1001	12
<b>Select one or both of the following modules:</b>				
	Animal Production IIIA	Semester 1	SAP3001	12
	Plant Production IIIA	Semester 1	SPP3001	12
	<b>Credits Second Year</b>			<b>118</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Agricultural Engineering Module IB	Semester 2	SGE1002	12
	Agricultural Management Module IIIB (major)	Semester 2	SGM3002	12
	Agricultural Practice IIIB (Experiential Training)	Semester 1	SLP3001	48
	Agricultural Production Management II (Experiential Training)	Semester 1	SLB2001	12
	Personnel Management: Agriculture Module IB	Semester 2	SMA1002	12
	Production and Operational Techniques I	Semester 2	SPO1002	10
<b>Select one or both of the following modules:</b>				
	Animal Production IIIB	Semester 2	SAP3002	12
	Plant Production IIIB	Semester 2	SPP3002	12
	<b>Credits Third Year</b>			<b>118</b>
	<b>Total Credits</b>			<b>379</b>

## DIPLOMA IN AGRICULTURAL MANAGEMENT

<b>Qualification code:</b>	2061
<b>Offering:</b>	Full-time North Campus (01)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	355

### *THE PURPOSE OF THE LEARNING PROGRAMME*

**This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).**

### *ADMISSION REQUIREMENTS*

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 330.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 345.
- NSC achievement rating of at least level 40% for Mathematics or Technical Mathematics or 60% for Mathematical Literacy.
- NSC achievement rating of at least 50% for Life Sciences OR 40% for Physical Sciences or Technical Science OR 55% for Agricultural Sciences.

### **STATUTORY AND OTHER REQUIREMENTS**

Students will not be allowed to register for more than 120 credits per year.

The following guidelines will apply:

- A student will not normally be allowed to proceed with new subjects if he/she has failed three or more subjects in the previous exam.
- A student, who progresses at an unacceptable rate, may be refused further registration on grounds of poor academic performance. Such students may be referred to Student Counselling for consultation and evaluation.
- If a student fails the same subject three times, he is normally not allowed further registration on grounds of poor academic performance.
- A student undergoing experiential training in the practical year must pass:
  - all the assignments;
  - the oral examination at the end of the practical year.

### *Experiential training requirements:*

To fulfil the requirements of the Diploma a student must complete at least one year of applicable experiential training. In the curriculum, the experiential training is treated as three modules called **Agricultural Production Management II**, **Agricultural Production Techniques II** and **Agricultural Practice III**.

Students may undergo practical training on their parents' farms, other appropriate farms or with companies and institutions involved in the agricultural sector. Although Nelson Mandela University will as far as possible try to assist students with finding employment, in the final instance the onus to obtain suitable employment will be on the student.

## DURATION

The Diploma is a three-year full-time qualification of which two years are spent at Nelson Mandela University and one year in practice undergoing experiential training.

## CURRICULUM (Full-time)

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Animal Production I	Semester 1	AAP1001	10
Animal Production II	Semester 2	AAP2002	10
Agricultural Management I	Semester 1	AGM1001	10
Agricultural Management II	Semester 2	AGM2002	10
Production and Operational Techniques I	Semester 1	APO1001	10
Plant Production I	Semester 1	APP1001	10
Plant Production II	Semester 2	APP2002	10
Pasture Science I	Semester 2	APS1002	10
Soil Classification II	Semester 2	ASC2002	10
Agricultural Soil Science I	Semester 1	ASS1001	10
Computer Skills I	Semester 1	ITC1001	5
Computer Applications: Agriculture II	Semester 2	ITA2002	10
<b>Credits First Year</b>			<b>115</b>
<b>Second Year</b>			
<b>Compulsory modules:</b>			
<b>Agricultural Engineering I</b>			
Module A	Semester 1	AGE1001	12
Module B	Semester 2	AGE1002	12
Agricultural Management III ( <i>Major</i> )	Year	AGM3000	24
<b>Agricultural Law I</b>			
Commercial Law - General Principles of Contract	Semester 1	JHT1221	12
Labour Law and Capita Selecta	Semester 2	JLA1002	12
<b>Personnel Management I (Agriculture)</b>			
Personnel Management	Year	AMA1010	18
Communication	Semester 1	AMA1001	6
<b>Select one of the following modules:</b>			
Animal Production III (option) ( <i>Major</i> )	Year	AAP3000	24
Plant Production III (option) ( <i>Major</i> )	Year	APP3000	24
<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>			
<b>Compulsory modules:</b>			



		Presented	Module Code	Credit Value
	Agricultural Practice III	Year	APE3000	96
	Agricultural Production Management II	Year	APM2000	12
	Agricultural Production Techniques II	Year	APT2000	12
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>355</b>

### ***CURRICULUM MODULE REQUISITES***

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Agricultural Management II	AGM2002	AGM1001	
Agricultural Management III	AGM3000	AGM2002	
Plant Production II	APP2002	APP1001	
Plant Production III	APP3000	APP2002	
Animal Production II	AAP2002	AAP1001	
Animal Production III	AAP3000	AAP2002	
Soil Classification II	ASC2002	ASS1001	
Computer Application (Agric) II	ITA2002	ITC1001	
Agricultural Production Management II	APM2000	AGM3000 and JLA1002 and AMA1001 and AMA1010	
Agricultural Production Techniques II	APT2000	APP3000 or AAP3000 and APS1002	

## **DIPLOMA IN ANALYTICAL CHEMISTRY**

<b>Qualification code:</b>	2153
<b>Offering:</b>	Full-time North Campus (01)
<b>Non-aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

- Minimum NSC requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 350.
- NSC achievement rating of at least 55% for Mathematics.

- NSC achievement rating of at least 50% for Physical Sciences.

### **STATUTORY AND OTHER REQUIREMENTS**

Candidates are required to complete their IST in a chemistry-related industry (approved by the programme co-ordinator) for a minimum period of 12 months. Under special circumstances, candidates may apply to the program co-ordinator to consider an IST period of 11 months.

NB - Students can change registration from the Diploma in Polymer Technology (2235) to the Diploma in Analytical Chemistry (2153) after the first six months of study, subject to submission, with Faculty Administration Office, of application to change qualification, and space availability.

### **DURATION**

Two years of full-time study at Nelson Mandela University followed by one-year in-service training in a suitable laboratory, which includes Chemical Industry Practical and Chemistry Project.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
Analytical Chemistry 1	Semester 1	CHA1011	20
General Chemistry 1	Semester 1	GCC1121	15
Computer Skills 1	Semester 1 or semester 2	ITC1011 or ITC1012	10
Introductory Physics A	Semester 1	MFS1211	7
Mathematics	Year	MAT1000	15
Academic and Professional Skills 1	Year	OPS1100	10
Analytical Chemistry 2	Semester 2	CHA2012	20
Inorganic Chemistry 2	Semester 2	CHI2102	7
Organic Chemistry 2	Semester 2	CHO2102	10
Physical Chemistry 2	Semester 2	CHP2012	10
Introduction to Physics B	Semester 2	MFS1222	7
<b>Credit First Year</b>			<b>131</b>
<b>Second Year</b>			
<b>Compulsory modules:</b>			
Analytical Chemistry 3A	Semester 1	CHA3021	10
Analytical Chemistry 3A Practical	Semester 1	CHA3031	10
Inorganic Chemistry 3A	Semester 1	CHI3011	10
Organic Chemistry 3A	Semester 1	CHO3011	10
Physical Chemistry 3A	Semester 1	CHP3011	8
Statistics for Analytical chemists	Semester 1	STA3001	5
Computer Skills for Analytical Chemists 2	Semester 1	ITC2011	5

		Presented	Module Code	Credit Value
	Analytical Chemistry 3B	Semester 2	CHA3022	10
	Analytical Chemistry 3B Practical	Semester 2	CHA3032	10
	Inorganic Chemistry 3B	Semester 2	CHI3012	8
	Organic Chemistry 3B	Semester 2	CHO3012	8
	Physical Chemistry 3B	Semester 2	CHP3012	10
	Mathematics 2	Semester 2	MAT2202	10
	Introduction to Quality Assurance	Semester 2	CHQ3012	5
	<b>Credits Second Year</b>			<b>119</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Chemical Industry Practice	Year	CIP3000	110
	<b>Credits Third Year</b>			<b>110</b>
	<b>Total Credits</b>			<b>360</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Analytical Chemistry 1	CHA1011		GCC1121
Analytical Chemistry 2	CHA2012	CHA1011 and GCC1121 (40%)	
Inorganic Chemistry 2	CHI2102	GCC1121	
Organic Chemistry 2	CHO2102	GCC1121	
Physical Chemistry 2	CHP2012	GCC1121	
Analytical Chemistry 3A	CHA3021	CHA2012	CHA3031
Analytical Chemistry 3A Practical	CHA3031	CHA2012	CHA3021
Inorganic Chemistry 3A	CHI3011	CHI2102	
Physical Chemistry 3A	CHP3011	CHP2012	
Organic Chemistry 3A	CHO3011	CHO2102	
Computer Skills for Analytical Chemistry 2	ITC2011	ITC1011 or ITC1012	
Statistics for Analytical Chemistry	STA3001	MAT1000	
Analytical Chemistry 3B	CHA3022	CHA2012	CHA3032
Analytical Chemistry 3B Practical	CHA3032	CHA2012	CHA3022

Module	Code	Pre-requisites	Co-requisites
Inorganic Chemistry 3B	CHI3012	CHI2102	
Organic Chemistry 3B	CHO3012	CHO2102	
Physical Chemistry 3B	CHP3012	CHP2012	
Mathematics 2	MAT2202	MAT1000	
Chemical Industry Practice	CIP3000	CHA3021 and CHA3031 and CHA3022 and CHA3032 and CHI3011 and CHI3012 and CHO3011 and CHO3012 and CHP3011 and CHP3012	

## DIPLOMA IN CHEMICAL PROCESS TECHNOLOGY

<b>Qualification code:</b>	3182
<b>Offering:</b>	Full-time North Campus (01)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	361

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 requires a minimum Applicant Score of 350.
- NSC achievement rating of at least 55% for Mathematics.
- NSC achievement rating of at least 50% for Physical Sciences.

### **STATUTORY AND OTHER REQUIREMENTS**

Please note that, due to health and safety reasons, the chemical industry screens prospective employees for a medical history of asthma or lung diseases. Do not consider the programme if you have had any previous medical illness like asthma or lung diseases.

### **DURATION**

The qualification shall extend over a minimum of three years of full-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			

		Presented	Module Code	Credit Value
<b>Compulsory modules:</b>				
	Mathematics I	Year	MAT1000	15
	General Chemistry	Semester 1	GCC1121	15
	Inorganic Chemistry 2	Semester 2	CHI2102	7
	Organic Chemistry 2	Semester 2	CHO2102	10
	Introductory Physics A	Semester 1	MFS1211	7
	Introductory Physics B	Semester 2	MFS1222	7
	Computer Skills I	Semester 1 or semester 2	ITC1011 or ITC1012	10
	Academic and Professional Skills I	Year	OPS1100	10
	Introduction to process technology	Semester 1	GPT1111	20
	Basic process technology	Semester 2	GPT1112	20
	<b>Credits First Year</b>			<b>121</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Quality Assurance and Plant Performance	Semester 1	CQA2101	15
	Applied Computing II	Semester 1	CCP2101	15
	Physical process chemistry	Semester 1	CPI2011	15
	Routes to chemicals	Semester 2	CPI2012	15
	Process Equipment and operation	Semester 1	GPT2111	20
	Process control	Semester 2	GPT2112	20
	Chemical Process Technology Laboratory II	Year	GPT2220	20
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Chemical Process Technology Practice	Semester 2	GPP3102	60
	Chemical Process Technology III	Semester 1	GPT3102	20
	Process Chemistry III	Semester 1	CPI3011	20
	Chemical Process Technology Lab III	Semester 1	GPL3101	20
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>361</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Inorganic Chemistry 2	CHI2102	GCC1121	
Organic Chemistry 2	CHO2102	GCC1121	
Physical process chemistry	CPI2011	CHI2102 <b>and</b> CHO2102	
Routes to chemicals	CPI2012	CHI2102 <b>and</b> CHO2102	
Process Equipment and operation	GPT2111	GPT1111 <b>and</b> GPT1112	
Process control	GPT2112	GPT1111 <b>and</b> GPT1112	
Chemical Process Technology Laboratory II	GPT2220	GPT1111 <b>and</b> GPT1112 <b>and</b> CHO2102	
Chemical Process Technology Practice	GPP3102	GPT3102 <b>and</b> CPI3011 <b>and</b> GPL3101	
Chemical Process Technology III	GPT3102	GPT2111 <b>and</b> GPT2112	
Process Chemistry III	CPI3011	CPI2011 <b>and</b> CPI2012	
Chemical Process Technology Lab III	GPL3101	GPT2220	

## DIPLOMA IN FORESTRY (EXTENDED) (NO NEW INTAKE) (QUALIFICATION PHASED OUT IN 2023)

<b>Qualification code:</b>	2906
<b>Offering:</b>	Full-time George Campus (83)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	296

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

- Minimum NSC statutory requirements for diplomas entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 310.

- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 325.
- NSC achievement rating of at least 35% for Mathematics or Technical Mathematics or 55% for Mathematical Literacy

### **STATUTORY AND OTHER REQUIREMENTS**

The modules with zero credit values are compulsory. Students have to pass these modules before the qualification will be awarded.

#### *English Proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject English B before graduating.*

No student registered on the Extended Programme will be allowed to register for any 2<sup>nd</sup> level subjects, unless he/she has passed all the non-credit-bearing subjects (Communication in English B, Numeric Calculations, Basic Science and Life Skills).

#### *Experiential Training:*

Students arriving back from experiential training have to hand in reports and logbooks 2 weeks after classes commence for the new academic year. All reports, logbooks and presentations have to be concluded at the end of the 1<sup>st</sup> semester. Students who don't meet this deadline has to register for the experiential training again the following year and will qualify for their diploma a year later. Students who register for their experiential training a 2<sup>nd</sup> time, can only score a maximum of 50% if they pass a 2<sup>nd</sup> evaluation.

### **FPA1131 (FOREST PRACTICE I)**

Assessment criteria:

- Students have to attend all courses.
- Students have to pass all course assessments.

Failure to comply with the above criteria will disqualify students from passing Forest Practice I and students will have to repeat the course to satisfaction.

### **DURATION**

The qualification shall extend over four years of full-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Communication in English B	Year	BK11130	0
	Basic Science	Year	EBS1110	0
	Numeric Calculations	Year	MNU11X0	0
	Cost and Management Accounting I	Semester 2	FAA1132	10
	Computer Usage I	Semester 1	FCR1121	10
	Forest Botany I	Semester 1	FBO1121	10
	Human Resource Management I	Semester 2	FMR1122	10

		Presented	Module Code	Credit Value
	Life Skills	Year	GLS1110	0
	<b>Credits First Year</b>			<b>40</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Forest Ecology I	Semester 1	FCN1001	10
	Forest Engineering I	Semester 1	FEP1001	10
	Forest Engineering II	Semester 2	FEP2002	10
	Forest Management I	Semester 2	FMN1122	10
	Environmental Management	Semester 2	FMV2002	10
	Fire Management I	Semester 1	FPR1001	10
	Silviculture I	Semester 1	FSI1121	10
	Silviculture II	Semester 2	FSI2222	10
	<b>Credits Second Year</b>			<b>80</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Forest Practice I	Semester 1	FPA1131	60
	Forest Practice II	Semester 2	FPA2222	60
	<b>Credits Third Year</b>			<b>120</b>
<b>Fourth Year</b>				
<b>Compulsory modules:</b>				
	Cost and Management Accounting II	Semester 2	FAA2002	10
	Forest Engineering III	Semester 2	FEP3002	12
	Forestry Finances II	Semester 1	FFI2002	10
	Forest Management III (major)	Semester 2	FMN3222	12
	Human Resource Management II	Semester 2	FMR2222	10
	Forest Economics II	Semester 1	FOE2001	10
	Forestry Law	Semester 1	FOL2001	10
	Forest Protection II	Semester 1	FPD2001	10
	Fire Management II	Semester 2	FPR2002	10
	Silviculture III	Semester 1	FSI3321	12
	Forest Mensuration II	Semester 1	FSM2121	10
	Forest Utilisation II	Semester 1	FUT2001	10
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>240</b>



# DIPLOMA IN FORESTRY

Qualification code:	2905
Offering:	Full-time George Campus (02)
Non-aligned NQF Level:	6
Total NQF Credits for qualification:	360

## **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

## **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 330.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 345.
  - NSC achievement rating of at least 40% for Mathematics or Technical Mathematics or 60% for Mathematical Literacy.

## **STATUTORY AND OTHER REQUIREMENTS**

### *English proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject Communication in English B before graduating.*

### *Experiential Training*

Students arriving back from experiential training have to hand in reports and logbooks 2 weeks after classes commence for the new academic year. All reports, logbooks and presentations have to be concluded at the end of the 1<sup>st</sup> semester.

Students who don't meet this deadline have to register for the experiential training again the following year and will qualify for their diploma a year later. Students who fail their experiential training assessments will get the opportunity for a re-assessment but can only score a maximum of 50% if they pass the 2nd assessment.

## **FPA1131 (FOREST PRACTICE I)**

Assessment criteria:

- Students have to attend all courses.
- Students have to pass all course assessments.

Failure to comply with the above criteria will disqualify students from passing Forest Practice I and students will have to repeat the course to satisfaction.

## **THE SCHLICH MEDAL:**

This award is made annually by the Southern African Institute of Forestry (SAIF) to commemorate Sir William Schlich's valuable services to Forestry.

One medal is awarded each year to a final-year Forestry student who has had the best

performance in the class over the full three-year study period, provided the average mark is not below 75% and provided further that a minimum mark of 70% has been obtained in each module and with consideration of the candidate's general performance. Furthermore, the student must have earned the marks concerned throughout his three-year study period at the *first* examination; that means that marks obtained through re-examinations do not count for this award.

A silver medal is awarded if the student concerned has attained an average of 75% to 79% and a gold-plated medal is awarded if an average of 80% or more is obtained.

### **DURATION**

The qualification shall extend over three years of full-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Cost and Management Accounting I	Semester 2	FAA1132	10
	Forest Botany	Semester 1	FBO1121	10
	Computers Usage I	Semester 1	FCR1121	10
	Human Resource Management I	Semester 2	FMR1122	10
	Forest Ecology	Semester 1	FCN1001	10
	Silviculture I	Semester 1	FSI1121	10
	Forest Engineering I	Semester 1	FEP1001	10
	Environmental Management	Semester 2	FMV2002	10
	Forest Management I	Semester 2	FMN1122	10
	Silviculture II	Semester 2	FSI2222	10
	Forest Engineering II	Semester 2	FEP2002	10
	Fire Management I	Semester 1	FPR1001	10
	<b>Credits First Year</b>			<b>120</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Forest Practice I	Semester 1	FPA1131	60
	Forest Practice II	Semester 2	FPA2222	60
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Cost and Management Accounting II	Semester 2	FAA2002	10
	Forest Engineering III	Semester 2	FEP3002	12
	Forestry Finances II	Semester 1	FFI2002	10
	Forest Management III (major)	Semester 2	FMN3222	12
	Human Resource Management II	Semester 2	FMR2222	10

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Forest Economics II	Semester 2	FOE2001	10
	Forestry Law	Semester 1	FOL2001	10
	Forest Protection II	Semester 1	FPD2001	10
	Fire Management II	Semester 2	FPR2002	10
	Silviculture III	Semester 1	FSI3321	12
	Forest Mensuration II	Semester 1	FSM2121	12
	Forest Utilisation	Semester 1	FUT2001	10
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>360</b>

## **DIPLOMA IN GAME RANCH MANAGEMENT (EXTENDED) (NO NEW INTAKE)**

<b>Qualification code:</b>	2456
<b>Offering:</b>	Full-time George Campus (83)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 310.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 325.
- NSC achievement rating of at least 35% for Mathematics or Technical Mathematics or 55% for Mathematical Literacy.

### ***STATUTORY AND OTHER REQUIREMENTS***

The modules with zero credit values are compulsory. Students have to pass these modules before the qualification will be awarded.

#### *English Proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject English B before graduating.*

No student registered on the Extended Programme will be allowed to register for any 2<sup>nd</sup> level subjects, unless he/she has passed all the non-credit-bearing subjects (Communication in English B, Numeric Calculations, Basic Science and Life Skills).

### **DURATION**

The qualification shall extend over four years of full-time study.

### **FINAL YEAR FOR ADMISSION**

The final year for new admission into this programme was 2021.

### **COMPLETION OF QUALIFICATION**

The final year for all students to comply with all requirements for this qualification is 2026.

### **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Communication in English B	Year	BKI1130	0
	Basic Science	Year	EBS1110	0
	Numeric Calculations	Year	MNU11X0	0
	Game Ranch Economics I	Semester 2	GGR1002	12
	Game Health Management	Semester 1	GHM1001	15
	Life Skills	Year	GLS1110	0
	Game Ranch Management	Semester 1	GGM1001	12
	Computer Usage I	Semester 1	FCR1121	12
	<b>Credits First Year</b>			<b>51</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Game Ranch Ecology I	Semester 1	GGE1001	12
	Game Ranch Ecology II	Semester 2	GGE2002	12
	Game Ranch Management II	Semester 2	GGM2002	12
	Game Science I	Semester 1	GSG1001	12
	Game Science II	Semester 2	GSG1002	12
	Rangeland Studies I	Semester 1	GRR1001	12
	<b>Credits Second Year</b>			<b>72</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Game Ranch Economics II	Semester 1	GGR2001	15
	Game Ranch Economics III (major)	Semester 2	GGR3002	15
	Game Ranch Ecology III (major)	Semester 1	GGE3001	15
	Game Ranch Management III (major)	Semester 2	GGM3001	15
	Game Science III (major)	Semester 1	GSG3001	15

		Presented	Module Code	Credit Value
	Soil Science I	Semester 2	GGG1001	12
<b>Select one of the following groups:</b>				
<b>A</b>	Game Utilisation I	Semester 1	GUG1001	15
	Game Utilisation II	Semester 2	GUG2002	15
	<b>OR</b>			
<b>B</b>	Game Lodge Management I	Semester 1	GLG1001	15
	Game Lodge Management II	Semester 2	GLG2002	15
	<b>Credits Third Year</b>			<b>117</b>
<b>Fourth Year</b>				
<b>Compulsory modules:</b>				
	Game Ranch Application I	Semester 1	GAR1001	60
	Game Ranch Application II	Semester 2	GAR2002	60
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>360</b>

## DIPLOMA IN GAME RANCH MANAGEMENT

<b>Qualification code:</b>	2457
<b>Offering:</b>	Full-time North Campus (01)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	360

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 330.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 345.
- NSC achievement rating of at least 40% for Mathematics or Technical Mathematics or 60% for Mathematical Literacy.

### **STATUTORY AND OTHER REQUIREMENTS**

- A student will not normally be allowed to proceed with new subjects if he has failed three or more subjects in the previous exam.
- A student who progresses at an unacceptable rate, may be refused further registration on grounds of poor academic performance. Such student may be referred to Student Counselling and evaluation.

- If a student fails the same subject three times, he is normally not allowed further registration on grounds of poor academic performance.

**Experiential training requirements:**

To fulfil the requirements of the Diploma a student must complete at least one year of applicable experiential training. Students may undergo experiential training with any approved employer within the game industry. Although Nelson Mandela University will assist students in finding suitable employment, the onus to obtain suitable employment is on the student.

**DURATION**

The Diploma is a three-year full-time qualification of which two years are spent at Nelson Mandela University and one year in practice undergoing experiential training.

**CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Computer Usage I	Semester 1	GCU1001	12
Game Ranch Economics I	Semester 1	GER1001	12
Soil Science I	Semester 1	AGG1001	12
Game Science I	Semester 1	GGG1001	12
Game Science II	Semester 2	GGG2002	12
Game Ranch Ecology I	Semester 1	GRE1001	12
Game Ranch Ecology II	Semester 2	GRE2002	12
Game Ranch Management I	Semester 1	GRM1001	12
Game Ranch Management II	Semester 2	GRM2002	12
Rangeland Studies I	Semester 2	GSR1001	12
<b>Credits First Year</b>			<b>120</b>
<b>Second Year</b>			
<b>Compulsory modules:</b>			
Game Ranch Economics II	Semester 1	GER2001	15
Game Ranch Economics III	Semester 2	GER3002	15
Game Science III	Semester 1	GGG3001	15
Game Utilisation I <b>or</b> Game Lodge Management I	Semester 1	GGU1001 GLM1001	15
Game Utilisation II <b>or</b> Game Lodge Management II	Semester 2	GGU2002 GLM2002	15
Game Health Management I	Semester 2	GHM1002	15
Game Ranch Ecology III	Semester 1	GRE3001	15
Game Ranch Management III	Semester 2	GRM3002	15
<b>Credits Second Year</b>			<b>120</b>

	Presented	Module Code	Credit Value
<b>Third Year</b>			
<b>Compulsory modules:</b>			
	Game Ranch Application I	Year	GRA1001 60
	Game Ranch Application II	Semester 2	GRA2002 60
	<b>Credits Third Year</b>		<b>120</b>
	<b>Total Credits</b>		<b>360</b>

### ***CURRICULUM MODULE REQUISITES***

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Game Science II	GGs2002	GGs1001	
Game Science III	GGs3001	GGs2002	
Game Ranch Ecology II	GRE2002	GRE1001	
Game Ranch Ecology III	GRE3001	GRE2002	
Game Lodge Management II	GLM2002	GLM1001	
Game Ranch Management II	GRM2002	GRM1001	
Game Ranch Management III	GRM3002	GRM2002	
Game Ranch Application I	GRA1001	GRE3001 and GRM3002 and GGS3001	
Game Ranch Application II	GRA2002	GRE3001 and GRM3002 and GGS3001	

## **DIPLOMA IN GAME RANCH MANAGEMENT (NO NEW INTAKE)**

<b>Qualification code:</b>	2458
<b>Offering:</b>	Full-time George Campus (02)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	372

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Admission Points Score of 32.
- Minimum statutory NSC requirements for diploma entry must be met.
- English, Afrikaans or isiXhosa (home language or first additional language) on at least level 3 (40-49%).
- Mathematics 3 (40-49%) or Mathematical Literacy 5 (60-69%).
- Applicants with an Admission Points Score between 26 and 31 will be referred to write the Access Assessment Battery before a decision is made on whether or not to admit the applicant to the course.
- Applicants who present with Mathematical Literacy instead of Mathematics will be placed in the associated Extended curriculum programme.

### **Recommended NSC subjects**

Economics, Agricultural Management, Agricultural Sciences, Life Sciences, Accounting OR

A four-subject National Certificate (N3) with two languages at Grade 12 level. Recognition of prior learning will be considered.

### **STATUTORY AND OTHER REQUIREMENTS**

- A student will not normally be allowed to proceed with new subjects if he has failed three or more subjects in the previous exam.
- A student who progresses at an unacceptable rate, may be refused further registration on grounds of poor academic performance. Such student may be referred to Student Counselling and evaluation.
- If a student fails the same subject three times, he is normally not allowed further registration on grounds of poor academic performance.

#### *Experiential training requirements:*

To fulfil the requirements of the National Diploma a student must complete at least one year of applicable experiential training. Students may undergo experiential training with any approved employer within the game industry. Although Nelson Mandela University will assist students in finding suitable employment, the onus to obtain suitable employment is on the student.

#### *Site of delivery:*

This qualification will be offered at the George Campus of the university.

### **DURATION**

The National Diploma is a three-year full-time qualification of which two years are spent at Nelson Mandela University and one year in practice undergoing experiential training.

### **FINAL YEAR FOR ADMISSION**

The final year for new admission into this programme was 2021.

### **COMPLETION OF QUALIFICATION**

The final year for all students to comply with all requirements for this qualification is 2025.

### **CURRICULUM (Full-time)**



		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Computer Usage I	Semester 1	FCR1121	12
	Game Ranch Economics I	Semester 2	GGR1002	12
	Game Science I	Semester 1	GSG1001	12
	Game Science II	Semester 2	GSG1002	12
	Game Health Management I	Semester 1	GHM1001	12
	Game Ranch Ecology I	Semester 1	GGE1001	12
	Game Ranch Ecology II	Semester 2	GGE2002	12
	Game Ranch Management I	Semester 1	GGM1001	12
	Game Ranch Management II	Semester 2	GGM2002	12
	Rangeland Studies I	Semester 1	GRR1001	12
	<b>Credits First Year</b>			<b>120</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Game Ranch Economics II	Semester 1	GGR2001	15
	Game Ranch Economics III	Semester 2	GGR3002	15
	Game Science III	Semester 1	GSG3001	15
	Game Utilisation I <b>or</b> Game Lodge Management I	Semester 1	GUG1001 GLG1001	15 15
	Game Utilisation II <b>or</b> Game Lodge Management II	Semester 2	GUG2002 GLG2002	15 15
	Game Ranch Ecology III	Semester 1	GGE3001	15
	Game Ranch Management III	Semester 2	GGM3002	15
	Soil Science I	Semester 2	GGG1001	15
	<b>Credits Second Year</b>			<b>120</b>
<b>Compulsory modules:</b>				
	Game Ranch Application I	Year	GAR1001	60
	Game Ranch Application II	Semester 2	GAR2002	60
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>372</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Game Science II	GGS2002	GGS1001	

Game Science III	GGS3001	GGS2002	
Game Ranch Ecology II	GRE2002	GRE1001	
Game Ranch Ecology III	GRE3001	GRE2002	
Game Lodge Management II	GLM2002	GLM1001	
Game Ranch Management II	GRM2002	GRM1001	
Game Ranch Management III	GRM3002	GRM2002	

## DIPLOMA IN NATURE CONSERVATION

<b>Qualification code:</b>	2222
<b>Offering:</b>	Full-time George Campus (02)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	362

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 330.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 345.
- NSC achievement rating of at least 40% for Mathematics or Technical Mathematics or 60% for Mathematical Literacy.
- NSC achievement rating of at least 50% for Life Sciences OR 40% for Physical Sciences or Technical Science.

### **SELECTION PROCEDURE**

- Admission is subject to Departmental selection.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *English proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject English B before graduating.*

### **DURATION**

The qualification shall extend over three years of full-time study.

### **CURRICULUM**

	Presented	Module Code	Credit Value
<b>First Year</b>			

	Presented	Module Code	Credit Value
<b>Compulsory modules:</b>			
Animal Studies I	Semester 1	NAS1121	12
Animal Studies II	Semester 2	NAS2122	12
Conservation Ecology I	Semester 1	NCE1121	10
Conservation Ecology II	Semester 2	NCE2122	12
Cost and Management Accounting I	Semester 2	NAC1112	10
Computer Usage I	Semester 1	FCR1121	10
Environmental Law I	Semester 2	JLA1112	10
Environmental Management	Semester 1	NEM1111	10
Human Resource Management I	Semester 2	FMR1122	10
Resource Management I	Semester 1	NRM1121	10
Plant Studies I	Semester 1	NPS1121	12
<b>Credits First Year</b>			<b>118</b>
<b>Second Year</b>			
<b>Compulsory modules:</b>			
Animal Studies III	Semester 1	NAS3121	12
Conservation Ecology III	Semester 2	NCE3002	12
Environmental Education I	Semester 1	NEE1111	10
Environmental Education II	Semester 2	NEE2112	12
Fire Ecology I	Semester 1	NED1111	10
Human Resource Management II	Semester 2	FMR2222	10
Plant Studies II	Semester 1	NPS2121	10
Plant Studies III	Semester 2	NPS3122	12
Resource Management II	Semester 1	NRM2121	12
Resource Management III	Semester 2	NRM3122	12
Soil Science	Semester 2	NSS1022	12
<b>Credits Second Year</b>			<b>124</b>
<b>Third Year</b>			
<b>Compulsory modules:</b>			
Nature Conservation Applications I	Semester 1	NCP1111	60
Nature Conservation Applications II	Semester 2	NCP2112	60
<b>Credits Third Year</b>			<b>120</b>
<b>Total Credits</b>			<b>362</b>

# DIPLOMA IN POLYMER TECHNOLOGY

<b>Qualification code:</b>	2235
<b>Offering:</b>	Full-time North Campus (01)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	364

## **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

## **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 350.
- NSC achievement rating of at least 55% for Mathematics.
- NSC achievement rating of at least 50% for Physical Sciences

## **STATUTORY AND OTHER REQUIREMENTS**

- Candidates will only be allowed to continue to the second level of studies (Year 1, semester 2) if they passed both CHA1001 and CHG1001.
- In order for candidates to be promoted to the 2<sup>nd</sup> year of study, they must consult the relevant module pre-requisites and co-requisites as listed below:
- In-service training may only commence once all theory modules have been completed.
- Candidates who have not completed all of the first-year modules in the qualification after three (3) years of full-time study will not be allowed to re-register for the qualification.

Students can change registration from the Diploma in Analytical Chemistry (2153) to the Diploma in Polymer Technology (2235) after the first six months of study, subject to space availability.

## **DURATION**

Theoretical training of 24 months at Nelson Mandela University and a further 12 months of practical training in a related industry.

## **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Analytical Chemistry 1	Semester 1	CHA1011	20
General Chemistry 1	Semester 1	GCC1121	15
Computer Skills 1	Semester 1 or Semester 2	ITC1011 or ITC1012	10
Introductory Physics A	Semester 1	MFS1211	7
Mathematics 1	Year	MAT1000	15
Academic and Professional Skills	Year	OPS1100	10
Introductory Physics B	Semester 2	MFS1222	7
Organic Chemistry 2	Semester 2	CHO2102	10
Polymer Technology II - Rubber	Semester 2	CPT2002	5

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Polymer Technology II Practical -Rubber	Semester 2	CPP2002	5
	Polymer Technology II - Plastics	Semester 2	CPT2012	5
	Polymer Technology II Practical - Plastics	Semester 2	CPP2012	5
	Polymer Raw Materials II – Rubber	Semester 2	CWP2022	5
	Polymer Raw Materials II Practical - Rubber	Semester 2	CWP2002	5
	Polymer Raw Materials II - Plastics	Semester 2	CWP2032	5
	Polymer Raw Materials II Practical - Plastics	Semester 2	CWP2012	5
	<b>Credits First Year</b>			<b>134</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Polymer Science II	Semester 1	CST2001	10
	Polymer Science II Practical	Semester 1	CSP2101	8
	Paint Technology II	Semester 1	CPA20T1	10
	Paint Technology II Practical	Semester 1	CPA20P1	8
	Polymer Technology III – Rubber	Semester 1	CPT3101	5
	Polymer Technology III Practical - Rubber	Semester 1	CPP3021	5
	Polymer Technology III - Plastics	Semester 1	CPT3111	5
	Polymer Technology III Practical - Plastics	Semester 1	CPP3031	5
	Polymer Raw Materials III	Semester 1	CWP3011	10
	Paint Technology III	Semester 2	CPA30T2	10
	Paint Technology III Practical	Semester 2	CPA30P2	8
	Polymer Science III	Semester 2	CST3012	10
	Polymer Science III Practical	Semester 2	CSP3012	8
	Analytical Techniques III	Semester 2	ACT3002	10
	Analytical Techniques III Practical	Semester 2	ACP3002	8
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Polymer Production Practice	Year	CPP3300	110
	<b>Credits Third Year</b>			<b>110</b>
	<b>Total Credits</b>			<b>364</b>

### ***CURRICULUM MODULE REQUISITES***

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Analytical Chemistry 1	CHA1011		GCC1121
General Chemistry 1	GCC1121		CHA1011
Organic Chemistry 2	CHO2102	GCC1121	
Polymer Technology II Practical - Rubber	CPP2002	GCC1121	
Polymer Technology II - Rubber	CPT2002	GCC1121	
Polymer Technology II Practical - Plastics	CPP2012	GCC1121	
Polymer Technology II T- Plastics	CPT2012	GCC1121	
Polymer Raw Materials II Practical - Rubber	CWP2002	GCC1121	
Polymer Raw Materials II Practical - Plastics	CWP2012	GCC1121	
Polymer Raw Materials II - Rubber	CWP2022	GCC1121	
Polymer Raw Materials II - Plastics	CWP2032	GCC1121	
Paint Technology II Theory	CPA20T1	GCC1121	
Paint Technology II Practical	CPA20P1	GCC1121	
Paint Technology III Practical	CPA30P2	CPA20P2 <b>and</b> CPA20T2	
Paint Technology III Theory	CPA30T2	CPA20P2 <b>and</b> CPA20T2	
Polymer Technology III Practical - Rubber	CPP 3021	CPT2002 <b>and</b> CPP2002	
Polymer Technology III Practical - Plastics	CPP3031	CPT2012 <b>and</b> CPP2012	
Polymer Technology III - Rubber	CPT 3001	CPT2002 <b>and</b> CPP2002	
Polymer Technology III - Plastics	CPT3111	CPT2012 <b>and</b> CPP2012	
Polymer Raw Materials III	CWP3011	CWP2022 <b>and</b> CWP2032 <b>and</b> CWP2002 <b>and</b> CWP2012	
Polymer Science II Practical	CSP2001	CHO2102	
Polymer Science II	CST2001	CHO2102	
Analytical Techniques III Practical	ACP3002	CHA1011 <b>and</b> GCC1121	
Analytical Techniques III Theory	ACT3002	CHA1011 <b>and</b> GCC1121	ACP3002
Polymer Science III Practical	CSP3012	CST2001 <b>and</b> CSP2101	
Polymer Science III	CST3012	CST2001 and	

		CSP2101	
Polymer Production Practice	CPP3300	CPA30P2 and CPA30T2 and CPP3021 and CPP3031 and CPT3101 and CPT3111 and CWP3011 and CSP3012 and CST3012 and ACP3002 and ACT3002	

## DIPLOMA IN WOOD TECHNOLOGY (EXTENDED) (NO NEW INTAKE) (QUALIFICATION PHASED OUT IN 2023)

<b>Qualification code:</b>	2250
<b>Offering:</b>	Full-time South Campus (83)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	240

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.
- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 310.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 325.
- NSC achievement rating of at least 35% for Mathematics or Technical Mathematics or 55% for Mathematical Literacy.
- NSC achievement rating of at least 30% for Physical Sciences or Technical Science.

### **STATUTORY AND OTHER REQUIREMENTS**

The modules with zero credit values are compulsory. Students have to pass these modules before the qualification will be awarded.

#### *English Proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as

evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject English B before graduating.*

No student registered on the Extended Programme will be allowed to register for any 2<sup>nd</sup> level subjects, unless he/she has passed all the non-credit-bearing subjects (Communication in English B, Numeric Calculations, Basic Science and Life Skills).

**Experiential Training:**

Students arriving back from experiential training have to hand in reports and logbooks 2 weeks after classes commence for the new academic year. All reports, logbooks and presentations have to be concluded at the end of the 1<sup>st</sup> semester.

Students who don't meet this deadline have to register for the experiential training again the following year and will qualify for their diploma a year later. Students who register for their experiential training a 2<sup>nd</sup> time, can only score a maximum of 50% if they pass a 2<sup>nd</sup> evaluation.

**FWT1001 (WOOD TECHNOLOGY PRACTICE)**

Assessment criteria:

- Students have to attend all courses.
- Students have to pass all course assessments.

Failure to comply with the above criteria will disqualify students from passing Wood Technology Practice I and students will have to repeat the course to satisfaction.

**DURATION**

The qualification shall extend over four years of full-time study.

**CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Communication in English B	Year	BK11130	0
Basic Science	Year	EBS1110	0
Numeric Calculation	Year	MNU11X0	0
Life Skills	Year	GLS110	0
Computers in Forestry I	Semester 1	FCR1121	10
Properties of Wood I	Semester 1	FPW1001	12
Cost & Management Accounting I*	Semester 2	FAA1132	10
Human Resource Management I*	Semester 2	FMR1122	10
<b>Credits First Year</b>			<b>42</b>
<b>Second Year</b>			
<b>Compulsory modules:</b>			
Mechanics in Wood Technology I*	Semester 1	FMW1001	12
Mechanical Drawing & Design I	Semester 1	FMD1001	10
Production Engineering Industrial I*	Semester 2	FPI1002	12
Mathematics and Statistics I	Semester 1	FCT1001	12
Adhesive Technology I	Semester 2	FAD1002	10



		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Process Control in Wood Technology I*	Semester 2	FCW1002	12
	Timber Processing I	Semester 2	FTP1002	12
	<b>Credits Second Year</b>			<b>80</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Wood Technology Practice I	Semester 1	FWT1001	60
	Wood Technology Practice I	Semester 2	FWT2002	60
	<b>Credits Third Year</b>			<b>120</b>
<b>Fourth Year</b>				
<b>Compulsory modules:</b>				
	Forest Economics II	Semester 1	FOE2001	10
	Forestry Laws II	Semester 1	FOL2001	10
	Timber Preservation I	Semester 1	FHP1001	10
	Timber Processing II	Semester 1	FTP2001	12
	Engineered Wood Products II	Semester 1	FEW2001	10
	Timber Structures III	Semester 1	FSS3001	12
	Cost & Management Accounting II	Semester 2	FAA2002	10
	Human Resource Management II	Semester 2	FMR2222	10
	Production Engineering Industrial II	Semester 2	FPI2002	12
	Timber Processing III	Semester 2	FTP3002	12
	Timber Seasoning III	Semester 2	FTS3002	12
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>240</b>

## DIPLOMA IN WOOD TECHNOLOGY

<b>Qualification code:</b>	2248
<b>Offering:</b>	Full-time George Campus (02)
<b>Aligned NQF Level:</b>	5
<b>Total NQF Credits for qualification:</b>	296

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for diploma entry must be met.

- An applicant with NSC Grade 12 Mathematics or Technical Mathematics requires a minimum Applicant Score of 330.
- An applicant with NSC Grade 12 Mathematical Literacy requires a minimum Applicant Score of 345.
- NSC achievement rating of at least 40% for Mathematics or Technical Mathematics or 60% for Mathematical Literacy. If an applicant has Mathematical Literacy instead of Mathematics, he/she will be placed in an associated extended qualification.
- NSC achievement rating of at least 40% for Physical Sciences or Technical Science.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *English proficiency:*

All students in the Natural Resource Management and Science Cluster are required to demonstrate English proficiency before graduating. To this end, all first-time entering students will complete an English proficiency assessment. A pass mark for this test will be accepted as evidence of English proficiency. *All students who fail this assessment will be required to register for and pass the subject English B before graduating.*

#### *Experiential Training:*

Students arriving back from experiential training have to hand in reports and logbooks 2 weeks after classes commence for the new academic year. All reports, logbooks and presentations have to be concluded at the end of the 1<sup>st</sup> semester.

Students who don't meet this deadline have to register for the experiential training again the following year and will qualify for their diploma a year later. Students who register for their experiential training a 2<sup>nd</sup> time, can only score a maximum of 50% if they pass a 2<sup>nd</sup> evaluation.

#### *FWT1001 (WOOD TECHNOLOGY PRACTICE)*

Assessment criteria:

- Students have to attend all courses.
- Students have to pass all course assessments.

Failure to comply with the above criteria will disqualify students from passing Wood Technology Practice I and students will have to repeat the course to satisfaction.

### **DURATION**

The qualification shall extend over three years of full-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Cost and Management Accounting I	Semester 2	FAA1132	10
	Adhesive Technology I	Semester 2	FAD1002	10
	Computer Usage I	Semester 1	FCR1121	10
	Mathematics and Statistics I	Semester 1	FCT1001	12
	Process Control in Wood Technology	Semester 2	FCW1002	12
	Mechanical Drawing and Design I	Semester 1	FMD1001	12
	Human Resource Management I	Semester 2	FMR1122	10
	Mechanics in Wood Technology I	Semester 1	FMW1001	10

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Production Engineering Industrial I	Semester 2	FPI1002	12
	Properties of Wood	Semester 1	FPW1001	12
	Timber Processing I	Semester 2	FTP1002	12
	<b>Credits First Year</b>			<b>122</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Wood Technology Practice I	Semester 1	FWT1001	60
	Wood Technology Practice II	Semester 2	FWT2002	60
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	Cost and Management Accounting II	Semester 2	FAA2002	10
	Engineered Wood Products II	Semester 1	FEW2001	10
	Timber Preservation I	Semester 1	FHP1001	10
	Human Resource Management II	Semester 2	FMR2222	10
	Forest Economics II	Semester 1	FOE2001	10
	Forestry Law II	Semester 1	FOL2001	10
	Production Engineering Industrial II	Semester 2	FPI2002	12
	Timber Structures III	Semester 1	FSS3001	12
	Timber Processing II	Semester 1	FTP2001	12
	Timber Processing III	Semester 2	FTP3002	12
	Timber Seasoning III	Semester 2	FTS3002	12
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>296</b>

## ADVANCED DIPLOMAS

### ADVANCED DIPLOMA IN AGRICULTURAL MANAGEMENT

<b>Qualification code:</b>	20535
<b>Offering:</b>	Full-time North Campus (01)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF). The Advanced Diploma: Agricultural Management qualification forms the fourth year of study at Nelson Mandela University for students who have completed a diploma in Agricultural Management.

### **ADMISSION REQUIREMENTS**

A relevant 360-credit Diploma or an equivalent qualification. Student will only be able to register for Plant Production 4 (APPN400) if Plant Production 3 (APP3000) or an equivalent module is passed at diploma level. Student will only be able to register for Animal Production 4 (AAPN400) if Animal Production 3 (AAP3000) or an equivalent module is passed at diploma level.

### **STATUTORY AND OTHER REQUIREMENTS**

#### **Recognition of prior learning (RPL):**

An applicant's experience in the agricultural industry and/or agribusiness environment will be considered and competence in the relevant fields, including numeracy, computer and communications competence, will be assessed in order to determine whether exemption from certain modules will be possible.

### **DURATION OF STUDY**

The qualification shall extend over one year of full-time study or two years on a block release basis.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
Research Methodology	Year	RMSN400	20
Financial Management: Agriculture	Year	AFMN400	25
Leadership Development	Year	ALDN400	25
Strategic Management: Agriculture	Year	GSMN400	25
<b>Select one module:</b>			
Animal Production	Year	AAPN400	25
Plant Production	Year	APPN400	25
<b>Total Credits</b>			<b>120</b>

## **ADVANCED DIPLOMA IN AGRICULTURAL MANAGEMENT**

<b>Qualification code:</b>	20536
<b>Offering:</b>	Full-time George Campus (02)
<b>Aligned NQF Level:</b>	7

<b>Total NQF Credits for qualification:</b>	120
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### **ADMISSION REQUIREMENTS**

Applicants must be in possession of the three-year National Diploma: Agricultural Management or equivalent qualification. Although not a requirement, it is regarded as desirable that an applicant has completed at least two years' applicable practical service after having graduated. Candidates with less than two years' service will be considered if their average mark for the final year of diploma studies is at least 60%.

### **STATUTORY AND OTHER REQUIRMENTS**

#### *Application, selection and registration:*

At selection, an assessment is made of each applicant's qualifications. It may, in some cases, be expected of candidates to register for additional modules in order to be admitted to the qualification.

#### *Seminars and projects:*

As a general guideline, three to four major projects/seminars have to be submitted per module and will contribute towards a qualifying module mark. A qualifying mark of 40% must be obtained per module to qualify for admission to examinations. Students need to arrange for access to information from a commercial farm/ concern in order to do the projects/seminars for the module Financial Management: Agriculture

### **DURATION**

The qualification shall extend over one year of full-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Research Methodology	Year	RMSG400	20
	Financial Management: Agriculture	Year	AFMG400	25
	Leadership Development	Year	ALDG400	25
	Strategic Management: Agriculture	Year	GSMG400	25
<b>Select one module:</b>				
	Animal Production	Year	AAPG400	25
	Plant Production	Year	APPG400	25
	<b>Total Credits</b>			<b>120</b>

## **ADVANCED DIPLOMA IN ANALYTICAL CHEMISTRY**

<b>Qualification code:</b>	20510
<b>Offering:</b>	Full-time South Campus (A1)

<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The Advanced Diploma: Analytical Chemistry qualification forms the fourth year of study at Nelson Mandela University. The standard of this qualification is high and offers a high degree of specialisation.

### **ADMISSION REQUIREMENTS**

Access to the Advanced Diploma will be for students that had successfully completed one of the following:

- A diploma in Analytical Chemistry
- A BSc with chemistry as major
- An equivalent qualification with chemistry or analytical chemistry as a major

In each case, the credit-weighted average mark for final year academic chemistry modules must be at least a 60 %.

If the demand for the programme exceeds the allowed capacity, then a competitive entry will be used, based on academic merit. Where the first preference will be given to students with the highest marks from their final year academic chemistry modules. Mature students or those that do not qualify for the programme based on their initial lower entrance requirements can apply if they had worked in the related industry for at least one year after their undergraduate diploma or BSc qualification, would be considered for acceptance onto the programmes by an interview process. The route of entry will be governed by the Nelson Mandela University policy on RPL.

### **DURATION**

The qualification shall extend over one year of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Full-time</b>			
<b>Compulsory modules:</b>			
Material Chemistry Analysis	Semester 1	CMC401	20
Data Analysis in Chemistry	Semester 1	CPC401	10
Sample Handling	Semester 1	CSH401	10
Advanced Analytical Chemistry I	Semester 1	CAA401	20
Advanced Analytical Chemistry II	Semester 2	CAA402	20
Chemical Industrial Control	Semester 2	CCI402	10
Organic Chemistry Analysis	Semester 2	COC402	10
Inorganic Chemistry Analysis	Semester 2	CIP412	10
Polymer Chemistry Analysis	Semester 2	CIP422	10
<b>Total Credits</b>			<b>120</b>

## ADVANCED DIPLOMA IN FORESTRY

<b>Qualification code:</b>	20520
<b>Offering:</b>	Full-time George Campus (02) Part-time George Campus (20)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

#### *Introduction:*

The Advanced Diploma in Forestry qualification offers the opportunity for students to specialise in a specific combination of disciplines.

### **ADMISSION REQUIREMENTS**

The admission requirements reflected below were applicable up to the final year of admission for this qualification and are only retained for record purposes:

Applicants must be in possession of the three-year Diploma in Forestry (NMU) or a qualification recognised by the SNR as the equivalent of the Diploma in Forestry (NMU). Although not a requirement, it is regarded as desirable that an applicant has completed at least two years' applicable practical service after having graduated. Candidates with less than two years' service will be considered if their average mark for the final year of Diploma in Forestry (NMU) studies is at least 60%; and has been completed in one academic year.

Prospective students who have not completed subjects in Forest Management, Forest Engineering, Silviculture, Forest Economics and Utilisation on a third-year level of study, with a specific focus on the commercial plantation forestry sector, who apply for admission to the **full-time** Advanced Diploma in Forestry Programme, will be required first to do the third (final) year of the Diploma in Forestry offered by Nelson Mandela University and pass with a 60% average. Failing to maintain a 60% average will mean that students will only be considered for the Advanced Diploma in Forestry Programme after completing at least two years of service as a forest manager on a commercial plantation.

Prospective students will not be allowed to register for any Advanced Diploma modules during this year and all 3rd-year subjects must be completed successfully before a student can commence to the Advanced Diploma Programme. These students will be registered as occasional students and will not be awarded the Nelson Mandela University Diploma in Forestry.

### **STATUTORY AND OTHER REQUIRMENTS**

#### *Application, selection and registration:*

Applicants must apply before the first closing date for applications of the preceding year.

#### *Seminars and projects:*

As a general guideline, three major projects/seminars have to be submitted per module and will contribute towards a qualifying module mark. Tests written during block courses supplement such a module mark. A qualifying mark of 40% must be obtained per module to qualify for entry to examinations.

**Modules:**

The module design is subject to change by Nelson Mandela University without prior notice. Students concerned will, however, be notified of any changes or impending changes as soon as possible after implementation.

Nelson Mandela University will not necessarily offer all ten modules each year, since sufficient registrations are required to ensure the viability of the modules. Students will be informed timeously on which modules will be offered in the following year.

**Module Choices:**

A total of five modules is needed to obtain the Advanced Diploma Forestry. Firstly, all students have to complete the Research Methodology module. At least two of the core modules must be selected. The balance of the five modules needed to complete the Advance Diploma can be selected from the list of elective modules.

**RE-ADMISSION:**

Progress-based re-admission criteria apply as approved by Senate.

**DURATION**

The qualification shall extend over one year of full-time or two years part-time.

**CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>Compulsory module</b>				
	Research Methodology	Year	FAB400	20
<b>Select at least two of the following core modules:</b>				
	Forest Engineering Practice IV *	Year	FEP400	25
	Forest Management IV *	Year	FMN400	25
	Silviculture IV *	Year	FSI400	25
<b>Select balance from elective modules:</b>				
	Business Management III	Year	FBM400	25
	Environmental Management III	Year	FEM400	25
	Fire Management IV	Year	FED400	25
	Human Resource Management IV	Year	BMI400	25
	Woodland Ecology and Management III	Year	FWM400	25
	Forestry Extension III	Year	FEE400	25
	<b>Total Credits</b>			<b>120</b>
*Any <b>two</b> of these modules is compulsory.				

**ADVANCED DIPLOMA IN GAME RANCH MANAGEMENT**



<b>Qualification code:</b>	20540
<b>Offering:</b>	Full-time North Campus (01)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF). The Advanced Diploma: Game Ranch Management qualification forms the fourth year of study at Nelson Mandela University for students who have completed a diploma in Game Ranch Management.

### **ADMISSION REQUIREMENTS**

A relevant 360-credit Diploma or an equivalent qualification.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Recognition of prior learning (RPL):*

Recognition of prior learning will be taken in consideration according to the NMU policy. Learning assumed to be in place will be the knowledge and skills as required at NQF Exit level 6 in the appropriate field and subfields. The evaluation of a detailed Portfolio of evidence as well as a CV of the specific applicants will form part of the RPL process. **Institutional RPL Policy 307.03** will be applied.

On the NMU North Campus students from industry will be allowed to register for a maximum of two modules per year. These modules will be offered as a full-time block release course to enable access to higher learning to students appointed in industry.

### **DURATION OF STUDY**

The qualification shall extend over one year of full-time study or two years on a block release basis.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory modules:</b>				
	Research Methodology	Year	RMSN400	20
	Game Ranch Economics	Year	GERN400	25
	Game Ranch Management	Year	GRMN400	25
	Game Ranch Strategic Management	Year	GSMN400	25
	Game Science	Year	GRSN400	25
	<b>Total Credits</b>			<b>120</b>

## **ADVANCED DIPLOMA IN GAME RANCH MANAGEMENT (NO NEW INTAKE)**

<b>Qualification code:</b>	20541
<b>Offering:</b>	Full-time George Campus (02)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	120

### **ADMISSION REQUIREMENTS**

The admission requirements reflected below were applicable up to the final year of admission for this qualification and are only retained for record purposes: Applicants must be in possession of the three-year National Diploma: Game Ranch Management or equivalent qualification. Although not a requirement, it is regarded as desirable that an applicant has completed at least two years' applicable practical service after having graduated. Candidates with less than two years' service will be considered if their average mark for the final year of diploma studies is at least 60%.

### **STATUTORY AND OTHER REQUIRMENTS**

#### *Brief description:*

The Advanced Diploma: Game Ranch Management qualification consists of five modules. All these modules are compulsory.

#### *Application, selection and registration:*

Candidates must apply before the first closing date for applications of the preceding year. Facilities at George Campus are limited, and this necessitates a selection process.

#### *Seminars and projects:*

As a general guideline, three major projects/seminars have to be submitted per module and will contribute towards a qualifying module mark. Tests written during the year supplement such a module mark.

A qualifying mark of 40% must be obtained per module to qualify for entry to examinations. Students need to arrange for access to information from a commercial game ranch in order to do the projects/ seminars for the module Game Ranch Economics IV.

#### *Tutorial materials:*

George Campus will endeavour to arrange that prescribed books are available for each of the modules concerned. Candidates are, however, expected to obtain for themselves the literature listed as prescribed in each module. Supplementary reference material should be obtained through library services.

#### *Books and tutorial material:*

The cost hereof will probably amount to between R500 and R700 per module.

#### *General note:*

The Instructional Design is subject to change without prior notice. Students concerned will, however, be notified about any changes or impending changes as soon as possible.

### **RE-ADMISSION REQUIREMENTS**

Progress-based re-admission criteria apply as approved by Senate.

### **DURATION**

The qualification shall extend over one year of full-time study only (all instructional offerings are compulsory).

### **FINAL YEAR FOR ADMISSION**

The final year for new admission into this programme was 2021.

### **COMPLETION OF QUALIFICATION**

The final year for all students to comply with all requirements for this qualification is 2023.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory modules:</b>			
Research Methodology	Year	RMSG400	20
Game Ranch Economics	Year	GERG400	25
Game Ranch Management	Year	GRMG400	25
Game Ranch Strategic Management	Year	GSMG400	25
Game Science	Year	GRSG400	25
<b>Total Credits</b>			<b>120</b>

## **ADVANCED DIPLOMA IN NATURE CONSERVATION**

<b>Qualification code:</b>	20530
<b>Offering:</b>	Full-time George Campus (02)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	120

### **ADMISSION REQUIREMENTS**

Applicants must be in possession of a three-year Diploma in Nature Conservation or equivalent qualification (e.g. Diploma in Game Ranch Management or Diploma in Wildlife Management). Candidates with a cognate qualification in the fields of ecology and natural resource management (e.g. BSc with majors Botany, Zoology or Ecology) can horizontally enter into this advanced diploma.

The minimum entry requirement for the Advanced Diploma is a 60% average for the Diploma, or 60% average for majors in the case of cognate qualifications like BSc.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Brief description:*

The Advanced Diploma: Nature Conservation qualification consists of six modules. All these modules are compulsory.

#### *Application, selection and registration:*

Candidates must apply before the first closing date for applications of the preceding year. Facilities at George Campus are limited, and this necessitates a selection process.

#### *Seminars and projects:*

As a general guideline, three major projects/seminars have to be submitted per module and will contribute towards a qualifying module mark. Tests written during the year supplement such a module mark.

A qualifying mark of 40% must be obtained per module to qualify for entry to examinations. Students need to arrange for access to information from a commercial game ranch in order to do the projects/ seminars for the module Game Ranch Economics IV.

*Tutorial materials:*

George Campus will endeavour to arrange that prescribed books are available for each of the modules concerned. Candidates are, however, expected to obtain for themselves the literature listed as prescribed in each module. Supplementary reference material should be obtained through library services.

*General note:*

The Instructional Design is subject to change without prior notice. Students concerned will, however, be notified about any changes or impending changes as soon as possible.

**SELECTION PROCEDURE**

Admission is subject to Departmental selection.

**RE-ADMISSION REQUIREMENTS**

Progress-based re-admission criteria apply as approved by Senate.

**DURATION**

The qualification shall extend over one year of full-time study only (all instructional offerings are compulsory).

**CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>Compulsory modules:</b>			
Research Methodology	Year	FAB400	20
Resource Management	Year	NRM400	20
Conservation Management	Year	NCM400	20
Animal Studies	Year	NAS400	20
Plant Studies	Year	NPS400	20
Community Conservation	Year	NCS400	20
<b>Total Credits</b>			<b>120</b>

**ADVANCED DIPLOMA IN WOOD TECHNOLOGY**

<b>Qualification code:</b>	20525
<b>Offering:</b>	Full-time George Campus (02) Part-time George Campus (20)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

The Advanced Diploma in Wood Technology qualification offers the opportunity for students to specialise in a specific combination of disciplines.

### **ADMISSION REQUIREMENTS**

The admission requirements reflected below were applicable up to the final year of admission for this qualification and are only retained for record purposes:

Applicants must be in possession of the three-year National Diploma: Wood Technology or equivalent qualification. Although not a requirement, it is regarded as desirable that an applicant has completed at least two years' applicable practical service after having graduated. Candidates with less than two years' service will be considered if their average mark for the final year of diploma studies is at least 60%.

### **SELECTION PROCEDURE**

Candidates must apply before the first closing date for applications of the preceding year.

### **STATUTORY AND OTHER REQUIRMENTS**

#### *Module work:*

In addition to compulsory attendance of all block courses, candidates will be required to submit projects and seminars in partial fulfilment of module marks as well as write tests. A minimum module mark of 40% is required for entrance to examinations.

The module design described above may be changed by Nelson Mandela University without prior notice. Nelson Mandela University reserves the right not to offer the module in any particular year if it considers the number of candidates insufficient to make the module financially viable.

#### *Module Choices:*

A total of five modules is needed to obtain the Advanced Diploma Forestry. Firstly, all students must complete the Research Methodology module. At least one of the core modules must be selected. The balance of the five modules needed to complete the Advance Diploma can be selected from the list of elective modules.

### **RE-ADMISSION REQUIREMENTS**

Progress-based re-admission criteria apply as approved by Senate.

### **DURATION**

The qualification shall extend over one year of full-time or two years of part-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory Module:</b>				
	Research Methodology	Year	FAB400	20
<b>Select one of the following modules:</b>				
	Panel Board Production*	Year	FPB400	25
	Timber Processing IV *	Year	FTP400	25
	Timber Seasoning IV *	Year	FTS400	25
<b>Select three of the following modules:</b>				

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory Module:</b>				
	Research Methodology	Year	FAB400	20
<b>Select one of the following modules:</b>				
	Business Management III	Year	FBM400	25
	Environmental Management III	Year	FEM400	25
	Human Resource Management IV	Year	BMI400	25
	Production Engineering: Industrial III	Year	FPI400	25
	Timber Structures IV	Year	FHS400	25
	Furniture Design IV	Year	FDE400	25
	<b>Total Credits</b>			<b>120</b>
*Any <b>one</b> of these modules is compulsory.				

## BACHELOR DEGREES

### BACHELOR OF SCIENCE

<b>Qualification code:</b>	20050
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	368

#### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The following curriculum is a recommended programme for the BSc degree in the Faculty of Science. Other subject combinations are possible but not necessarily sensible. Discuss any other subject combinations with the relevant Heads of Department.

#### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 410.
- NSC achievement rating of at least 60% for Mathematics OR 65% if the applicant is planning to major in Applied Mathematics, Computer Science, Mathematical Statistics, Mathematics and Physical Science.

#### **STATUTORY AND OTHER REQUIREMENTS**

- Unless Senate decides otherwise the degree shall be obtained by completing modules with a total credit value of at least 368 (360 credits for students who have passed all the modules WRFV101/WRSC111; WRFV102; WRAV101 and WRAV102 comprising the first year of Computer Science and Information Systems) of which
  - at least 120 credits are on Nelson Mandela University 3<sup>rd</sup> year and at least 240 credits on Nelson Mandela University 2<sup>nd</sup> year or a higher level;
  - at least 338 credits are from the list of approved subjects below.
- An optional elective may not be used to replace any compulsory module within the programme. Electives cannot be offered in lieu of a module within a group.
- Two major subjects are required to qualify for the BSc. To obtain credits for a major subject the student must obtain 30 credits for the first year, 40 for the second year and 60 for the third year in that major subject. In those subjects that have no first year, a major will consist of 40 credits at second year and 60 credits at third-year level. A maximum of 30 credits from another Faculty may be selected.
- Exit-level major modules are those third-year modules which make up the major subjects referred to in the previous bullet.
- **Computer literacy:** All BSc students must pass at least WRSC111 (8 credits) if registered for Applied Mathematics 1 or WRFV101 (8 credits) (or equivalent) or have passed an appropriate competency test or have received automatic exemption for WRFV101/WRFV1X0 based on Grade 12 CAT marks.
  - Unless Senate decides otherwise, a candidate who has failed a particular module three times shall not be allowed to re-register for that module.
  - Where modules have substantially overlapping outcomes, credit shall not be given for more than one of those modules.
  - Candidates registered for a degree in Statistics may not accumulate more than 40 credits from second year modules and 60 credits from third year modules presented by the Department of Statistics.
  - **Maximum credits offered for the BSc:** Unless the Dean decides otherwise, students may not exceed modules to a value of more than 380 credits.

#### ***PROMOTION:***

- A candidate shall be allowed to register for modules on the second-year level only if he/she has passed first-year level modules in an approved programme with a total of at least 72 credits.
- A candidate shall be allowed to register for modules on the third-year level only if he/she has passed modules in an approved programme with a total of at least 181 credits of which at least 60 are on second-year level.
- Notwithstanding points 1 and 2 above, students who have not completed 128 credits at first-year level, must register for the balance of the 128 first-year credits before they may concurrently register for any second-year level credits. In the same way students who have not completed 120 credits at second-year level, must register for the balance of the 120 second-year credits before they may concurrently register for any third-year credits. In the case of timetable clashes between higher and lower year level modules the student must complete the lower level modules first.

#### ***CHOICE OF MODULES:***

Unless Senate decides otherwise, an approved curriculum shall consist of modules satisfying the requirements of the applicable rules above and be such that there are no lecture or examination timetable clashes at any stage and all prerequisites for subsequent modules are satisfied.

#### ***LINKED MODULES:***

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%. Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

Pass on Link module combinations are:		
Biochemistry	Chemistry	Physics
BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBBX102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

### DURATION

The programme shall extend over a minimum of three years of full-time study.

### CURRICULUM (Full-time)

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
<b>A</b>	<b>Botany 1</b>			
	Plant Cell Biology	Semester 1	BOTV101	7
	Plant Structure	Semester 1	BOTV111	8
	Plant Evolution and Systematics	Semester 2	BOTV102	7
	Plant Ecology and Environmental Botany	Semester 2	BOTV112	8
<b>B</b>	<b>Chemistry 1 (Note that if Chemistry 1 is selected, then you must register for Mathematics Special 1 and Physics Special 1)</b>			
	Chemistry General	Semester 1	CHGV101	15
	Chemistry Inorganic	Semester 2	CHIV100	9
	Chemistry Organic	Semester 2	CHOV102	6
	<b>Mathematics Special 1</b>			
	Mathematics Special 101	Semester 1	MATS101	8
	Mathematics Special 102	Semester 2	MATS102	8
	<b>Physics Special 1</b>			
	Mechanics and Thermodynamics	Semester 1	FBBV101	7
	Electricity, Optics and Atomics	Semester 2	FBBV102	7
<b>C</b>	<b>Geography I</b>			
	Introduction to Economic and Settlement Geography	Term 1	GEOV101	7



		Presented	Module Code	Credit Value
	Introduction to Meteorology and Climatology	Term 2	GENV101	8
	Introduction to Geomorphology	Term 3	GENV102	8
	Introduction to Geo-Information Science and Cartography	Term 4	GISV102	8
<b>D</b>	<b>Geology I</b>			
	Introduction to Earth	Semester 1	GGLV101	7
	Mineralogy and Petrology	Semester 1	GGLV111	8
	Physical Geology	Semester 2	GGLV102	7
	Structural and Economic Geology	Semester 2	GGLV112	8
<b>E</b>	<b>Mathematics I</b>			
	Mathematics 1A	Semester 1	MATT101	16
	Mathematics 1b	Semester 2	MATT102	16
<b>F</b>	<b>Applied Mathematics I</b>			
	Graph Theory	Semester 1	MAPV101	8
	Mathematical Modelling	Semester 1	MAPV111	8
	Mechanics	Semester 2	MAPV102	8
	Numerical Methods I	Semester 2	MAPV112	8
<b>G</b>	<b>Computer Science I (if Applied Mathematics selected)</b>			
	Programming Fundamentals 1.1	Semester 1	WRAV101	8
	Programming Fundamentals 1.2	Semester 2	WRAV102	8
	Computing Fundamentals for Scientists 1.1	Semester 1	WRSC111	8
	Computing Fundamentals 1.2	Semester 2	WRFV102	8
	<b>Computer Science I</b>			
	Programming Fundamentals 1.1	Semester 1	WRAV101	8
	Programming Fundamentals 1.2	Semester 2	WRAV102	8
	Computing Fundamentals 1.1	Semester 1	WRFV101	8
	Computing Fundamentals 1.2	Semester 2	WRFV102	8
<b>H</b>	<b>Physics I</b>			
	Mechanics and Thermodynamics	Semester 1	FVV101	15
	Electricity, Magnetism and Optics	Semester 2	FVV102	15
<b>I</b>	<b>Statistics I</b>			
	Statistics Probability and Distribution Theory	Semester 1	STAS101	15
	Introduction to Statistical Inference	Semester 2	STAS102	15
<b>J</b>	<b>Zoology 1</b>			
	Animal Cell Biology and Histology	Term 1	ZOOV101	7
	Animal Diversity	Term 2	ZOOV111	8
	Principles of Animal Evolution	Term 3	ZOOV102	8
	Animal Patterns in Time and Space	Term 4	ZOOV112	7
	<b>Credits First Year</b>			<b>128</b>

		Presented	Module Code	Credit Value
<b>Second Year</b>				
<b>Select three of the following groups corresponding to the modules selected in the first year:</b>				
<b>A</b>	<b>Botany 2</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
<b>B</b>	<b>Biochemistry 2</b>			
	Introductory Biochemistry and Genetics	Semester 1	BCV201	20
	Metabolism	Semester 2	BCV202	20
<b>C</b>	<b>Microbiology 2</b>			
	Introductory Microbiology and Control of Micro-organisms	Semester 1	BMV201	20
	Medical Microbiology	Semester 2	BMV202	20
<b>D</b>	<b>Chemistry 2</b>			
	Chemistry Analytical	Semester 1	CHAV201	9
	Chemistry Inorganic	Semester 1	CHIV201	7
	Chemistry Organic	Semester 2	CHOV202	12
	Chemistry Physical	Year	CHPV200	12
<b>E</b>	<b>Computer Science II</b>			
	<b>The following modules are compulsory for Computer Science majors:</b>			
	Data Structures and Algorithms 2.1	Semester 1	WRAV201	8
	Data Structures and Algorithms 2.2	Semester 2	WRAV202	8
	Computer Architecture 2.1	Semester 1	WRCV201	6
	Computer Architecture 2.2	Semester 2	WRCV202	6
	Information Systems 2.1	Semester 1	WRIV201	6
	Information Systems 2.2	Semester 2	WRIV202	6
<b>F</b>	<b>The following additional modules are available as optional electives, and are of primary interest to Computer Science non-majors:</b>			
	Web Systems 2.1	Semester 1	WRWV201	8
	Web Systems 2.2	Semester 2	WRWV202	8
<b>G</b>	<b>Geography II</b>			
	Pedo-Geomorphological Studies	Term 1	GENV201	10
	Society and Environment	Term 4	GENV212	10
	Economic and Development Geography	Term 2	GEOV211	10
	Introduction to Cartography and GIS	Term 3	GISV201	10
<b>H</b>	<b>Geology II</b>			
	Palaeontology	Semester 1	GGLV201	10

		Presented	Module Code	Credit Value
	Structural Geology	Semester 1	GGLV211	10
	Mineralogy	Semester 2	GGLV202	10
	Sedimentary Petrology	Semester 2	GGLV212	10
<b>I</b>	<b>Mathematics II</b>			
	Multivariable and Vector Calculus	Semester 1	MATT201	20
	Linear Algebra	Semester 2	MATT212	10
	Real Analysis	Semester 2	MATT202	10
<b>J</b>	<b>Applied Mathematics II</b>			
	Differential Equations	Semester 1	MAPV201	10
	Numerical Methods 2	Semester 1	MAPV211	10
	Transform Theory	Semester 2	MAPV202	10
	Linear Optimisation	Semester 2	MAPV222	10
<b>K</b>	<b>Statistics II</b>			
	Theory of Distribution	Semester 1	STAS201	20
	Regression Analysis and Advanced Regression Topics	Semester 2	STAS202	20
<b>L</b>	<b>Physics II</b>			
	Optics AC Theory and Thermodynamics	Semester 1	FVV201	20
	Mechanics, Modern and Nuclear Physics	Semester 2	FVV202	20
<b>M</b>	<b>Zoology 2</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
<b>N</b>	<b>Physiology 2</b>			
	Principles of Human Physiology and Control Systems	Semester 1	BSPD211	20
	Human Systemic Physiology	Semester 2	BSPD212	20
	<b>Credits Second Year</b>			<b>120/130</b>
<b>Third Year</b>				
<b>Select two of the following majors corresponding to the modules selected in the previous year:</b>				
<b>A</b>	<b>Botany III (Major)</b>			
	Applied Marine Botany	Semester 1	BOTV301	12
	Plant Physiology	Semester 1	BOTV311	12
	Plant Eco-physiology	Semester 2	BOTV302	12
	Plant Ecology and Environmental Management	Semester 2	BOTV312	12
	Project	Year	BOTV310	12

		Presented	Module Code	Credit Value
<b>B</b>	<b>Biochemistry III (Major)</b>			
	Advanced Protein Technology	Semester 1	BCV301	30
	Integrated Biochemistry	Semester 2	BCV302	30
<b>C</b>	<b>Microbiology III (Major)</b>			
	Bacteriology, Microbial Ecology, Virology and Mycology	Semester 1	BMV301	30
	Gene Manipulation, Industrial Microbiology and Biotechnology	Semester 2	BMV302	30
<b>D</b>	<b>Chemistry III (Major)</b>			
	Chemistry Inorganic	Year	CHIV300	20
	Chemistry Organic	Semester 1	CHOV300	20
	Chemistry Physical	Year	CHPV300	20
<b>E</b>	<b>Computer Science III (Major)</b>			
	<b>The following modules are compulsory for Computer Science majors:</b>			
	Advanced Programming 3.1	Semester 1	WRPV301	10
	Advanced Programming 3.2	Semester 2	WRPV302	11
	Advanced Data Structures	Semester 1	WRAV301	10
	Languages and Automata Theory	Semester 2	WRLV302	10
	Database Systems 3	Semester 1	WRDV301	7
	User Interface Design	Semester 2	WUIV302	7
	Project	Year	WRRV301	9
	<b>The following additional modules are available as optional electives:</b>			
<b>F</b>	Multimedia Systems 3.1	Semester 1	WRMV301	10
	Multimedia Systems 3.2	Semester 2	WRMV302	10
<b>G</b>	<b>Geography III (Major)</b>			
	Geo-Information Systems	Term 1	GISV301	15
	Geomorphology	Term 2	GENV301	15
	Environmental Resource Management	Term 4	GENV312	15
	Photogrammetry and Remote Sensing	Term 3	GISV302	15
<b>H</b>	<b>Geology III (Major)</b>			
	Igneous Petrology	Semester 1	GGLV301	15
	Stratigraphy	Semester 1	GGLV311	15
	Geo-tectonics and Metamorphic Petrology	Semester 2	GGLV302	15
	Economic Geology	Semester 2	GGLV312	15
<b>I</b>	<b>Mathematics III (major)</b>			
	Advanced Linear Algebra	Semester 1	MATT311	15
	Advanced Real Analysis	Semester 1	MATT301	15
	Modern Algebra	Semester 2	MATT302	15
	Complex Functions	Semester 2	MATT312	15
<b>J</b>	<b>Applied Mathematics III (Major)</b>			

		Presented	Module Code	Credit Value
	Partial Differential Equations	Semester 1	MAPV301	15
	Finite Difference Methods	Semester 1	MAPV311	15
	Non-linear Optimisation	Semester 2	MAPV302	15
	Dynamical Systems	Semester 2	MAPV312	15
<b>K</b>	<b>Statistics III (Major)</b>			
	Advanced Statistical Inference	Semester 1	STAT311	30
	Advanced Data Analytics	Semester 2	STAT312	30
<b>L</b>	<b>Physics III (Major)</b>			
	Electrodynamics and Quantum Mechanics	Semester 1	FVV301	30
	Crystallography and Solid-State Physics	Semester 2	FVV302	30
<b>M</b>	<b>Zoology III (Major)</b>			
	Aquatic Ecology	Semester 1	ZOOV301	15
	Integrating Topics in Zoology	Semester 1	ZOOV311	15
	Applied Aquatic Science	Semester 2	ZOOV302	15
	Evolutionary Ecology	Semester 2	ZOOV312	15
<b>N</b>	<b>Physiology III</b>			
	Integrated Human Physiology I	Semester 1	BSPD301	30
	Integrated Human Physiology II	Semester 2	BSPD302	30
	<b>Credits Third Year</b>			<b>124</b>
	<b>Total Credits</b>			<b>368</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Chemistry Inorganic	CHIV100	CHGV101 (35%)	
Chemistry Organic	CHOV102	CHGV101 (35%)	
Electricity, Optics, Atomics	FBBV102	FBBV101 (35%)	
Electricity Magnetism & Optics	FVV102	FVV101 (35%)	
Physical Geology	GGLV102	GGLV101 (35%); GGLV111 (35%)	
Structure and Economic	GGLV112	GGLV101 (35%); GGLV111 (35%)	
Mathematics Special A	MATS102	MATS101	
Mathematics 1B	MATT102	MATT101	
Introduction to Statistical Inference	STAS102	STAS101 (40%)	
Programming Fundamentals 1.2	WRAV102	WRAV101	

Module	Code	Pre-requisites	Co-requisites
Computing Fundamentals 1.2	WRFV102	WRFV101, WRSC111	
Introductory Biochemistry and Genetics	BCV201	MATS101, MATS102; CHGV101, CHIV101, CHOV101	
Metabolism	BCV202	BCV201 (40%)	
Introductory Microbiology and Control Micro-organisms	BMV201	CHGV101, CHIV100, CHOV102 <b>AND</b> BOTV101, BOTV102, BOTV111, BOTV112, <b>OR</b> ZOOV101, ZOOV102, ZOOV111, ZOOV112	
Medical Microbiology	BMV202	BMV201 (40%)	
Principles of Human Physiology and Control Systems	BSPD211	CHGV101, <b>or</b> ZOOV101,	
Human Systemic Physiology	BSPD212	BSPD211 (40%)	
Chemistry Analytical	CHAV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Inorganic	CHIV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Organic	CHOV202	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	

Module	Code	Pre-requisites	Co-requisites
Chemistry Physical	CHPV200	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Optics, Ac Theory and Thermodynamics	FVV201	FVV102, MATT101 (40%), MATT102	
Mechanics and Modern/Nuclear Physics	FVV202	FVV101 (40%)	
Palaeontology	GGLV201	GGLV101, GGLV111, GGLV102, GGLV112	
Structural Geology	GGLV211	GGLV101, GGLV111, GGLV102, GGLV112	
Mineralogy	GGLV202	GGLV101, GGLV111, GGLV102, GGLV112	
Sedimentary Petrology	GGLV212	GGLV101, GGLV111, GGLV102, GGLV112	
Pedo-Geomorphological Studies	GENV201	GENV102	
Economic & Development Geography	GEOV211	GEOV101	
Introduction to Cartography & GIS	GISV201	GISV102	
Society and Environment	GENV212	GEOV101	
Multivariate and Vector Calculus	MATT201	MATT101, MATT102	
Linear Algebra	MATT212	MATT102	
Real Analysis	MATT202	MATT101, MATT102	
Differential Equations	MAPV201	MATT102	
Numerical Methods II	MAPV211	MATT102	
Transform Theory	MAPV202	MATT102	
Linear Optimization	MAPV222	MATT102	
Theory of Distribution	STAS201	STAS101, STAS102, MATT102	
Regression Analysis & Advanced Regression Topics	STAS202	STAS101, STAS102	

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Data Structures and Algorithms 2.1	WRAV201	WRAV102, (WRFV101 <b>OR</b> WRSC111), (MATT101 <b>OR</b> MATS101, MATS102)	
Data Structures and Algorithms 2.2	WRAV202	WRAV201	
Computer Architecture & Networks 2.1	WRCV201	WRAV102, (WRFV101 <b>OR</b> WRSC111), (MATT101 <b>OR</b> MATS101, MATS102)	
Computer Architecture & Networks 2.2	WRCV202	WRCV201	
Information Systems 2.1	WRIV201	WRAV102, WRFV101	
Information Systems 2.2	WRIV202	WRIV201	
Web Systems 2.1	WRWV201	WRFV102, WRAV102	
Web Systems 2.2	WRWV202	WRWV201	
Advanced Protein Technology	BCV301	BCV201, BCV202	
Integrated Biochemistry	BCV302	BCV301 (40%)	
Bacteriology, Microbial Ecology, Virology & Mycology	BMV301	BMV201, BMV202, BCV201, BCV202	
Gene Manipulation, Industrial Microbiology and Biotechnology	BMV302	BMV301 (40%)	
Integrated Human Physiology I	BSPD301	BSPD211, BSPD212	
Integrated Human Physiology II	BSPD302	BSPD211, BSPD212	
Chemistry Inorganic	CHIV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Organic	CHOV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Physical	CHPV300	CHAV201, CHIV201, CHOV202, CHPV200	



<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Electrodynamics & Quantum Mechanics	FVV301	FVV201, FVV202, MATT201	
Crystallography and Solid-State Physics	FVV302	FVV201, FVV202, MATT101; MATT102	
Geo-information Systems	GISV301	GISV201	
Geomorphology	GENV301	GENV201	
Photogrammetry and Remote Sensing	GISV302	GISV201	
Environmental Resource Management	GENV312	GENV212	
Igneous Petrology	GGLV301	GGLV201, GGLV211, GGLV202, GGLV212	
Stratigraphy	GGLV311	GGLV201, GGLV211, GGLV202, GGLV212	
Geo-tectonics & Metamorphic Petrology	GGLV302	GGLV201, GGLV211, GGLV202, GGLV212	
Economic Geology	GGLV312	GGLV201, GGLV211, GGLV202, GGLV212	
Advanced Linear Algebra	MATT311	MATT212	
Advanced Real Analysis	MATT301	MATT202	
Modern Algebra	MATT302	MATT212	
Complex Functions	MATT312	MATT202	
Partial Differential Equations	MAPV301	MAPV201, MAPV202	
Finite Difference Methods	MAPV311	MAPV211	
Nonlinear Optimization	MAPV302	MAPV211	
Dynamical Systems	MAPV312	MAPV201	
Advanced Statistics Inference	STAT311	STAS201 STAS202	
Advanced Data Analytics	STAT312	STAS201 STAS202	

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Advanced Programming 3.1	WRPV301	WRAV202, WRCV201, WRIV202, MATT101 and MATT102	
Advanced Programming 3.2	WRPV302	WRPV301	
Advanced Data Structures 3.1	WRAV301	WRAV202, WRCV201, WRIV202, MATT101 and MATT102	
Languages and Automata Theory 3.1	WRLV302	WRAV202, WRCV201, MATT101 and MATT102,	
Database Systems 3	WRDV301	WRIV202, WRWV202 OR WRAV202	
User Interface Design 3	WUIV302	WRIV202, WRWV202 OR WRAV202	
Project	WRRV301	WRIV202, WRWV202, OR WRAV202 Co-enrolment WRDV301,	
Multimedia Systems 3.1	WRMV301	WRAV102, WRFV102	
Multimedia Systems 3.2	WRMV302	WRMV301	
Aquatic Ecology	ZOOV301	FBBV101, FBBV102, OR MATS101, MATS102	
Integrating Topics in Zoology	ZOOV311	FBBV101, FBBV102, OR MATS101, MATS102	
Applied Aquatic Science	ZOOV302	ZOOV301, FBBV101, FBBV102, OR MATS101, MATS102	
Evolutionary Ecology	ZOOV312	FBBV101, FBBV102, OR MATS101, MATS102	

**BACHELOR OF SCIENCE  
(BIOCHEMISTRY, CHEMISTRY, MICROBIOLOGY)  
(EXTENDED)  
(NO NEW INTAKE)**

<b>Qualification code:</b>	20018
<b>Offering:</b>	Full-time South Campus (A7)
<b>Aligned NQF Level:</b>	5
<b>Total NQF Credits for qualification:</b>	418

**THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The qualification for BSc studies provides alternative university access to students who have the potential to succeed but do not meet the minimum admission requirements for the mainstream qualification.

The purpose of the qualification is to integrate additional academic support and skills development with mainstream modules in order to prepare the student for successful completion of the BSc degree.

**ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 370.
- NSC achievement rating of at least 50% for Mathematics.

**STATUTORY AND OTHER REQUIREMENTS**

- Candidates shall only be permitted to register for any modules in the second year of study if they have passed at least 9 of the modules prescribed in the first year of study.
- Candidates who do not meet the promotion requirement above will only be allowed to re-register for the programme if they have passed a minimum of 6 foundational modules in their first year of study.
- Candidates who have not completed all the foundational modules in the programme after three (3) years of full-time study will not be allowed to re-register for the programme.

*Linked modules:*

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%. Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

<b>Departments that offer Pass on Link modules are:</b>		
<b>Biochemistry</b>	<b>Chemistry</b>	<b>Physics</b>

BCV201, CV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, CV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102,
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBBX102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

### **DURATION**

The qualification shall extend over a minimum of four years of full-time study.

### **FINAL YEAR FOR ADMISSION**

The final year for new admission into this programme was 2019.

### **COMPLETION OF QUALIFICATION**

The final year for all students to comply with all requirements for this qualification is 2024.

### **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Science Academic Skills I	Year	ALMX100	10
	English for Science I	Year	LEAX100	10
	Pre-calculus A	Semester 1	MAPX101	10
	Pre-calculus B	Semester 2	MAPX102	10
	Plant Cell Biology - Extended	Semester 1	BOTX101	7
	Plant Structure - Extended	Semester 1	BOTX111	8
	Plant Evolution and Systematics - Extended	Semester 2	BOTX102	7
	Plant Ecology and Environmental Botany - Extended	Semester 2	BOTX112	8
	Animal Cell Biology and Histology - Extended	Semester 1	ZOOX101	7
	Animal Diversity - Extended	Semester 1	ZOOX111	8
	Principles of Animal Evolution - Extended	Semester 2	ZOOX102	8
	Animal Patterns in Time and Space - Extended	Semester 2	ZOOX112	7
	<b>Credits First Year</b>			<b>100</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Science Academic Skills II	Year	ALMX110	5
	English for Science II	Year	LEAX110	5
	Mathematics Special 101 - Extended	Semester 1	MATX101	8
	Mathematics Special 102 - Extended	Semester 2	MATX102	8
	General Chemistry - Extended	Semester 1	CHGX101	15
	Inorganic Chemistry - Extended	Semester 2	CHIX102	9

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Organic Chemistry - Extended	Semester 2	CHOX102	6
	Mechanics and Thermodynamics - Extended	Semester 1	FBBX101	7
	Electricity, Optics and Atomics - Extended	Semester 2	FBBX102	7
	Computing Fundamentals 1.1 - Extended	Semester 1	WRFX101	8
	<b>Credits Second Year</b>			<b>78</b>
<b>Third Year</b>				
<b>Select three of the following groups:</b>				
<b>A</b>	<b>Biochemistry II</b>			
	Introductory Biochemistry and Genetics	Semester 1	BCV201	20
	Metabolism	Semester 2	BCV202	20
<b>B</b>	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
<b>C</b>	<b>Chemistry II</b>			
	Chemistry Analytical	Semester 1	CHAV201	9
	Chemistry Inorganic	Semester 1	CHIV201	7
	Chemistry Organic	Semester 2	CHOV202	12
	Chemistry Physical	Year	CHPV200	12
<b>D</b>	<b>Microbiology II</b>			
	Introductory Microbiology and Control of Micro-organisms	Semester 1	BMV201	20
	Medical Microbiology	Semester 2	BMV202	20
<b>E</b>	<b>Physiology II</b>			
	Principles of Human Physiology and Control Systems	Semester 1	BSPD211	20
	Human Systemic Physiology	Semester 2	BSPD212	20
<b>F</b>	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
	<b>Credits Third Year</b>			<b>120</b>
<b>Fourth Year</b>				
<b>Select two of the following groups:</b>				

		Presented	Module Code	Credit Value
<b>A</b>	<b>Biochemistry III (Major)</b>			
	Advanced Protein Technology	Semester 1	BCV301	30
	Integrated Biochemistry	Semester 2	BCV302	30
<b>B</b>	<b>Microbiology III (Major)</b>			
	Bacteriology, Microbial Ecology, Virology and Mycology	Semester 1	BMV301	30
	Gene Manipulation, Industrial Microbiology and Biotechnology	Semester 2	BMV302	30
<b>C</b>	<b>Chemistry III (Major)</b>			
	Chemistry Inorganic	Year	CHIV300	20
	Chemistry Organic	Semester 1	CHOV300	20
	Chemistry Physical	Year	CHPV300	20
<b>D</b>	<b>Physiology III (Major)</b>			
	Integrated Human Physiology I	Semester 1	BSPD301	30
	Integrated Human Physiology II	Semester 2	BSPD302	30
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>418</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Inorganic Chemistry	CHIX102	CHGX101 (35%)	
Organic Chemistry	CHOX102	CHGX101 (35%)	
Electricity, Optics and Atomics	FBBX102	FBBX101 (35%)	
Mathematics Special 102	MATX102	MATX101	
Introductory Biochemistry and Genetics	BCV201	CHGX101, CHIX102, CHOX102, MATX101, MATX102	
Metabolism	BCV202	BCV201 (40%)	

Module	Code	Pre-requisites	Co-requisites
Chemistry Analytical	CHAV201	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Inorganic	CHIV201	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Organic	CHOV202	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Physical	CHPV200	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Introductory Microbiology and Control Micro-organisms	BMV201	CHGX101, CHIX102, CHOX102, BOTX101, BOTX111, BOTX102, BOTX112 ZOOX101, ZOOX111, ZOOX102, ZOOX112	or
Medical Microbiology	BMV202	BMV201 (40%)	
Principles of Human Physiology and Control Systems	BSPD211	CHGX101, <b>OR</b> ZOOX101,	
Human Systemic Physiology	BSPD212	BSPD211 (40%)	
Advanced Protein Technology	BCV301	BCV201, BCV202	
Integrated Biochemistry	BCV302	BCV301 (40%)	
Bacteriology, Microbial Ecology, Virology & Mycology	BMV301	BMV201, BMV202, BCV201, BCV202	

Module	Code	Pre-requisites	Co-requisites
Gene Manipulation, Industrial Microbiology and Biotechnology	BMV302	BMV301 (40%)	
Integrated Human Physiology I	BSPD301	BSPD211, BSPD212	
Integrated Human Physiology II	BSPD302	BSPD211, BSPD212	
Chemistry Inorganic	CHIV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Organic	CHOV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Physical	CHPV300	CHAV201, CHIV201, CHOV202, CHPV200	

## BACHELOR OF SCIENCE (BIOCHEMISTRY, CHEMISTRY, MICROBIOLOGY AND PHYSIOLOGY) (EXTENDED)

<b>Qualification code:</b>	20048
<b>Offering:</b>	Full-time South Campus (A7)
<b>Aligned NQF Level:</b>	5
<b>Total NQF Credits for qualification:</b>	418

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The qualification for BSc studies provides alternative university access to students who have the potential to succeed but do not meet the minimum admission requirements for the mainstream qualification.

The purpose of the qualification is to integrate additional academic support and skills development with mainstream modules in order to prepare the student for successful completion of the BSc degree.

### ***ADMISSION REQUIREMENTS***

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 370.
- NSC achievement rating of at least 50% for Mathematics.



## STATUTORY AND OTHER REQUIREMENTS

- Candidates shall only be permitted to register for any modules in the second year of study if they have passed at least 9 of the modules prescribed in the first year of study.
- Candidates who do not meet the promotion requirement above will only be allowed to re-register for the programme if they have passed a minimum of 6 foundational modules in their first year of study.
- Candidates who have not completed all the foundational modules in the programme after three (3) years of full-time study will not be allowed to re-register for the programme.

### Linked modules:

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%. Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

Departments that offer Pass on Link modules are:		
Biochemistry	Chemistry	Physics
BCV201, CV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, CV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102,
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBBX102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

## DURATION

The qualification shall extend over a minimum of four years of full-time study.

## CURRICULUM (Full-time)

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Science Academic Skills I	Year	ALMX100	10
English for Science I	Year	LEAX100	10
Pre-calculus A	Semester 1	MAPX101	10
Pre-calculus B	Semester 2	MAPX102	10
Plant Cell Biology - Extended	Semester 1	BOTX101	7
Plant Structure - Extended	Semester 1	BOTX111	8
Plant Evolution and Systematics - Extended	Semester 2	BOTX102	7
Plant Ecology and Environmental Botany - Extended	Semester 2	BOTX112	8

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Animal Cell Biology and Histology - Extended	Semester 1	ZOOX101	7
	Animal Diversity - Extended	Semester 1	ZOOX111	8
	Principles of Animal Evolution - Extended	Semester 2	ZOOX102	8
	Animal Patterns in Time and Space - Extended	Semester 2	ZOOX112	7
	<b>Credits First Year</b>			<b>100</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Science Academic Skills II	Year	ALMX110	5
	English for Science II	Year	LEAX110	5
	Mathematics Special 101 - Extended	Semester 1	MATX101	8
	Mathematics Special 102 - Extended	Semester 2	MATX102	8
	General Chemistry - Extended	Semester 1	CHGX101	15
	Inorganic Chemistry - Extended	Semester 2	CHIX102	9
	Organic Chemistry - Extended	Semester 2	CHOX102	6
	Mechanics and Thermodynamics - Extended	Semester 1	FBBX101	7
	Electricity, Optics and Atomics - Extended	Semester 2	FBBX102	7
	Computing Fundamentals 1.1 - Extended	Semester 1	WRFX101	8
	<b>Credits Second Year</b>			<b>78</b>
<b>Third Year</b>				
<b>Select three of the following groups:</b>				
<b>A</b>	<b>Biochemistry II</b>			
	Introductory Biochemistry and Genetics	Semester 1	BCV201	20
	Metabolism	Semester 2	BCV202	20
<b>B</b>	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
<b>C</b>	<b>Chemistry II</b>			
	Chemistry Analytical	Semester 1	CHAV201	9
	Chemistry Inorganic	Semester 1	CHIV201	7
	Chemistry Organic	Semester 2	CHOV202	12
	Chemistry Physical	Year	CHPV200	12
<b>D</b>	<b>Microbiology II</b>			
	Introductory Microbiology and Control of Micro-organisms	Semester 1	BMV201	20

		Presented	Module Code	Credit Value
	Medical Microbiology	Semester 2	BMV202	20
<b>E</b>	<b>Physiology II</b>			
	Principles of Human Physiology and Control Systems	Semester 1	BSPD211	20
	Human Systemic Physiology	Semester 2	BSPD212	20
<b>F</b>	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
	<b>Credits Third Year</b>			<b>120</b>
<b>Fourth Year</b>				
<b>Select two of the following groups:</b>				
<b>A</b>	<b>Biochemistry III (Major)</b>			
	Advanced Protein Technology	Semester 1	BCV301	30
	Integrated Biochemistry	Semester 2	BCV302	30
<b>B</b>	<b>Microbiology III (Major)</b>			
	Bacteriology, Microbial Ecology, Virology and Mycology	Semester 1	BMV301	30
	Gene Manipulation, Industrial Microbiology and Biotechnology	Semester 2	BMV302	30
<b>C</b>	<b>Chemistry III (Major)</b>			
	Chemistry Inorganic	Year	CHIV300	20
	Chemistry Organic	Semester 1	CHOV300	20
	Chemistry Physical	Year	CHPV300	20
<b>D</b>	<b>Physiology III (Major)</b>			
	Integrated Human Physiology I	Semester 1	BSPD301	30
	Integrated Human Physiology II	Semester 2	BSPD302	30
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>418</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Inorganic Chemistry	CHIX102	CHGX101 (35%)	
Organic Chemistry	CHOX102	CHGX101 (35%)	
Electricity, Optics and Atomics	FBBX102	FBBX101 (35%)	

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Mathematics Special 102	MATX102	MATX101	
Introductory Biochemistry and Genetics	BCV201	CHGX101, CHIX102, CHOX102, MATX101, MATX102	
Metabolism	BCV202	BCV201 (40%)	
Chemistry Analytical	CHAV201	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Inorganic	CHIV201	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Organic	CHOV202	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Physical	CHPV200	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Introductory Microbiology and Control Micro-organisms	BMV201	CHGX101, CHIX102, CHOX102, BOTX101, BOTX111, BOTX102, BOTX112 <b>or</b> ZOOX101, ZOOX111, ZOOX102, ZOOX112	
Medical Microbiology	BMV202	BMV201 (40%)	
Principles of Human Physiology and Control Systems	BSPD211	CHGX101, <b>or</b> ZOOX101,	

Module	Code	Pre-requisites	Co-requisites
Human Systemic Physiology	BSPD212	BSPD211 (40%)	
Advanced Protein Technology	BCV301	BCV201, BCV202	
Integrated Biochemistry	BCV302	BCV301 (40%)	
Bacteriology, Microbial Ecology, Virology & Mycology	BMV301	BMV201, BMV202, BCV201, BCV202	
Gene Manipulation, Industrial Microbiology and Biotechnology	BMV302	BMV301 (40%)	
Integrated Human Physiology I	BSPD301	BSPD211, BSPD212	
Integrated Human Physiology II	BSPD302	BSPD211, BSPD212	
Chemistry Inorganic	CHIV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Organic	CHOV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Physical	CHPV300	CHAV201, CHIV201, CHOV202, CHPV200	

## BACHELOR OF SCIENCE (BIOCHEMISTRY, CHEMISTRY, MICROBIOLOGY AND PHYSIOLOGY)

<b>Qualification code:</b>	20044
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	368

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The following curriculum is a recommended programme for the BSc degree in the Faculty of Science. Other subject combinations are possible but not necessarily sensible. Any other subject combinations must be discussed with the relevant Heads of Department.

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 410.
- NSC achievement rating of at least 60% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Unless Senate decides otherwise the degree shall be obtained by completing modules with a total credit value of at least 368 (360 credits for students who have passed all the modules WRFV101/WRSC111; WRFV102; WRAV101 and WRAV102 comprising the first year of Computer Science and Information Systems) of which
  - at least 120 credits are on Nelson Mandela University 3<sup>rd</sup> year and at least 240 credits on Nelson Mandela University 2<sup>nd</sup> year or a higher level;
  - at least 338 credits are from the list of approved subjects below.
- Two major subjects are required to qualify for the BSc. To obtain credits for a major subject the student must obtain 30 credits for the first year, 40 for the second year and 60 for the third year in that major subject. In those subjects that have no first year, a major will consist of 40 credits at second year and 60 credits at third-year level. A maximum of 30 credits from another Faculty may be selected.
- Exit-level major modules are those third-year modules which make up the major subjects referred to in the previous bullet.
- **Computer literacy:** All BSc students must pass at least WRSC111 (8 credits) if registered for Applied Mathematics 1 or WRFV101 (8 credits) (or equivalent) or have passed an appropriate competency test or have received automatic exemption for WRFV101/WRFV1X0 based on Grade 12 CAT marks.
- Unless Senate decides otherwise, a candidate who has failed a particular module three times shall not be allowed to re-register for that module.
- Where modules have substantially overlapping outcomes, credit shall not be given for more than one of those modules.
- Candidates registered for a degree in Statistics may not accumulate more than 40 credits from second year modules and 60 credits from third year modules presented by the Department of Statistics.
- **Maximum credits offered for the BSc:** Unless the Dean decides otherwise, students may not exceed modules to a value of more than 380 credits.

### **PROMOTION:**

- A candidate shall be allowed to register for modules on the second-year level only if he/she has passed first-year level modules in an approved programme with a total of at least 72 credits.
- A candidate shall be allowed to register for modules on the third-year level only if he/she has passed modules in an approved programme with a total of at least 181 credits of which at least 60 are on second-year level.
- Notwithstanding points 1 and 2 above, students who have not completed 128 credits at first-year level, must register for the balance of the 128 first-year credits before they may concurrently register for any second-year level credits. In the same way students who have not completed 120 credits at second-year level, must register for the balance of the 120 second-year credits before they may concurrently register for any third-year credits. In the case of timetable clashes between higher and lower year level modules the student must complete the lower level modules first.

### **CHOICE OF MODULES:**

Unless Senate decides otherwise, an approved curriculum shall consist of modules satisfying the requirements of the applicable rules above and be such that there are no lecture or examination timetable clashes at any stage and all prerequisites for subsequent modules are satisfied.

### **LINKED MODULES:**

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%.

Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

<b>Pass on Link module combinations are:</b>		
<b>Biochemistry</b>	<b>Chemistry</b>	<b>Physics</b>
BC251, BC252	CHG101, CHI101, CHO101	FBB101, FBB102
BC321, BC322	CHGX101, CHIX102, CHOX102	FBBX101, FBBX102
	CHA201, CHI201, CHO201, CHP203	F101, F102
	CHI303, CHO303, CHP303	F210, F212

### **DURATION**

The programme shall extend over a minimum of three years of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
<b>Botany 1</b>			
Plant Cell Biology	Semester 1	BOTV101	7
Plant Structure	Semester 1	BOTV111	8
Plant Evolution and Systematics	Semester 2	BOTV102	7
Plant Ecology and Environmental Botany	Semester 2	BOTV112	8
<b>Chemistry 1</b>			
Chemistry General	Semester 1	CHGV101	15
Chemistry Inorganic	Semester 2	CHIV100	9
Chemistry Organic	Semester 2	CHOV102	6
<b>Computer Science 1</b>			
Computing Fundamentals	Semester 1	WRFV101	8
<b>Mathematics Special 1</b>			
Mathematics Special 101	Semester 1	MATS101	8

		Presented	Module Code	Credit Value
	Mathematics Special 102	Semester 2	MATS102	8
	<b>Physics Special 1</b>			
	Mechanics and Thermodynamics	Semester 1	FBBV101	7
	Electricity, Optics and Atomics	Semester 2	FBBV102	7
	<b>Zoology 1</b>			
	Animal Cell Biology and Histology	Term 1	ZOOV101	7
	Animal Diversity	Term 2	ZOOV111	8
	Principles of Animal Evolution	Term 3	ZOOV102	8
	Animal Patterns in Time and Space	Term 4	ZOOV112	7
	<b>Credits First Year</b>			<b>128</b>
<b>Second Year</b>				
<b>Select three of the following groups:</b>				
<b>A</b>	<b>Biochemistry 2</b>			
	Introductory Biochemistry and Genetics	Semester 1	BCV201	20
	Metabolism	Semester 2	BCV202	20
<b>B</b>	<b>Botany 2</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
<b>C</b>	<b>Chemistry 2</b>			
	Chemistry Analytical	Semester 1	CHAV201	9
	Chemistry Inorganic	Semester 1	CHIV201	7
	Chemistry Organic	Semester 2	CHOV202	12
	Chemistry Physical	Year	CHPV200	12
<b>D</b>	<b>Microbiology 2</b>			
	Introductory Microbiology and Control of Micro-organisms	Semester 1	BMV201	20
	Medical Microbiology	Semester 2	BMV202	20
<b>E</b>	<b>Physiology 2</b>			
	Principles of Human Physiology and Control Systems	Semester 1	BSPD211	20
	Human Systemic Physiology	Semester 2	BSPD212	20
<b>F</b>	<b>Zoology 2</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10



		Presented	Module Code	Credit Value
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Select two of the following majors corresponding to the modules selected in the previous year:</b>				
	<b>Biochemistry 3 (major)</b>			
	Advanced Protein Technology	Semester 1	BCV301	30
	Integrated Biochemistry	Semester 2	BCV302	30
	<b>Chemistry 3 (major)</b>			
	Chemistry Inorganic	Year	CHIV300	20
	Chemistry Organic	Semester 1	CHOV300	20
	Chemistry Physical	Year	CHPV300	20
	<b>Microbiology 3 (major)</b>			
	Bacteriology, Microbial Ecology, Virology and Mycology	Semester 1	BMV301	30
	Gene Manipulation, Industrial Microbiology and Biotechnology	Semester 2	BMV302	30
	<b>Physiology 3</b>			
	Integrated Human Physiology I	Semester 1	BSPD301	30
	Integrated Human Physiology II	Semester 2	BSPD302	30
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>368</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Chemistry Inorganic	CHIV100	CHGV101 (35%)	
Chemistry Organic	CHOV102	CHGV101 (35%)	
Electricity, Optics, Atomics	FBBV102	FBBV101 (35%)	
Mathematics Special A	MATS102	MATS101	
Introductory Biochemistry and Genetics	BCV201	MATS101, MATS102; CHGV101, CHIV101, CHOV101	
Metabolism	BCV202	BCV201 (40%)	

Module	Code	Pre-requisites	Co-requisites
Chemistry Analytical	CHAV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Inorganic	CHIV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Organic	CHOV202	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Physical	CHPV200	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Introductory Microbiology and Control Micro-organisms	BMV201	CHGV101, CHIV100, CHOV102 <b>AND</b> BOTV101, BOTV102, BOTV111, BOTV112, <b>OR</b> ZOOV101, ZOOV102, ZOOV111, ZOOV112	
Medical Microbiology	BMV202	BMV201 (40%)	
Principles of Human Physiology and Control Systems	BSPD211	CHGV101, <b>or</b> ZOOV101,	
Human Systemic Physiology	BSPD212	BSPD211 (40%)	
Advanced Protein Technology	BCV301	BCV201, BCV202	
Integrated Biochemistry	BCV302	BCV301 (40%)	

Module	Code	Pre-requisites	Co-requisites
Bacteriology, Microbial Ecology, Virology & Mycology	BMV301	BMV201, BMV202, BCV201, BCV202	
Gene Manipulation, Industrial Microbiology and Biotechnology	BMV302	BMV301 (40%)	
Integrated Human Physiology I	BSPD301	BSPD211, BSPD212	
Integrated Human Physiology II	BSPD302	BSPD211, BSPD212	
Chemistry Inorganic	CHIV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Organic	CHOV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Physical	CHPV300	CHAV201, CHIV201, CHOV202, CHPV200	

## BACHELOR OF SCIENCE (BIOLOGICAL SCIENCES) (EXTENDED)

<b>Qualification code:</b>	20016
<b>Offering:</b>	Full-time South Campus (A7)
<b>Aligned NQF Level:</b>	5
<b>Total NQF Credits for qualification:</b>	418

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The qualification for BSc studies provides alternative university access to students who have the potential to succeed but do not meet the minimum admission requirements for the mainstream qualification.

The purpose of the qualification is to integrate additional academic support and skills development with mainstream modules in order to prepare the student for successful completion of the BSc degree.

### ***ADMISSION REQUIREMENTS***

- Minimum NSC statutory requirements for degree entry must be met.

- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 370.
- NSC achievement rating of at least 50% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Candidates shall only be permitted to register for any modules in the second year of study if they have passed at least 9 of the modules prescribed in the first year of study.
- Candidates who do not meet the promotion requirement above will only be allowed to re-register for the programme if they have passed a minimum of 6 foundational modules in their first year of study.
- Candidates who have not completed all the foundational modules in the programme after three (3) years of full-time study will not be allowed to re-register for the programme.

#### *Linked modules:*

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%. Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

<b>Departments that offer Pass on Link modules are:</b>		
<b>Biochemistry</b>	<b>Chemistry</b>	<b>Physics</b>
BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBBX102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

### **DURATION**

The qualification shall extend over a minimum of four years of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
Science Academic Skills I	Year	ALMX100	10
English for Science I	Year	LEAX100	10
Pre-calculus A	Semester 1	MAPX101	10
Pre-calculus B	Semester 2	MAPX102	10
Plant Cell Biology - Extended	Semester 1	BOTX101	7
Plant Structure - Extended	Semester 1	BOTX111	8
Plant Evolution and Systematics - Extended	Semester 2	BOTX102	7

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Plant Ecology and Environmental Botany - Extended	Semester 2	BOTX112	8
	Animal Cell Biology and Histology - Extended	Semester 1	ZOOX101	7
	Animal Diversity - Extended	Semester 1	ZOOX111	8
	Principles of Animal Evolution - Extended	Semester 2	ZOOX102	8
	Animal Patterns in Time and Space - Extended	Semester 2	ZOOX112	7
	<b>Credits First Year</b>			<b>100</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Science Academic Skills II	Year	ALMX110	5
	English for Science II	Year	LEAX110	5
	General Chemistry - Extended	Semester 1	CHGX101	15
	Inorganic Chemistry - Extended	Semester 2	CHIX102	9
	Organic Chemistry - Extended	Semester 2	CHOX102	6
	Mathematics Special 101 - Extended	Semester 1	MATX101	8
	Mathematics Special 102 - Extended	Semester 2	MATX102	8
	Mechanics and Thermodynamics - Extended	Semester 1	FBBX101	7
	Electricity, Optics and Atomics - Extended	Semester 2	FBBX102	7
	Computing Fundamentals 1.1 - Extended	Semester 1	WRFX101	8
	<b>Credits Second Year</b>			<b>78</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
	<b>Chemistry II</b>			
	Chemistry Analytical	Semester 1	CHAV201	9
	Chemistry Inorganic	Semester 1	CHIV201	7
	Chemistry Organic	Semester 2	CHOV202	12
	Chemistry Physical	Year	CHPV200	12
	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10

		Presented	Module Code	Credit Value
	Community Ecology	Semester 2	ZOOV212	10
	<b>Credits Third Year</b>			<b>120</b>
<b>Fourth Year</b>				
<b>Compulsory modules:</b>				
	<b>Botany III (Major)</b>			
	Applied Marine Botany	Semester 1	BOTV301	12
	Plant Physiology	Semester 1	BOTV311	12
	Plant Eco-physiology	Semester 2	BOTV302	12
	Plant Ecology and Environmental Management	Semester 2	BOTV312	12
	Project	Year	BOTV310	12
	<b>Zoology III (Major)</b>			
	Aquatic Ecology	Semester 1	ZOOV301	15
	Integrating Topics in Zoology	Semester 1	ZOOV311	15
	Applied Aquatic Science	Semester 2	ZOOV302	15
	Evolutionary Ecology	Semester 2	ZOOV312	15
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>418</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Inorganic Chemistry	CHIX102	CHGX101 (35%)	
Organic Chemistry	CHOX102	CHGX101 (35%)	
Electricity, Optics and Atomics	FBBX102	FBBX101 (35%)	
Mathematics Special 102	MATX102	MATX101	
Chemistry Analytical	CHAV201	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	

Module	Code	Pre-requisites	Co-requisites
Chemistry Inorganic	CHIV201	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Organic	CHOV202	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Chemistry Physical	CHPV200	CHGX101, CHIX102, CHOX102, FBBX101, FBBX102, MATX101, MATX102	
Aquatic Ecology	ZOOV301	FBBX101, FBBX102, MATX101, MATX102	OR
Integrating Topics in Zoology	ZOOV311	FBBX101, FBBX102, MATX101, MATX102	OR
Applied Aquatic Science	ZOOV302	ZOOV301, FBBX101, FBBX102, MATX101, MATX102	OR
Evolutionary Ecology	ZOOV312	FBBX101, FBBX102, MATX101, MATX102	OR

## BACHELOR OF SCIENCE (BIOLOGICAL SCIENCES)

<b>Qualification code:</b>	20055
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	7

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The following curriculum is a recommended programme for the BSc degree in the Faculty of Science. Other subject combinations are possible but not necessarily sensible. Any other subject combinations must be discussed with the relevant Heads of Department.

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 410.  
NSC achievement rating of at least 60% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Unless Senate decides otherwise the degree shall be obtained by completing modules with a total credit value of at least 368 (360 credits for students who have passed all the modules WRFV101/WRSC111; WRFV102; WRAV101 and WRAV102 comprising the first year of Computer Science and Information Systems) of which
  - at least 120 credits are on Nelson Mandela University 3<sup>rd</sup> year and at least 240 credits on Nelson Mandela University 2<sup>nd</sup> year or a higher level;
  - at least 338 credits are from the list of approved subjects below.
- Two major subjects are required to qualify for the BSc. To obtain credits for a major subject the student must obtain 30 credits for the first year, 40 for the second year and 60 for the third year in that major subject. In those subjects that have no first year, a major will consist of 40 credits at second year and 60 credits at third-year level. A maximum of 30 credits from another Faculty may be selected.
- Exit-level major modules are those third-year modules which make up the major subjects referred to in the previous bullet.
- **Computer literacy:** All BSc students must pass at least WRSC111 (8 credits) if registered for Applied Mathematics 1 or WRFV101 (8 credits) (or equivalent) or have passed an appropriate competency test or have received automatic exemption for WRFV101/WRFV1X0 based on Grade 12 CAT marks.
- Unless Senate decides otherwise, a candidate who has failed a particular module three times shall not be allowed to re-register for that module.
- Where modules have substantially overlapping outcomes, credit shall not be given for more than one of those modules.
- Candidates registered for a degree in Statistics may not accumulate more than 40 credits from second year modules and 60 credits from third year modules presented by the Department of Statistics.
- **Maximum credits offered for the BSc:** Unless the Dean decides otherwise, students may not exceed modules to a value of more than 380 credits.

### **PROMOTION:**

- A candidate shall be allowed to register for modules on the second-year level only if he/she has passed first-year level modules in an approved programme with a total of at least 72 credits.
- A candidate shall be allowed to register for modules on the third-year level only if he/she has passed modules in an approved programme with a total of at least 181 credits of which at least 60 are on second-year level.
- Notwithstanding points 1 and 2 above, students who have not completed 128 credits at first-year level, must register for the balance of the 128 first-year credits before they may



concurrently register for any second-year level credits. In the same way students who have not completed 120 credits at second-year level, must register for the balance of the 120 second-year credits before they may concurrently register for any third-year credits. In the case of timetable clashes between higher and lower year level modules the student must complete the lower level modules first.

**CHOICE OF MODULES:**

Unless Senate decides otherwise, an approved curriculum shall consist of modules satisfying the requirements of the applicable rules above and be such that there are no lecture or examination timetable clashes at any stage and all prerequisites for subsequent modules are satisfied.

**LINKED MODULES:**

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%.

Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

Pass on Link module combinations are:		
Biochemistry	Chemistry	Physics
BC251, BC252	CHG101, CHI101, CHO101	FBB101, FBB102
BC321, BC322	CHGX101, CHIX102, CHOX102	FBBX101, FBBX102
	CHA201, CHI201, CHO201, CHP203	F101, F102
	CHI303, CHO303, CHP303	F210, F212

**DURATION**

The programme shall extend over a minimum of three years of full-time study.

**CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
<b>Botany I</b>			
Plant Cell Biology	Semester 1	BOTV101	7
Plant Structure	Semester 1	BOTV111	8
Plant Evolution and Systematics	Semester 2	BOTV102	7
Plant Ecology and Environmental Botany	Semester 2	BOTV112	8
<b>Computer Science I</b>			
Computing Fundamentals	Semester 1	WRFV101	8
<b>Zoology I</b>			

		Presented	Module Code	Credit Value
	Animal Cell Biology and Histology	Term 1	ZOOV101	7
	Animal Diversity	Term 2	ZOOV111	8
	Principles of Animal Evolution	Term 3	ZOOV102	8
	Animal Patterns in Time and Space	Term 4	ZOOV112	7
<b>Select either Group A or Group B:</b>				
<b>A</b>	<b>Geography I</b>			
	Introduction to Economic and Settlement Geography	Term 1	GEOV101	7
	Introduction to Meteorology and Climatology	Term 2	GENV101	8
	Introduction to Geomorphology	Term 3	GENV102	8
	Introduction to Geo-Information Science and Cartography	Term 4	GISV102	8
	<b>Geology I</b>			
	Introduction to Earth	Semester 1	GGLV101	7
	Mineralogy and Petrology	Semester 1	GGLV111	8
	Physical Geology	Semester 2	GGLV102	7
	Structural and Economic Geology	Semester 2	GGLV112	8
<b>B</b>	<b>Chemistry I</b>			
	Chemistry General	Semester 1	CHGV101	15
	Chemistry Inorganic	Semester 2	CHIV100	9
	Chemistry Organic	Semester 2	CHOV102	6
	<b>Mathematics Special I</b>			
	Mathematics Special	Semester 1	MATS101	8
	Mathematics Special	Semester 2	MATS102	8
	<b>Physics Special I</b>			
	Mechanics and Thermodynamics	Semester 1	FBBV101	7
	Electricity, Optics and Atomics	Semester 2	FBBV102	7
	<b>Credits First Year</b>			<b>128/129</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10

		Presented	Module Code	Credit Value
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
<b>Select one of the following groups corresponding to the modules selected in the first year:</b>				
<b>A</b>	<b>Chemistry II</b>			
	Chemistry Analytical	Semester 1	CHAV201	9
	Chemistry Inorganic	Semester 1	CHIV201	7
	Chemistry Physical	Year	CHPV200	12
	Chemistry Organic	Semester 2	CHOV202	12
<b>B</b>	<b>Geography II</b>			
	Pedo-Geomorphological Studies	Term 1	GENV201	10
	Society and Environment	Term 4	GENV212	10
	Economic and Development Geography	Term 2	GEOV211	10
	Introduction to Cartography and GIS	Term 3	GISV201	10
<b>C</b>	<b>Geology II</b>			
	Palaeontology	Semester 1	GGLV201	10
	Structural Geology	Semester 1	GGLV211	10
	Mineralogy	Semester 2	GGLV202	10
	Sedimentary Petrology	Semester 2	GGLV212	10
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	<b>Botany III (Major)</b>			
	Applied Marine Botany	Semester 1	BOTV301	12
	Plant Physiology	Semester 1	BOTV311	12
	Plant Eco-physiology	Semester 2	BOTV302	12
	Plant Ecology and Environmental Management	Semester 2	BOTV312	12
	Project	Year	BOTV310	12
	<b>Zoology III (Major)</b>			
	Aquatic Ecology	Semester 1	ZOOV301	15
	Integrating Topics in Zoology	Semester 1	ZOOV311	15
	Applied Aquatic Science	Semester 2	ZOOV302	15
	Evolutionary Ecology	Semester 2	ZOOV312	15
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>368</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Chemistry Inorganic	CHIV100	CHGV101 (35%)	
Chemistry Organic	CHOV102	CHGV101 (35%)	
Electricity, Optics, Atomics	FBBV102	FBBV101 (35%)	
Physical Geology	GGLV102	GGLV101 (35%); GGLV111 (35%)	
Structure and Economic	GGLV112	GGLV101 (35%); GGLV111 (35%)	
Mathematics Special A	MATS102	MATS101	
Chemistry Analytical	CHAV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Inorganic	CHIV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Organic	CHOV202	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Physical	CHPV200	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Palaeontology	GGLV201	GGLV101, GGLV111, GGLV102, GGLV112	
Structural Geology	GGLV211	GGLV101, GGLV111, GGLV102, GGLV112	

Module	Code	Pre-requisites	Co-requisites
Mineralogy	GGLV202	GGLV101, GGLV111, GGLV102, GGLV112	
Sedimentary Petrology	GGLV212	GGLV101, GGLV111, GGLV102, GGLV112	
Pedo-Geomorphological Studies	GENV201	GENV102	
Economic & Development Geography	GEOV211	GEOV101	
Introduction to Cartography & GIS	GISV201	GISV102	
Society and Environment	GENV212	GEOV101	
Aquatic Ecology	ZOOV301	FBBV101, FBBV102, MATS101, MATS102	OR
Integrating Topics in Zoology	ZOOV311	FBBV101, FBBV102, MATS101, MATS102	OR
Applied Aquatic Science	ZOOV302	ZOOV301, FBBV101, FBBV102, MATS101, MATS102	OR
Evolutionary Ecology	ZOOV312	FBBV101, FBBV102, MATS101, MATS102	OR

## BACHELOR OF SCIENCE (COMPUTER SCIENCE)

<b>Qualification code:</b>	20053
<b>Offering:</b>	Full-time South Campus (A1)
<b>Non-aligned NQF Level:</b>	7

<b>Total NQF Credits for qualification:</b>	368
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### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

With majors chosen from Applied Mathematics, Computer Science, Mathematics, Mathematical Statistics and Physics.

The following curriculum is a recommended programme for the BSc degree in the Faculty of Science. Other subject combinations are possible but not necessarily sensible. Discuss any other subject combinations with the relevant Heads of Department.

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 410.
- NSC achievement rating of at least 65% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Unless Senate decides otherwise the degree shall be obtained by completing modules with a total credit value of at least 368 (360 credits for students who have passed all the modules WRFV101/WRSC111; WRFV102; WRAV101 and WRAV102 comprising the first year of Computer Science and Information Systems) of which
  - at least 120 credits are on Nelson Mandela University 3<sup>rd</sup> year and at least 240 credits on Nelson Mandela University 2<sup>nd</sup> year or a higher level;
  - at least 338 credits are from the list of approved subjects below.
- **An optional elective may not be used to replace any compulsory module within the programme. Electives cannot be offered in lieu of a module within a group.**
- Two major subjects are required to qualify for the BSc. To obtain credits for a major subject the student must obtain 30 credits for the first year, 40 for the second year and 60 for the third year in that major subject. In those subjects that have no first year, a major will consist of 40 credits at second year and 60 credits at third-year level. A maximum of 30 credits from another Faculty may be selected.
- Exit-level major modules are those third-year modules which make up the major subjects referred to in the previous bullet.
- **Computer literacy:** All BSc students must pass at least WRSC111 (8 credits) if registered for Applied Mathematics 1 or WRFV101 (8 credits) (or equivalent) or have passed an appropriate competency test or have received automatic exemption for WRFV101/WRFV1X0 based on Grade 12 CAT marks.
- Unless Senate decides otherwise, a candidate who has failed a particular module three times shall not be allowed to re-register for that module.
- Where modules have substantially overlapping outcomes, credit shall not be given for more than one of those modules.
- Candidates registered for a degree in Statistics may not accumulate more than 40 credits from second year modules and 60 credits from third year modules presented by the Department of Statistics.
- **Maximum credits offered for the BSc:** Unless the Dean decides otherwise, students may not exceed modules to a value of more than 380 credits.

### **PROMOTION:**

- A candidate shall be allowed to register for modules on the second-year level only if he/she has passed first-year level modules in an approved programme with a total of at least 72 credits.

- A candidate shall be allowed to register for modules on the third-year level only if he/she has passed modules in an approved programme with a total of at least 181 credits of which at least 60 are on second-year level.
- Notwithstanding points 1 and 2 above, students who have not completed 128 credits at first-year level, must register for the balance of the 128 first-year credits before they may concurrently register for any second-year level credits. In the same way students who have not completed 120 credits at second-year level, must register for the balance of the 120 second-year credits before they may concurrently register for any third-year credits. In the case of timetable clashes between higher and lower year level modules the student must complete the lower level modules first.

### **CHOICE OF MODULES:**

Unless Senate decides otherwise, an approved curriculum shall consist of modules satisfying the requirements of the applicable rules above and be such that there are no lecture or examination timetable clashes at any stage and all prerequisites for subsequent modules are satisfied.

### **LINKED MODULES:**

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%.

Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

<b>Pass on Link module combinations are:</b>		
<b>Biochemistry</b>	<b>Chemistry</b>	<b>Physics</b>
BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBBX102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

### **DURATION**

The programme shall extend over a minimum of three years of full-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Select combination A or B:</b>				
<b>A</b>	<b>Mathematics I</b>			
	Mathematics 1A	Semester 1	MATT101	16

		Presented	Module Code	Credit Value
	Mathematics 1b	Semester 2	MATT102	16
	<b>Applied Mathematics I</b>			
	Graph Theory	Semester 1	MAPV101	8
	Mathematical Modelling	Semester 1	MAPV111	8
	Mechanics	Semester 2	MAPV102	8
	Numerical Methods I	Semester 2	MAPV112	8
	Computing Fundamentals for Scientists 1.1	Semester 1	WRSC111	8
	<b>Select two of the following Groups A1, A2 or A3:</b>			
	<b>A1: - Computer Science I</b>			
	Programming Fundamentals 1.1	Semester 1	WRAV101	8
	Programming Fundamentals 1.2	Semester 2	WRAV102	8
	Computing Fundamentals 1.2	Semester 2	WRFV102	8
	<b>A2: - Physics I</b>			
	Mechanics and Thermodynamics	Semester 1	FVV101	15
	Electricity, Magnetism and Optics	Semester 2	FVV102	15
	<b>A3: - Statistics I</b>			
	Probability and Distribution Theory	Semester 1	STAS101	15
	Introduction to Statistical Inference	Semester 2	STAS102	15
	<b>Total credits for Combination A</b>			<b>126</b>
<b>B</b>	<b>Mathematics I</b>			
	Mathematics 1A	Semester 1	MATT101	16
	Mathematics 1b	Semester 2	MATT102	16
	<b>Computer Science I</b>			
	Programming Fundamentals 1.1	Semester 1	WRAV101	8
	Programming Fundamentals 1.2	Semester 2	WRAV102	8
	Computing Fundamentals 1.1	Semester 1	WRFV101	8
	Computing Fundamentals 1.2	Semester 2	WRFV102	8
	<b>Physics I</b>			
	Mechanics and Thermodynamics	Semester 1	FVV101	15
	Electricity, Magnetism and Optics	Semester 2	FVV102	15
	<b>Statistics I</b>			
	Probability and Distribution Theory	Semester 1	STAS101	15
	Introduction to Statistical Inference	Semester 2	STAS102	15
	<b>Total credits for Combination B</b>			<b>124</b>

### Second Year

Select three of the following groups corresponding to the modules selected in the first year:

<b>A</b>	<b>Computer Science II</b>			
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	The following modules are <b>compulsory for Computer Science majors</b> :			
	Data Structures and Algorithms 2.1	Semester 1	WRAV201	8
	Data Structures and Algorithms 2.2	Semester 2	WRAV202	8
	Computer Architecture 2.1	Semester 1	WRCV201	6
	Computer Architecture 2.2	Semester 2	WRCV202	6
	Information Systems 2.1	Semester 1	WRIV201	6
	Information Systems 2.2	Semester 2	WRIV202	6
	The following additional modules are available as <b>optional electives</b> , and are of primary interest to Computer Science non-majors:			
	Web Systems 2.1	Semester 1	WRWV201	8
	Web Systems 2.2	Semester 2	WRWV202	8
<b>B</b>	<b>Applied Mathematics II</b>			
	Differential Equations	Semester 1	MAPV201	10
	Numerical Methods 2	Semester 1	MAPV211	10
	Transform Theory	Semester 2	MAPV202	10
	Linear Optimisation	Semester 2	MAPV222	10
<b>C</b>	<b>Mathematics II</b>			
	Multivariable and Vector Calculus	Semester 1	MATT201	20
	Linear Algebra	Semester 2	MATT212	10
	Real Analysis	Semester 2	MATT202	10
<b>D</b>	<b>Physics II</b>			
	Optics, AC Theory and Thermodynamics	Semester 1	FVV201	20
	Mechanics, Modern and Nuclear Physics	Semester 2	FVV202	20
<b>E</b>	<b>Statistics II</b>			
	Theory of Distribution	Semester 1	STAS201	20
	Regression Analysis and Advanced Regression Topics	Semester 2	STAS202	20
	<b>Credits Second Year</b>			<b>120/130</b>
		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Third Year</b>				
<b>Select two of the following majors corresponding to the modules selected in the previous year:</b>				
<b>A</b>	<b>Computer Science III (Major)</b>			
	The following modules are <b>compulsory for Computer Science majors</b> :			
	Advanced Programming 3.1	Semester 1	WRPV301	10
	Advanced Programming 3.2	Semester 2	WRPV302	11
	Advanced Data Structures	Semester 1	WRAV301	10
	Languages and Automata Theory	Semester 2	WRLV302	10
	Database Systems 3	Semester 1	WRDV301	7
	User Interface Design	Semester 2	WUIV302	7

	Project	Year	WRRV301	9
The following additional modules are available as <b>optional electives</b> :				
	Multimedia Systems 3.1	Semester 1	WRMV301	10
	Multimedia Systems 3.2	Semester 2	WRMV302	10
<b>B</b>	<b>Applied Mathematics III (Major)</b>			
	Partial Differential Equations	Semester 1	MAPV301	15
	Finite Difference Methods	Semester 1	MAPV311	15
	Non-linear Optimisation	Semester 2	MAPV302	15
	Dynamical Systems	Semester 2	MAPV312	15
<b>C</b>	<b>Mathematics III (Major)</b>			
	Real Analysis	Semester 1	MATT301	15
	Advanced Linear Algebra	Semester 1	MATT311	15
	Modern Algebra	Semester 2	MATT302	15
	Complex Functions	Semester 2	MATT312	15
<b>D</b>	<b>Physics III (Major)</b>			
	Electrodynamics and Quantum Mechanics	Semester 1	FVV301	30
	Crystallography and Solid-State Physics	Semester 2	FVV302	30
<b>E</b>	<b>Statistics III (Major)</b>			
	Statistical Inference	Semester 1	STAS301	24
	Special Topics in Statistics	Semester 1	STAS321	6
	Time Series Analysis	Semester 2	STAS312	10
	Theory of Linear Models	Semester 2	STAS322	10
	Operations Research	Semester 2	STAS342	10
	<b>Credits Third Year</b>			<b>124</b>
	<b>Total Credits</b>			<b>368</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Electricity Magnetism & Optics	FVV102	FVV101 (35%)	
Mathematics 1B	MATT102	MATT101	
Introduction to Statistical Inference	STAS102	STAS101 (40%)	
Programming Fundamentals 1.2	WRAV102	WRAV101	
Computing Fundamentals 1.2	WRFV102	WRFV101, WRSC111	
Optics, Ac Theory and Thermodynamics	FVV201	FVV102, MATT101 (40%), MATT102	
Mechanics and Modern/Nuclear Physics	FVV202	FVV101 (40%)	

Module	Code	Pre-requisites	Co-requisites
Multivariate and Vector Calculus	MATT201	MATT101, MATT102	
Linear Algebra	MATT212	MATT102	
Real Analysis	MATT202	MATT101, MATT102	
Differential Equations	MAPV201	MATT102,	
Numerical Methods II	MAPV211	MATT102,	
Transform Theory	MAPV202	MATT102, Co-register MAPV201	
Linear Optimization	MAPV222	MATT102	
Theory of Distribution	STAS201	STAS101, STAS102, MATT102	
Regression Analysis & Advanced Regression Topics	STAS202	STAS101, STAS102	
Data Structures and Algorithms 2.1	WRAV201	WRAV102, WRFV101, MATS101, MATS102	
Data Structures and Algorithms 2.2	WRAV202	WRAV201	
Computer Architecture & Networks 2.1	WRCV201	WRAV102, WRFV101, MATS101, MATS102	
Computer Architecture & Networks 2.2	WRCV202	WRCV201	
Information Systems 2.1	WRIV201	WRAV102, WRFV101	
Information Systems 2.2	WRIV202	WRIV201	
Web Systems 2.1	WRWV201	WRFV102, WRAV102	
Web Systems 2.2	WRWV202	WRWV201	
Electrodynamics & Quantum Mechanics	FVV301	FVV201, FVV202, MATT201	
Crystallography and Solid-State Physics	FVV302	FVV201, FVV202, MATT101; MATT102	
Advanced Linear Algebra	MATT311	MATT212	
Advanced Real Analysis	MATT301	MATT202	
Modern Algebra	MATT302	MATT212	
Complex Functions	MATT312	MATT202	
Partial Differential Equations	MAPV301	MAPV201, MAPV202	

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Finite Difference Methods	MAPV311	MAPV211	
Nonlinear Optimization	MAPV302	MAPV211	
Dynamical Systems	MAPV312	MAPV201	
Statistical Inference	STAS301	STAS201	
Special Topics in Statistics	STAS321	STAS201	
Theory of Linear Models	STAS322	STAS202	
Time Series Analysis	STAS312	STAS202	
Operations Research	STAS342	STAS201	
Advanced Programming 3.1	WRPV301	WRAV202, WRCV201, WRIV202, MATB111 and MATB112, <b>OR</b> MATT101 and MATT102	
Advanced Programming 3.2	WRPV302	WRPV301	
Advanced Data Structures 3.1	WRAV301	WRAV202, WRCV201, WRIV202, MATB111 and MATB112, <b>OR</b> MATT101 and MATT102	
Languages and Automata Theory 3.1	WRLV302	WRAV202, WRCV201, MATT101 and MATT102, <b>OR</b> MATB111 and MATB112	
Database Systems 3	WRDV301	WRIV202, WRWV202 OR WRAV202	
User Interface Design 3	WUIV302	WRIV202, WRWV202 OR WRAV202	
Project	WRRV301	WRIV202, WRWV202, OR WRAV202 Co-enrolment WRDV301,	
Multimedia Systems 3.1	WRMV301	WRAV102, WRFV102	
Multimedia Systems 3.2	WRMV302	WRMV301	

<b>Choosing the combination:</b>	
<b>Year 1:</b>	Applied Mathematics 1, Computer Science 1, Mathematics 1 and Mathematical Statistics 1.
<b>Year 2:</b>	Applied Mathematics 2, Mathematics 2 and Mathematical Statistics 2.
<b>Year 3:</b>	Applied Mathematics 3 and Mathematical Statistics 3 leads to a career in <b>Industrial Mathematics</b> which is the problem-driven blend of Mathematics and Statistics that uses mathematical technologies to solve industrial problems. Industrial mathematics is an independent field which studies all mathematical methods that are directly relevant to industry.
	Industrial Mathematicians apply their talents to: <ul style="list-style-type: none"> <li>• Optimise and manage factory production.</li> <li>• Design and test products.</li> <li>• Ensure quality control and customer service procedure.</li> <li>• Strategic planning.</li> <li>• Risk management.</li> <li>• Perform statistical analyses.</li> </ul>
<b>Choosing the combination:</b>	
<b>Year 1:</b>	Applied Mathematics 1, Computer Science 1, Mathematics1 and (Mathematical Statistics 1or Physics 1).
<b>Year 2:</b>	Applied Mathematics 2, Computer Science 2, Mathematics 2.
<b>Year 3:</b>	Applied Mathematics 3 and Computer Science 3 leads to a career in <b>Computational Mathematics</b> . Computational Mathematics is an innovative, multidisciplinary program whose focus lies in the intersection of mathematics and computer science. Graduates of the program will be able to deploy effectively a wide range of mathematical and computational techniques to solve problems in science and commerce; to develop, enhance and maintain the relevant software tools; and to communicate results of complex modules and simulations to end-users.
	Computational mathematicians study: <ul style="list-style-type: none"> <li>• Parallel processes and parallel algorithms.</li> <li>• Numerical analysis and complexity.</li> <li>• Artificial intelligence and neural networks.</li> <li>• Optimization and non-linear programming.</li> <li>• Numerical solutions to PDE's and large-scale computations.</li> <li>• Mathematical problems too complex for paper/pencil solutions.</li> <li>• Coding and Cryptography.</li> <li>• Computational geometry.</li> </ul>
<b>Choosing the combination:</b>	
<b>Year 1:</b>	Applied Mathematics 1, Mathematics 1, Mathematical Statistics1, Physics and Computer Fundamentals.
<b>Year 2:</b>	Applied Mathematics 2, Physics 2 and the modules MATT211, 203 and STAS201.
<b>Year 3:</b>	Applied Mathematics 3 and Physics 3 leads to a career in <b>Computational Physics</b> . <b>Computational physics</b> is the study and implementation of numerical algorithms in order to solve problems in physics for which a quantitative theory already exists.

<b>Choosing the combination:</b>	
	Physicists often have a very precise mathematical theory describing how a system will behave. Physics problems are in general very difficult to solve exactly. Even apparently simple problems, such as calculating the wave function of an electron orbiting an atom in a strong electric field, may require great effort to formulate a practical algorithm (if one can be found). In addition, the computational cost of solving quantum mechanical problems is generally exponential in the size of the system (see computational complexity theory). Seeing as a typical macroscopic solid has of the order of $10^{23}$ constituent particles, it may be somewhat of an understatement to say this is a bit of a problem.
	<b>Applications of computational physics</b> Computational methods are widely used in solid state physics, fluid mechanics and image analysis in electron microscopy, amongst others. Computational physics borrows a number of ideas from computational chemistry – for example, the density functional theory used by computational physicists to calculate properties of solids is basically the same as that used by chemists to calculate the properties of molecules.
<b>Choosing the combination:</b>	
<b>Year 1:</b>	Applied Mathematics 1, Computer Science 1, Mathematics 1 and Physics 1.
<b>Year 2:</b>	Physics 2, Computer Science 2 (and 40 credits from Applied Mathematics 2 and Mathematics 2).
<b>Year 3:</b>	Computer Science 3 or (Computer Science 3 and Physics 3) provides for a combination of the problem-solving skills and analytical thinking developed through Physics and Computer Science which is an interface between science, technology and engineering and business. This combination provides a powerful platform for entering a variety of businesses, banks, the government and the military as well as various postgraduate programmes. Graduates in physics and computer science can, and do, excel in a diverse range of situations and occupation.
<b>Choosing the combination:</b>	
<b>Year 1:</b>	Applied Mathematics 1, Computer Science 1, Mathematics 1 and Physics 1.
<b>Year 2:</b>	Computer Science 2, Mathematics 2 (and 40 credits from Applied Mathematics 2 and Physics 2).
<b>Year 3:</b>	Computer Science 3 and Mathematics 3 provides for a combination of the problem-solving skills, analytical thinking, programming design and application development. This program provides a powerful platform for entering a variety of employment opportunities in business. It can also lead to various postgraduate programmes.

**BACHELOR OF SCIENCE  
(ENVIRONMENTAL SCIENCES)  
(EXTENDED)**

<b>Qualification code:</b>	20017
<b>Offering:</b>	Full-time South Campus (A7)
<b>Aligned NQF Level:</b>	5
<b>Total NQF Credits for qualification:</b>	418/422

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The qualification for BSc studies provides alternative university access to students who have the potential to succeed but do not meet the minimum admission requirements for the mainstream qualification. The purpose of the qualification is to integrate additional academic support and skills development with mainstream modules in order to prepare the student for successful completion of the BSc degree.

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 370.
- NSC achievement rating of at least 50% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Candidates shall only be permitted to register for any modules in the second year of study if they have passed at least 9 of the modules prescribed in the first year of study.
- Candidates who do not meet the promotion requirement above will only be allowed to re-register for the programme if they have passed a minimum of 6 foundational modules in their first year of study.
- Candidates who have not completed all the foundational modules in the programme after three (3) years of full-time study will not be allowed to re-register for the programme.

#### *Linked modules:*

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%. Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

<b>Departments that offer Pass on Link modules are:</b>		
<b>Biochemistry</b>	<b>Chemistry</b>	<b>Physics</b>
BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FBBX101, FBBX102
	CHAV201, CHIV201, CHOV202, CHPV200	FVV101, FVV102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

### **DURATION**

The qualification shall extend over a minimum of four years of full-time study.

**CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Science Academic Skills I	Year	ALMX100	10
	English for Science I	Year	LEAX100	10
	Pre-calculus A	Semester 1	MAPX101	10
	Pre-calculus B	Semester 2	MAPX102	10
<b>Select two of the following groups: (Modules on offer as timetable permits)</b>				
<b>A</b>	<b>Botany</b>			
	Plant Cell Biology - Extended	Semester 1	BOTX101	7
	Plant Structure - Extended	Semester 1	BOTX111	8
	Plant Evolution and Systematics - Extended	Semester 2	BOTX102	7
	Plant Ecology and Environmental Botany - Extended	Semester 2	BOTX112	8
<b>B</b>	<b>Geography</b>			
	Introduction to Economic and Settlement Geography - Extended	Semester 1	GEOX101	7
	Introduction to Meteorology and Climatology - Extended	Semester 1	GENX101	8
	Introduction to Geomorphology - Extended	Semester 2	GENX102	8
	Introduction to Geo-Information Science and Cartography - Extended	Semester 2	GISX102	8
<b>C</b>	<b>Geology (NOT OFFERED)</b>			
	Introduction to Earth - Extended	Semester 1	GGLX101	7
	Mineralogy and Petrology - Extended	Semester 1	GGLX111	8
	Physical Geology - Extended	Semester 2	GGLX102	8
	Structure and Economic Geology - Extended	Semester 2	GGLX112	8
<b>D</b>	<b>Zoology</b>			
	Animal Cell Biology and Histology - Extended	Semester 1	ZOOX101	7
	Animal Diversity - Extended	Semester 1	ZOOX111	8
	Principles of Animal Evolution - Extended	Semester 2	ZOOX102	8
	Animal Patterns in Time and Space - Extended	Semester 2	ZOOX112	7
	<b>Credits First Year</b>			<b>100/102</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	<b>Compulsory modules:</b>			
	Science Academic Skills II	Year	ALMX110	5
	English for Science II	Year	LEAX110	5
	Computing Fundamentals 1.1 - extended	Semester 1	WRFX101	8



		Presented	Module Code	Credit Value
<b>Select two of the following groups (Modules on offer as timetable permits):</b>				
<b>A</b>	<b>Botany (NOT OFFERED)</b>			
	Plant Cell Biology - extended	Semester 1	BOTX101	7
	Plant Structure - extended	Semester 1	BOTX111	8
	Plant Evolution and Systematics - extended	Semester 2	BOTX102	7
	Plant Ecology and Environmental Botany - extended	Semester 2	BOTX112	8
<b>B</b>	<b>Geography (NOT OFFERED)</b>			
	Introduction to Economic and Settlement Geography - Extended	Semester 1	GEOX101	7
	Introduction to Meteorology and Climatology - Extended	Semester 1	GENX101	8
	Introduction to Geomorphology - Extended	Semester 2	GENX102	8
	Introduction to Geo-Information Science and Cartography - Extended	Semester 2	GISX102	8
<b>C</b>	<b>Geology</b>			
	Introduction to Earth - Extended	Semester 1	GGLX101	7
	Mineralogy and Petrology - Extended	Semester 1	GGLX111	8
	Physical Geology - Extended	Semester 2	GGLX102	8
	Structure and Economic Geology - Extended	Semester 2	GGLX112	8
<b>D</b>	<b>Zoology</b>			
	Animal Cell Biology and Histology - Extended	Semester 1	ZOOX101	7
	Animal Diversity - Extended	Semester 1	ZOOX111	8
	Principles of Animal Evolution - Extended	Semester 2	ZOOX102	8
	Animal Patterns in Time and Space - Extended	Semester 2	ZOOX112	7
<b>Select either E1 or E2: These groups do not lead to majors and no second-year modules are on offer:</b>				
<b>E1</b>	<b>Chemistry</b>			
	General Chemistry - Extended	Semester 1	CHGX101	15
	Inorganic Chemistry - Extended	Semester 2	CHIX102	9
	Organic Chemistry - Extended	Semester 2	CHOX102	6
<b>E2</b>	<b>Mathematics</b>			
	Mathematics Special 101 - Extended	Semester 1	MATX101	8
	Mathematics Special 102 - Extended	Semester 2	MATX102	8
	<b>Physics</b>			
	Mechanics and Thermodynamics - Extended	Semester 1	FBBX101	7
	Electricity, Optics and Atomics - Extended	Semester 2	FBBX102	7
	<b>Credits Second Year</b>			<b>78/80</b>
<b>Third Year</b>				
<b>Select three of the following groups:</b>				

		Presented	Module Code	Credit Value
<b>A</b>	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
<b>B</b>	<b>Geography II</b>			
	Pedo-Geomorphological Studies	Term 1	GENV201	10
	Society and Environment	Term 4	GENV212	10
	Economic and Development Geography	Term 2	GEOV211	10
	Introduction to Cartography and GIS	Term 3	GISV201	10
<b>C</b>	<b>Geology II</b>			
	Palaeontology	Semester 1	GGLV201	10
	Structural Geology	Semester 1	GGLV211	10
	Mineralogy	Semester 2	GGLV202	10
	Sedimentary Petrology	Semester 2	GGLV212	10
<b>D</b>	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
	<b>Credits Third Year</b>			<b>120</b>
<b>Fourth Year</b>				
<b>Select two of the following majors corresponding to the modules selected in the previous year:</b>				
<b>A</b>	<b>Botany III (Major)</b>			
	Applied Marine Botany	Semester 1	BOTV301	12
	Plant Physiology	Semester 1	BOTV311	12
	Plant Eco-physiology	Semester 2	BOTV302	12
	Plant Ecology and Environmental Management	Semester 2	BOTV312	12
	Project	Year	BOTV310	12
<b>B</b>	<b>Geography III (Major)</b>			
	Geo-Information Systems	Term 1	GISV301	15
	Geomorphology	Term 2	GENV301	15
	Environmental Resource Management	Term 4	GENV312	15
	Photogrammetry and Remote Sensing	Term 3	GISV302	15
<b>C</b>	<b>Geology III (Major)</b>			
	Igneous Petrology	Semester 1	GGLV301	15
	Stratigraphy	Semester 1	GGLV311	15

		Presented	Module Code	Credit Value
	Geo-tectonics and Metamorphic Petrology	Semester 2	GGLV302	15
	Economic Geology	Semester 2	GGLV312	15
<b>D</b>	<b>Zoology III (Major)</b>			
	Aquatic Ecology	Semester 1	ZOOV301	15
	Integrating Topics in Zoology	Semester 1	ZOOV311	15
	Applied Aquatic Science	Semester 2	ZOOV302	15
	Evolutionary Ecology	Semester 2	ZOOV312	15
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>418/422</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Inorganic Chemistry	CHIX102	CHGX101 (35%)	
Organic Chemistry	CHOX102	CHGX101 (35%)	
Electricity, Optics and Atomics	FBBX102	FBBX101 (35%)	
Physical Geology	GGLX102	GGLX101 (35%), GGLX111 (35%)	
Structure and Economic Geology	GGLX112	GGLX101 (35%), GGLX111 (35%)	
Mathematics Special 102	MATX102	MATX101	
Pedo-Geomorphological Studies	GENV201	GENX102	
Economic & Development Geography	GEOV211	GEOX101	
Introduction to Cartography & GIS	GISV201	GISX102	
Society and Environment	GENV212	GEOX101	
Palaeontology	GGLV201	GGLX101, GGLX111, GGLX102, GGLX112	
Structural Geology	GGLV211	GGLX101, GGLX111, GGLX102, GGLX112	
Mineralogy	GGLV202	GGLX101, GGLX111, GGLX102, GGLX112	

Module	Code	Pre-requisites	Co-requisites
Sedimentary Petrology	GGLV212	GGLX101, GGLX111, GGLX102, GGLX112	
Geo-information Systems	GISV301	GISV201	
Geomorphology	GENV301	GENV201	
Photogrammetry and Remote Sensing	GISV302	GISV201	
Environmental Resource Management	GENV312	GENV212	
Igneous Petrology	GGLV301	GGLV201, GGLV211, GGLV202, GGLV212	
Stratigraphy	GGLV311	GGLV201, GGLV211, GGLV202, GGLV212	
Geo-tectonics & Metamorphic Petrology	GGLV302	GGLV201, GGLV211, GGLV202, GGLV212	
Economic Geology	GGLV312	GGLV201, GGLV211, GGLV202, GGLV212	
Aquatic Ecology	ZOOV301	FBBX101, FBBX102, MATX101, MATX102	OR
Integrating Topics in Zoology	ZOOV311	FBBX101, FBBX102, MATX101, MATX102	OR
Applied Aquatic Science	ZOOV302	ZOOV301, FBBX101, FBBX102, MATX101, MATX102	OR
Evolutionary Ecology	ZOOV312	FBBX101, FBBX102, MATX101, MATX102	OR

## BACHELOR OF SCIENCE (ENVIRONMENTAL SCIENCES)

Qualification code:	20056
Offering:	Full-time South Campus (A1)
Aligned NQF Level:	7
Total NQF Credits for qualification:	368

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The following curriculum is a recommended programme for the BSc degree in the Faculty of Science. Other subject combinations are possible but not necessarily sensible. Any other subject combinations must be discussed with the relevant Heads of Department.

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 410.
- NSC achievement rating of at least 60% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Unless Senate decides otherwise the degree shall be obtained by completing modules with a total credit value of at least 368 (360 credits for students who have passed all the modules WRFV101/WRSC111; WRFV102; WRAV101 and WRAV102 comprising the first year of Computer Science and Information Systems) of which
  - at least 120 credits are on Nelson Mandela University 3<sup>rd</sup> year and at least 240 credits on Nelson Mandela University 2<sup>nd</sup> year or a higher level;
  - at least 338 credits are from the list of approved subjects below.
- Two major subjects are required to qualify for the BSc. To obtain credits for a major subject the student must obtain 30 credits for the first year, 40 for the second year and 60 for the third year in that major subject. In those subjects that have no first year, a major will consist of 40 credits at second year and 60 credits at third-year level. A maximum of 30 credits from another Faculty may be selected.
- Exit-level major modules are those third-year modules which make up the major subjects referred to in the previous bullet.
- **Computer literacy:** All BSc students must pass at least WRSC111 (8 credits) if registered for Applied Mathematics 1 or WRFV101 (8 credits) (or equivalent) or have passed an appropriate competency test or have received automatic exemption for WRFV101/WRFV1X0 based on Grade 12 CAT marks.
- Unless Senate decides otherwise, a candidate who has failed a particular module three times shall not be allowed to re-register for that module.
- Where modules have substantially overlapping outcomes, credit shall not be given for more than one of those modules.
- Candidates registered for a degree in Statistics may not accumulate more than 40 credits from second year modules and 60 credits from third year modules presented by the Department of Statistics.
- **Maximum credits offered for the BSc:** Unless the Dean decides otherwise, students may not exceed modules to a value of more than 380 credits.

#### PROMOTION:

- A candidate shall be allowed to register for modules on the second-year level only if he/she has passed first-year level modules in an approved programme with a total of at least 72 credits.
- A candidate shall be allowed to register for modules on the third-year level only if he/she has passed modules in an approved programme with a total of at least 181 credits of which at least 60 are on second-year level.
- Notwithstanding points 1 and 2 above, students who have not completed 128 credits at first-year level, must register for the balance of the 128 first-year credits before they may concurrently register for any second-year level credits. In the same way students who have not completed 120 credits at second-year level, must register for the balance of the 120 second-year credits before they may concurrently register for any third-year credits. In the case of timetable clashes between higher and lower year level modules the student must complete the lower level modules first.

#### CHOICE OF MODULES:

Unless Senate decides otherwise, an approved curriculum shall consist of modules satisfying the requirements of the applicable rules above and be such that there are no lecture or examination timetable clashes at any stage and all prerequisites for subsequent modules are satisfied.

#### LINKED MODULES:

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%.

Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

Pass on Link module combinations are:		
Biochemistry	Chemistry	Physics
BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBBX102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

#### DURATION

The programme shall extend over a minimum of three years of full-time study.

#### CURRICULUM (Full-time)

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory module:</b>			
	<b>Computer Science I</b>		

		Presented	Module Code	Credit Value
	Computing Fundamentals	Semester 1	WRFV101	8
<b>Select four of the following groups:</b>				
<b>A</b>	<b>Botany I</b>			
	Plant Cell Biology	Semester 1	BOTV101	7
	Plant Structure	Semester 1	BOTV111	8
	Plant Evolution and Systematics	Semester 2	BOTV102	7
	Plant Ecology and Environmental Botany	Semester 2	BOTV112	8
<b>B</b>	<b>Chemistry I</b>			
	Chemistry General	Semester 1	CHGV101	15
	Chemistry Inorganic	Semester 2	CHIV100	9
	Chemistry Organic	Semester 2	CHOV102	6
<b>C</b>	<b>Geography I</b>			
	Introduction to Economic and Settlement Geography	Term 1	GEOV101	7
	Introduction to Meteorology and Climatology	Term 2	GENV101	8
	Introduction to Geomorphology	Term 3	GENV102	8
	Introduction to Geo-Information Science and Cartography	Term 4	GISV102	8
<b>D</b>	<b>Geology I</b>			
	Introduction to Earth	Semester 1	GGLV101	7
	Mineralogy and Petrology	Semester 1	GGLV111	8
	Physical Geology	Semester 2	GGLV102	7
	Structural and Economic Geology	Semester 2	GGLV112	8
<b>E</b>	<b>Mathematics Special I</b>			
	Mathematics Special 101	Semester 1	MATS101	8
	Mathematics Special 102	Semester 2	MATS102	8
<b>F</b>	<b>Physics Special I</b>			
	Mechanics and Thermodynamics	Semester 1	FBBV101	7
	Electricity, Optics and Atomics	Semester 2	FBBV102	7
<b>G</b>	<b>Zoology I</b>			
	Animal Cell Biology and Histology	Term 1	ZOOV101	7
	Animal Diversity	Term 2	ZOOV111	8
	Principles of Animal Evolution	Term 3	ZOOV102	8
	Animal Patterns in Time and Space	Term 4	ZOOV112	7
	<b>Credits First Year</b>			<b>128/129</b>
<b>Second Year</b>				
<b>Select three of the following groups corresponding to the modules selected in the first year:</b>				
<b>A</b>	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8

		Presented	Module Code	Credit Value
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
<b>Select either B1 or B2:</b>				
<b>B1</b>	<b>Chemistry II</b>			
	Chemistry Analytical	Semester 1	CHAV201	9
	Chemistry Inorganic	Semester 1	CHIV201	7
	Chemistry Physical	Year	CHPV200	12
	Chemistry Organic	Semester 2	CHOV202	12
<b>B2</b>	<b>Geography II</b>			
	Pedo-Geomorphological Studies	Term 1	GENV201	10
	Society and Environment	Term 4	GENV212	10
	Economic and Development Geography	Term 2	GEOV211	10
	Introduction to Cartography and GIS	Term 3	GISV201	10
<b>C</b>	<b>Geology II</b>			
	Palaeontology	Semester 1	GGLV201	10
	Structural Geology	Semester 1	GGLV211	10
	Mineralogy	Semester 2	GGLV202	10
	Sedimentary Petrology	Semester 2	GGLV212	10
<b>D</b>	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Select two of the following majors corresponding to the modules selected in the previous year:</b>				
<b>A</b>	<b>Botany III (major)</b>			
	Applied Marine Botany	Semester 1	BOTV301	12
	Plant Physiology	Semester 1	BOTV311	12
	Project	Year	BOTV310	12
	Plant Eco-physiology	Semester 2	BOTV302	12
	Plant Ecology and Environmental Management	Semester 2	BOTV312	12
<b>Select either B1 or B2:</b>				
<b>B1</b>	<b>Chemistry III</b>			
	Chemistry Inorganic	Year	CHIV300	20



		Presented	Module Code	Credit Value
	Chemistry Organic	Semester 1	CHOV300	20
	Chemistry Physical	Year	CHPV300	20
<b>B2</b>	<b>Geography III (Major)</b>			
	Geo-Information Systems	Term 1	GISV301	15
	Geomorphology	Term 2	GENV301	15
	Environmental Resource Management	Term 4	GENV312	15
	Photogrammetry and Remote Sensing	Term 3	GISV302	15
<b>C</b>	<b>Geology III (Major)</b>			
	Igneous Petrology	Semester 1	GGLV301	15
	Stratigraphy	Semester 1	GGLV311	15
	Geo-tectonics and Metamorphic Petrology	Semester 2	GGLV302	15
	Economic Geology	Semester 2	GGLV312	15
<b>D</b>	<b>Zoology III (Major)</b>			
	Aquatic Ecology	Semester 1	ZOOV301	15
	Integrating Topics in Zoology	Semester 1	ZOOV311	15
	Applied Aquatic Science	Semester 2	ZOOV302	15
	Evolutionary Ecology	Semester 2	ZOOV312	15
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>368</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Chemistry Inorganic	CHIV100	CHGV101 (35%)	
Chemistry Organic	CHOV102	CHGV101 (35%)	
Electricity, Optics, Atomics	FBBV102	FBBV101 (35%)	
Physical Geology	GGLV102	GGLV101 (35%); GGLV111 (35%)	
Structure and Economic	GGLV112	GGLV101 (35%); GGLV111 (35%)	
Mathematics Special A	MATS102	MATS101	
Chemistry Analytical	CHAV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Chemistry Inorganic	CHIV201	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Organic	CHOV202	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Chemistry Physical	CHPV200	CHGV101, CHIV101, CHOV101, FBBV101, FBBV102, MATS101, MATS102	
Palaeontology	GGLV201	GGLV101, GGLV111, GGLV102, GGLV112	
Structural Geology	GGLV211	GGLV101, GGLV111, GGLV102, GGLV112	
Mineralogy	GGLV202	GGLV101, GGLV111, GGLV102, GGLV112	
Sedimentary Petrology	GGLV212	GGLV101, GGLV111, GGLV102, GGLV112	
Pedo-Geomorphological Studies	GENV201	GENV102	
Economic & Development Geography	GEOV211	GEOV101	
Introduction to Cartography & GIS	GISV201	GISV102	
Society and Environment	GENV212	GEOV101	
Chemistry Inorganic	CHIV300	CHAV201, CHIV201, CHOV202, CHPV200	

Module	Code	Pre-requisites	Co-requisites
Chemistry Organic	CHOV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Physical	CHPV300	CHAV201, CHIV201, CHOV202, CHPV200	
Igneous Petrology	GGLV301	GGLV201, GGLV211, GGLV202, GGLV212	
Stratigraphy	GGLV311	GGLV201, GGLV211, GGLV202, GGLV212	
Geo-tectonics & Metamorphic Petrology	GGLV302	GGLV201, GGLV211, GGLV202, GGLV212	
Economic Geology	GGLV312	GGLV201, GGLV211, GGLV202, GGLV212	
Geo-information Systems	GISV301	GISV201	
Geomorphology	GENV301	GENV201	
Photogrammetry and Remote Sensing	GISV302	GISV201	
Environmental Resource Management	GENV312	GENV212	
Aquatic Ecology	ZOOV301	FBBV101, FBBV102, OR MATS101, MATS102	
Integrating Topics in Zoology	ZOOV311	FBBV101, FBBV102, OR MATS101, MATS102	
Applied Aquatic Science	ZOOV302	ZOOV301, FBBV101, FBBV102, OR MATS101, MATS102	
Evolutionary Ecology	ZOOV312	FBBV101, FBBV102, OR MATS101, MATS102	

## BACHELOR OF SCIENCE (GEOSCIENCES: GEOGRAPHY AND GEOLOGY) (EXTENDED)

<b>Qualification code:</b>	20019
<b>Offering:</b>	Full-time South Campus (A7)
<b>Aligned NQF Level:</b>	5
<b>Total NQF Credits for qualification:</b>	362

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The qualification for BSc studies provides alternative university access to students who have the potential to succeed but do not meet the minimum admission requirements for the mainstream qualification. The purpose of the qualification is to integrate additional academic support and skills development with mainstream modules in order to prepare the student for successful completion of the BSc degree.

### **ADMISSION REQUIREMENTS**

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 370.
- NSC achievement rating of at least 50% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Candidates shall only be permitted to register for any modules in the second year of study if they have passed at least 9 of the modules prescribed in the first year of study.
- Candidates who do not meet the promotion requirement above will only be allowed to re-register for the programme if they have passed a minimum of 6 foundational modules in their first year of study.
- Candidates who have not completed all the foundational modules in the programme after three (3) years of full-time study will not be allowed to re-register for the programme.
- Modules on offer as timetable permits

#### *Linked modules:*

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%. Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

<b>Departments that offer Pass on Link modules are:</b>		
<b>Biochemistry</b>	<b>Chemistry</b>	<b>Physics</b>

BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FBBX101, FBBX102
	CHAV201, CHIV201, CHOV202, CHPV200	FVV101, FVV102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

### **DURATION**

The qualification shall extend over a minimum of four years of full-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Science Academic Skills I	Year	ALMX100	10
	English for Science I	Year	LEAX100	10
	Pre-calculus A	Semester 1	MAPX101	10
	Pre-calculus B	Semester 2	MAPX102	10
<b>Compulsory modules:</b>				
	<b>Select two of the following groups:</b>			
<b>A</b>	<b>Botany (NOT OFFERED)</b>			
	Plant Cell Biology - Extended	Semester 1	BOTX101	7
	Plant Structure - Extended	Semester 1	BOTX111	8
	Plant Evolution and Systematics - Extended	Semester 2	BOTX102	7
	Plant Ecology and Environmental Botany - Extended	Semester 2	BOTX112	8
<b>B</b>	<b>Geography</b>			
	Introduction to Economic and Settlement Geography - Extended	Semester 1	GEOX101	7
	Introduction to Meteorology and Climatology - Extended	Semester 1	GENX101	8
	Introduction to Geomorphology - Extended	Semester 2	GENX102	8
	Introduction to Geo-Information Science and Cartography - Extended	Semester 2	GISX102	8
<b>C</b>	<b>Geology</b>			
	Introduction to Earth - Extended	Semester 1	GGLX101	7
	Mineralogy and Petrology - Extended	Semester 1	GGLX111	8
	Physical Geology - Extended	Semester 2	GGLX102	8
	Structure and Economic Geology - Extended	Semester 2	GGLX112	8
<b>D</b>	<b>Zoology (NOT OFFERED)</b>			
	Animal Cell Biology and Histology - Extended	Semester 1	ZOOX101	7
	Animal Diversity - Extended	Semester 1	ZOOX111	8
	Principles of Animal Evolution - Extended	Semester 2	ZOOX102	8
	Animal Patterns in Time and Space - Extended	Semester 2	ZOOX112	7
	<b>Credits First Year</b>			<b>110/112</b>

		Presented	Module Code	Credit Value
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	Science Academic Skills II	Year	ALMX110	5
	English for Science II	Year	LEAX110	5
	Computing Fundamentals 1.1 - Extended	Semester 1	WRFX101	8
<b>Select two of the following groups:</b>				
<b>A</b>	<b>Botany</b>			
	Plant Cell Biology - Extended	Semester 1	BOTX101	7
	Plant Structure - Extended	Semester 1	BOTX111	8
	Plant Evolution and Systematics - Extended	Semester 2	BOTX102	7
	Plant Ecology and Environmental Botany - Extended	Semester 2	BOTX112	8
<b>B</b>	<b>Geography (NOT OFFERED)</b>			
	Introduction to Economic and Settlement Geography - Extended	Semester 1	GEOX101	7
	Introduction to Meteorology and Climatology - Extended	Semester 1	GENX101	8
	Introduction to Geomorphology - Extended	Semester 2	GENX102	8
	Introduction to Geo-Information Science and Cartography - Extended	Semester 2	GISX102	8
<b>C</b>	<b>Geology (NOT OFFERED)</b>			
	Introduction to Earth - Extended	Semester 1	GGLX101	7
	Mineralogy and Petrology - Extended	Semester 1	GGLX111	8
	Physical Geology - Extended	Semester 2	GGLX102	8
	Structure and Economic Geology - Extended	Semester 2	GGLX112	8
<b>D</b>	<b>Zoology</b>			
	Animal Cell Biology and Histology - Extended	Semester 1	ZOOX101	7
	Animal Diversity - Extended	Semester 1	ZOOX111	8
	Principles of Animal Evolution - Extended	Semester 2	ZOOX102	8
	Animal Patterns in Time and Space - Extended	Semester 2	ZOOX112	7
<b>Select either E1 or E2:</b>				
<b>These groups do not lead to majors and no second-year modules are on offer</b>				
<b>E1</b>	<b>Chemistry</b>			
	General Chemistry - Extended	Semester 1	CHGX101	15
	Inorganic Chemistry - Extended	Semester 2	CHIX102	9
	Organic Chemistry - Extended	Semester 2	CHOX102	6
<b>E2</b>	<b>Mathematics</b>			
	Mathematics Special 101 - Extended	Semester 1	MATX101	8
	Mathematics Special 102 - Extended	Semester 2	MATX102	8
	<b>Physics</b>			

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Mechanics and Thermodynamics - Extended	Semester 1	FBBX101	7
	Electricity, Optics and Atomics - Extended	Semester 2	FBBX102	7
	<b>Credits Second Year</b>			<b>78/80</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	<b>Geography II</b>			
	Pedo-Geomorphological Studies	Term 1	GENV201	10
	Society and Environment	Term 4	GENV212	10
	Economic and Development Geography	Term 2	GEOV211	10
	Introduction to Cartography and GIS	Term 3	GISV201	10
	<b>Geology II</b>			
	Palaeontology	Semester 1	GGLV201	10
	Structural Geology	Semester 1	GGLV211	10
	Mineralogy	Semester 2	GGLV202	10
	Sedimentary Petrology	Semester 2	GGLV212	10
	<b>Sub-total</b>			<b>80</b>
<b>Select one of the following groups:</b>				
<b>A</b>	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Project	Year	BOTV210	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
<b>B</b>	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
	<b>Credits Third Year</b>			<b>120</b>
<b>Fourth Year</b>				
<b>Compulsory modules:</b>				
	<b>Geography III (Major)</b>			
	Geo-Information Systems	Term 1	GISV301	15
	Geomorphology	Term 2	GENV301	15
	Photogrammetry and Remote Sensing	Term 3	GISV302	15
	Environmental Resource Management	Term 4	GENV312	15
	<b>Geology III (Major)</b>			

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
	Igneous Petrology	Semester 1	GGLV301	15
	Stratigraphy	Semester 1	GGLV311	15
	Geotectonics and Metamorphic Petrology	Semester 2	GGLV302	15
	Economic Geology	Semester 2	GGLV312	15
	<b>Credits Fourth Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>362</b>

### ***CURRICULUM MODULE REQUISITES***

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Physical Geology	GGLX102	GGLX101 (35%), GGLX111 (35%)	
Structure and Economic Geology	GGLX112	GGLX101 (35%), GGLX111 (35%)	
Pedo-Geomorphological Studies	GENV201	GENV1X1	
Economic & Development Geography	GEOV211	GEOV1X1	
Introduction to Cartography & GIS	GISV201	GISV1X2	
Society and Environment	GENV212	GEOV1X1	
Palaeontology	GGLV201	GGLX101, GGLX111, GGLX102, GGLX112	
Structural Geology	GGLV211	GGLX101, GGLX111, GGLX102, GGLX112	
Mineralogy	GGLV202	GGLX101, GGLX111, GGLX102, GGLX112	
Sedimentary Petrology	GGLV212	GGLX101, GGLX111, GGLX102, GGLX112	
Geo-information Systems	GISV301	GISV201	
Geomorphology	GENV301	GENV201	
Photogrammetry and Remote Sensing	GISV302	GISV201	
Environmental Resource Management	GENV312	GENV212	



Module	Code	Pre-requisites	Co-requisites
Igneous Petrology	GGLV301	GGLV201, GGLV211, GGLV202, GGLV212	
Stratigraphy	GGLV311	GGLV201, GGLV211, GGLV202, GGLV212	
Geo-tectonics & Metamorphic Petrology	GGLV302	GGLV201, GGLV211, GGLV202, GGLV212	
Economic Geology	GGLV312	GGLV201, GGLV211, GGLV202, GGLV212	

## BACHELOR OF SCIENCE (GEOSCIENCES: GEOGRAPHY AND GEOLOGY)

<b>Qualification code:</b>	20054
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	7
<b>Total NQF Credits for qualification:</b>	368

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The following curriculum is a recommended programme for the BSc degree in the Faculty of Science. Other subject combinations are possible but not necessarily sensible. Any other subject combinations must be discussed with the relevant Heads of Department.

### ***ADMISSION REQUIREMENTS***

- Minimum NSC statutory requirements for degree entry must be met.
- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 410.
- NSC achievement rating of at least 60% for Mathematics.

### ***STATUTORY AND OTHER REQUIREMENTS***

- Unless Senate decides otherwise the degree shall be obtained by completing modules with a total credit value of at least 368 (360 credits for students who have passed all the modules WRFV101/WRSC111; WRFV102; WRAV101 and WRAV102 comprising the first year of Computer Science and Information Systems) of which
  - at least 120 credits are on Nelson Mandela University 3<sup>rd</sup> year and at least 240 credits on Nelson Mandela University 2<sup>nd</sup> year or a higher level;
  - at least 338 credits are from the list of approved subjects below.

- Two major subjects are required to qualify for the BSc. To obtain credits for a major subject the student must obtain 30 credits for the first year, 40 for the second year and 60 for the third year in that major subject. In those subjects that have no first year, a major will consist of 40 credits at second year and 60 credits at third-year level. A maximum of 30 credits from another Faculty may be selected.
- Exit-level major modules are those third-year modules which make up the major subjects referred to in the previous bullet.
- **Computer literacy:** All BSc students must pass at least WRSC111 (8 credits) if registered for Applied Mathematics 1 or WRFV101 (8 credits) (or equivalent) or have passed an appropriate competency test or have received automatic exemption for WRFV101/WRFV1X0 based on Grade 12 CAT marks.
- Unless Senate decides otherwise, a candidate who has failed a particular module three times shall not be allowed to re-register for that module.
- Where modules have substantially overlapping outcomes, credit shall not be given for more than one of those modules.
- Candidates registered for a degree in Statistics may not accumulate more than 40 credits from second year modules and 60 credits from third year modules presented by the Department of Statistics.
- **Maximum credits offered for the BSc:** Unless the Dean decides otherwise, students may not exceed modules to a value of more than 380 credits.

#### ***PROMOTION:***

- A candidate shall be allowed to register for modules on the second-year level only if he/she has passed first-year level modules in an approved programme with a total of at least 72 credits.
- A candidate shall be allowed to register for modules on the third-year level only if he/she has passed modules in an approved programme with a total of at least 181 credits of which at least 60 are on second-year level.
- Notwithstanding points 1 and 2 above, students who have not completed 128 credits at first-year level, must register for the balance of the 128 first-year credits before they may concurrently register for any second-year level credits. In the same way students who have not completed 120 credits at second-year level, must register for the balance of the 120 second-year credits before they may concurrently register for any third-year credits. In the case of timetable clashes between higher and lower year level modules the student must complete the lower level modules first.

#### ***CHOICES OF MODULES:***

Unless Senate decides otherwise, an approved curriculum shall consist of modules satisfying the requirements of the applicable rules above and be such that there are no lecture or examination timetable clashes at any stage and all prerequisites for subsequent modules are satisfied.

#### ***LINKED MODULES:***

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%.

Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the

abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

<b>Pass on Link module combinations are:</b>		
<b>Biochemistry</b>	<b>Chemistry</b>	<b>Physics</b>
BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBBX102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

### **DURATION**

The programme shall extend over a minimum of three years of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
<b>Computer Science I</b>			
Computing Fundamentals	Semester 1	WRFV101	8
<b>Geography I</b>			
Introduction to Economic and Settlement Geography	Term 1	GEOV101	7
Introduction to Meteorology and Climatology	Term 2	GENV101	8
Introduction to Geomorphology	Term 3	GENV102	8
Introduction to Geo-Information Science and Cartography	Term 4	GISV102	8
<b>Geology I</b>			
Introduction to Earth	Semester 1	GGLV101	7
Mineralogy and Petrology	Semester 1	GGLV111	8
Physical Geology	Semester 2	GGLV102	7
Structural and Economic Geology	Semester 2	GGLV112	8
<b>Select either Group A or Group B:</b>			
<b>A</b>	<b>Chemistry I</b>		
	Chemistry General	Semester 1	CHGV101
	Chemistry Inorganic	Semester 2	CHIV100
	Chemistry Organic	Semester 2	CHOV102
	<b>Mathematics Special</b>		
	Mathematics Special 101	Semester 1	MATS101
	Mathematics Special 102	Semester 2	MATS102
	<b>Physics Special I</b>		
	Mechanics and Thermodynamics	Semester 1	FBBV101
	Electricity, Optics and Atomics	Semester 2	FBBV102
<b>B</b>	<b>Botany I</b>		

		Presented	Module Code	Credit Value
	Plant Cell Biology	Semester 1	BOTV101	7
	Plant Structure	Semester 1	BOTV111	8
	Plant Evolution and Systematics	Semester 2	BOTV102	7
	Plant Ecology and Environmental Botany	Semester 2	BOTV112	8
	<b>Zoology I</b>			
	Animal Cell Biology and Histology	Term 1	ZOOV101	7
	Animal Diversity	Term 2	ZOOV111	8
	Principles of Animal Evolution	Term 3	ZOOV102	8
	Animal Patterns in Time and Space	Term 4	ZOOV112	7
	<b>Credits First Year</b>			<b>128/129</b>
<b>Second Year</b>				
<b>Compulsory modules:</b>				
	<b>Geography II</b>			
	Pedo-Geomorphological Studies	Term 1	GENV201	10
	Society and Environment	Term 4	GENV212	10
	Economic and Development Geography	Term 2	GEOV211	10
	Introduction to Cartography and GIS	Term 3	GISV201	10
	<b>Geology II</b>			
	Palaeontology	Semester 1	GGLV201	10
	Structural Geology	Semester 1	GGLV211	10
	Mineralogy	Semester 2	GGLV202	10
	Sedimentary Petrology	Semester 2	GGLV212	10
<b>Select one of the following groups:</b>				
<b>A</b>	<b>Botany II</b>			
	Plant and Algal Systematics	Semester 1	BOTV201	8
	Plant Ecology	Semester 1	BOTV211	8
	Marine Botany	Semester 2	BOTV202	8
	Economic Botany and Plant Biotechnology	Semester 2	BOTV212	8
	Project	Year	BOTV210	8
<b>B</b>	<b>Zoology II</b>			
	Comparative Vertebrate Anatomy	Semester 1	ZOOV201	10
	Animal Physiology	Semester 1	ZOOV211	10
	Population Ecology	Semester 2	ZOOV202	10
	Community Ecology	Semester 2	ZOOV212	10
	<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>				
<b>Compulsory modules:</b>				
	<b>Geography III (Major)</b>			
	Geo-Information Systems	Term 1	GISV301	15

		Presented	Module Code	Credit Value
	Geomorphology	Term 2	GENV301	15
	Environmental Resource Management	Term 4	GENV312	15
	Photogrammetry and Remote Sensing	Term 3	GISV302	15
	<b>Geology III (Major)</b>			
	Igneous Petrology	Semester 1	GGLV301	15
	Stratigraphy	Semester 1	GGLV311	15
	Geotectonics and Metamorphic Petrology	Semester 2	GGLV302	15
	Economic Geology	Semester 2	GGLV312	15
	<b>Credits Third Year</b>			<b>120</b>
	<b>Total Credits</b>			<b>368</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Chemistry Inorganic	CHIV100	CHGV101 (35%)	
Chemistry Organic	CHOV102	CHGV101 (35%)	
Electricity, Optics, Atomics	FBBV102	FBBV101 (35%)	
Physical Geology	GGLV102	GGLV101 (35%); GGLV111 (35%)	
Structure and Economic	GGLV112	GGLV101 (35%); GGLV111 (35%)	
Mathematics Special A	MATS102	MATS101	
Palaeontology	GGLV201	GGLV101, GGLV111, GGLV102, GGLV112	
Structural Geology	GGLV211	GGLV101, GGLV111, GGLV102, GGLV112	
Mineralogy	GGLV202	GGLV101, GGLV111, GGLV102, GGLV112	
Sedimentary Petrology	GGLV212	GGLV101, GGLV111, GGLV102, GGLV112	
Pedo-Geomorphological Studies	GENV201	GENV102	
Economic & Development Geography	GEOV211	GEOV101	

Module	Code	Pre-requisites	Co-requisites
Introduction to Cartography & GIS	GISV201	GISV102	
Society and Environment	GENV212	GEOV101	
Igneous Petrology	GGLV301	GGLV201, GGLV211, GGLV202, GGLV212	
Stratigraphy	GGLV311	GGLV201, GGLV211, GGLV202, GGLV212	
Geo-tectonics & Metamorphic Petrology	GGLV302	GGLV201, GGLV211, GGLV202, GGLV212	
Economic Geology	GGLV312	GGLV201, GGLV211, GGLV202, GGLV212	
Geo-information Systems	GISV301	GISV201	
Geomorphology	GENV301	GENV201	
Photogrammetry and Remote Sensing	GISV302	GISV201	
Environmental Resource Management	GENV312	GENV212	

## BACHELOR OF SCIENCE (PHYSICAL SCIENCE AND MATHEMATICS)

<b>Qualification code:</b>	20051
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	6
<b>Total NQF Credits for qualification:</b>	368

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

The following curriculum is based on the three cornerstone subjects in Science (Mathematics, Physics and Chemistry) and provides an excellent basis for postgraduate studies in these subjects. Furthermore, it offers a sensible subject combination for persons wishing to teach physical science and/or mathematics up to senior secondary level.

### ***ADMISSION REQUIREMENTS***

- Minimum NSC statutory requirements for degree entry must be met.

- An applicant with NSC Grade 12 Mathematics requires a minimum Applicant Score of 410.
- NSC achievement rating of at least 65% for Mathematics.

### **STATUTORY AND OTHER REQUIREMENTS**

- Unless Senate decides otherwise the degree shall be obtained by completing modules with a total credit value of at least 368 (360 credits for students who have passed all the modules WRFV101/WRSC111; WRFV102; WRAV101 and WRAV102 comprising the first year of Computer Science and Information Systems) of which
  - at least 120 credits are on Nelson Mandela University 3<sup>rd</sup> year and at least 240 credits on Nelson Mandela University 2<sup>nd</sup> year or a higher level;
  - at least 338 credits are from the list of approved subjects below.
- Two major subjects are required to qualify for the BSc. To obtain credits for a major subject the student must obtain 30 credits for the first year, 40 for the second year and 60 for the third year in that major subject. In those subjects that have no first year, a major will consist of 40 credits at second year and 60 credits at third-year level. A maximum of 30 credits from another Faculty may be selected.
- Exit-level major modules are those third-year modules which make up the major subjects referred to in the previous bullet.
- **Computer literacy:** All BSc students must pass at least WRSC111 (8 credits) if registered for Applied Mathematics 1 or WRFV101 (8 credits) (or equivalent) or have passed an appropriate competency test or have received automatic exemption for WRFV101/WRFV1X0 based on Grade 12 CAT marks.
- Unless Senate decides otherwise, a candidate who has failed a particular module three times shall not be allowed to re-register for that module.
- Where modules have substantially overlapping outcomes, credit shall not be given for more than one of those modules.
- Candidates registered for a degree in Statistics may not accumulate more than 40 credits from second year modules and 60 credits from third year modules presented by the Department of Statistics.
- **Maximum credits offered for the BSc:** Unless the Dean decides otherwise, students may not exceed modules to a value of more than 380 credits.

### **PROMOTION:**

- A candidate shall be allowed to register for modules on the second-year level only if he/she has passed first-year level modules in an approved programme with a total of at least 72 credits.
- A candidate shall be allowed to register for modules on the third-year level only if he/she has passed modules in an approved programme with a total of at least 181 credits of which at least 60 are on second-year level.
- Notwithstanding points 1 and 2 above, students who have not completed 128 credits at first-year level, must register for the balance of the 128 first-year credits before they may concurrently register for any second-year level credits. In the same way students who have not completed 120 credits at second-year level, must register for the balance of the 120 second-year credits before they may concurrently register for any third-year credits. In the case of timetable clashes between higher and lower year level modules the student must complete the lower level modules first.

### **CHOICE OF MODULES:**

Unless Senate decides otherwise, an approved curriculum shall consist of modules satisfying the requirements of the applicable rules above and be such that there are no lecture or examination timetable clashes at any stage and all prerequisites for subsequent modules are satisfied.

**LINKED MODULES:**

For assessment purposes, certain modules offered by the Department of Biochemistry and Microbiology in the Faculty of Science are classified as **linked modules**. Linked modules are linked with their relevant couplet modules. The pass mark for modules in the department is 50%.

Linked modules, however, may be "passed on link" by earning a mark of less than 50%, provided that the aggregate mark for the linked module and the relevant couplet module is at least 50%, a mark of 40% is obtained in an examination, and provided that at least a sub-minimum mark is achieved for the linked module. The sub-minimum mark for linked modules is 40%. A "fail" result achieved in a linked module will be amended to "pass on link" if the abovementioned conditions have been met. **Modules may only be passed on link in the same academic year.**

Pass on Link module combinations are:		
Biochemistry	Chemistry	Physics
BCV201, BCV202	CHGV101, CHIV100, CHOV102	FBBV101, FBBV102
BCV301, BCV302	CHGX101, CHIX102, CHOX102	FVV101, FVV102
	CHAV201, CHIV201, CHOV202, CHPV200	FBBX101, FBB102
	CHIV300, CHOV300, CHPV300	FVV201, FVV202

**DURATION**

The programme shall extend over a minimum of three years of full-time study.

**CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
<b>Chemistry 1</b>			
Chemistry General	Semester 1	CHGV101	15
Chemistry Inorganic	Semester 2	CHIV100	9
Chemistry Organic	Semester 2	CHOV102	6
<b>Computer Science and Information Systems 1</b>			
Programming Fundamentals	Semester 1	WRAV101	8
Programming Fundamentals 1.2	Semester 2	WRAV102	8
Computing Fundamentals 1.1	Semester 1	WRFV101	8
Computer Fundamentals 1.2	Semester 2	WRFV102	8
<b>Mathematics 1</b>			
Mathematics 1A	Semester 1	MATT101	16
Mathematics 1B	Semester 2	MATT102	16
<b>Physics 1</b>			
Mechanics and Thermo-dynamics	Semester 1	FVV101	15
Electricity, Magnetism and Optics	Semester 2	FVV102	15
<b>Credit First Year</b>			<b>124</b>



	Presented	Module Code	Credit Value
<b>Second Year</b>			
<b>Compulsory modules:</b>			
<b>Chemistry 2</b>			
Chemistry Analytical	Semester 1	CHAV201	9
Chemistry Inorganic	Semester 1	CHIV201	7
Chemistry Organic	Semester 2	CHOV202	12
Chemistry Physical	Year	CHPV200	12
<b>Mathematics 2</b>			
Multivariable and Vector Calculus	Semester 1	MATT201	20
Real Analysis	Semester 2	MATT202	10
Linear Algebra	Semester 2	MATT212	10
<b>Physics 2</b>			
Optic, AC Theory and Thermodynamics	Semester 1	FVV201	20
Mechanics, Modern & Nuclear Physics	Semester 2	FVV202	20
<b>Credits Second Year</b>			<b>120</b>
<b>Third Year</b>			
<b>Select two groups from groups A to C:</b>			
<b>Group A (Chemistry as major):</b>			
Chemistry Inorganic	Year	CHIV300	20
Chemistry Organic	Semester 1	CHOV300	20
Chemistry Physical	Year	CHPV300	20
<b>Group B (Mathematics as major):</b>			
Advanced Real Analysis	Semester 1	MATT301	15
Advanced Linear Algebra	Semester 1	MATT311	15
Modern Algebra	Semester 2	MATT302	15
Complex Functions	Semester 2	MATT312	15
<b>Group C (Physics as major):</b>			
Electrodynamics and Quantum Mechanics	Semester 1	FVV301	30
Crystallography and Solid-State Physics	Semester 2	FVV302	30
<b>Credits Third Year</b>			<b>120</b>
<b>Total Credits</b>			<b>364</b>

### **CURRICULUM MODULE REQUISITES**

A student will not be allowed to proceed to the following modules without first having passed the listed pre-requisite modules or, in some cases, be simultaneously registered (at least) for the given co-requisite modules.

Module	Code	Pre-requisites	Co-requisites
Chemistry Inorganic	CHIV100	CHGV101 (35%)	

<b>Module</b>	<b>Code</b>	<b>Pre-requisites</b>	<b>Co-requisites</b>
Chemistry Organic	CHOV102	CHGV101 (35%)	
Electricity Magnetism & Optics	FVV102	FVV101 (35%)	
Mathematics 1B	MATT102	MATT101	
Programming Fundamentals 1.2	WRAV102	WRAV101	
Computing Fundamentals 1.2	WRFV102	WRFV101 or WRSC111	
Chemistry Analytical	CHAV201	CHGV101, CHIV101, CHOV101, FVV101, MATT101	
Chemistry Inorganic	CHIV201	CHGV101, CHIV101, CHOV101, FVV101, MATT101	
Chemistry Organic	CHOV202	CHGV101, CHIV101, CHOV101, FVV101, MATT101	
Chemistry Physical	CHPV200	CHGV101, CHIV101, CHOV101, FVV101, MATT101	
Optics, Ac Theory and Thermodynamics	FVV201	FVV102, MATT101 (40%), MATT102	
Mechanics and Modern/Nuclear Physics	FVV202	FVV101 (40%)	
Multivariate and Vector Calculus	MATT201	MATT101, MATT102	
Linear Algebra	MATT212	MATT102	
Real Analysis	MATT202	MATT101, MATT102	
Chemistry Inorganic	CHIV300	CHAV201, CHIV201, CHOV202, CHPV200	
Chemistry Organic	CHOV300	CHAV201, CHIV201, CHOV202, CHPV200	

Module	Code	Pre-requisites	Co-requisites
Chemistry Physical	CHPV300	CHAV201, CHIV201, CHOV202, CHPV200	
Electrodynamics & Quantum Mechanics	FVV301	FVV201, FVV202, MATT201	
Crystallography and Solid-State Physics	FVV302	FVV201, FVV202, MATT101; MATT102	
Advanced Linear Algebra	MATT311	MATT212	
Advanced Real Analysis	MATT301	MATT202	
Modern Algebra	MATT302	MATT212	
Complex Functions	MATT312	MATT202	

## HONOURS DEGREES

### BACHELOR OF ARTS HONOURS IN GEOGRAPHY

<b>Qualification code:</b>	21503
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

#### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

#### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Geography is a Bachelor's degree Geography as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department.

#### **DURATION**

The qualification shall extend over at least one year of full-time study.

#### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Analytical Prospect on Human Environment Interaction	Term 1	GEN421	25
Issues in Social Sustainability	Term 4	GEN422	25
Research Project	Year	GEN450	30
Qualitative Research Methodologies	Term 2	GEN451	15
Issues in Urban Geography	Term 3	GEN432	25
<b>Total Credits</b>			<b>120</b>

## BACHELOR OF COMMERCE HONOURS (COMPUTER SCIENCE AND INFORMATION SYSTEMS)

<b>Qualification code:</b>	21509
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

60% weighted average for at least all the following Computer Science and/or Information Systems modules offered at third-year level. The total credits for qualifying third-year modules must be at least 60.

- WRPV301 and WRPV302 (or equivalent); and
- WRRV301 (or equivalent); and
- WRDV301 (or equivalent); and
- WUIV302 (or equivalent); and
- Approved third-year Computer Science and/or Information Systems modules with a total credit of at least 16.

### ***STATUTORY AND OTHER REQUIREMENTS***

The semester in which modules are offered can differ annually. The Department must be consulted prior to registration to confirm in which semester a particular module will be offered.

Not all modules will necessarily be presented every year; presentation thereof will be determined by student numbers and staff availability

The Department must approve all applications for renewal of registration annually. The Department must approve the enrolment of a candidate for all the modules.

The Honours course consists of at least eight semester lecture modules with a total credit value of at least 88 and a treatise on an independent project. Each module will consist of a single topic taken over either one or two semesters. A two-semester module contributes 22 credits, a one-semester module 11 credits and the treatise on the project 32 credits. A total of at least 120 credits is required for the learning programme. The final mark for the Honours course is an aggregate of the marks for the module and the treatise, weighted according to their respective credit values.

### **DURATION**

The qualification shall extend over at least one year of full-time study and a maximum of three years of part-time study

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Information Systems Project Management	Semester 1	WHVV401	11
	Treatise on the Project	Year	WHPV400	32
	Data Warehousing	Semester 1 or 2	WDVV401	11
	E-Commerce	Semester 1 or 2	WREV402	11
	Usability Engineering	Semester 1 or 2	WEUV401	11
<b>Select at least 44 credits from the following modules: For details of when elective modules will be presented, candidates must consult with the Computing Sciences Department</b>				
	Design in the Digital Domain	Semester 1 or 2	WDDV401	11
	Algorithmics	Semester 1	WHAV401	11
	Computer Graphics	Not offered	WHGV401	11
	Advanced Programming	Semester 1 or 2	WHQV401	11
	Compiler Construction	Semester 1 or 2	WHWV401	11
	Research Frontiers in Computing	Semester 1 or 2	WHYV401	11
	Business Intelligence (subject to pre-requisite credit of WREV312)	Semester 1 or 2	WBIV402	11
	Evolutionary Computing and Intelligent Systems	Semester 1 or 2	WRCV402	11
	Automata Theory	Semester 2	WHUV402	11
	<i>Capita Selecta</i>	Semester 1 or 2	WHZV401	11
	Virtual Reality Environment Development	Semester 1 or 2	WVRV402	11
	Mobile Computing	Not offered	WMCV401	11
	Environmental Information Systems	Semester 1 or 2	WEIM411	11
	Artificial Intelligence	Semester 1 or 2	WHAI401	11

	Presented	Module Code	Credit Value
Another Honours module which <b>must</b> be approved by the HoD of Computing Sciences, subject to the condition that it should complement the other modules in the programme. <b>Approval is dependent upon submission of request on appropriate form available in the Department. (22 Credits)</b>			
<b>Total Credits</b>	<b>Minimum</b>		<b>120</b>

## **BACHELOR OF COMMERCE HONOURS (INFORMATION SYSTEMS AND ACCOUNTING) (NO NEW INTAKE)**

<b>Qualification code:</b>	21529
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	121

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Unless otherwise approved by the Head of Department, and subject to General Rule G3.6, the prerequisites for entry into the Honours modules are as follows:

- A pass mark in Accounting 3A (RV301) or General Accounting 3A (RGV301) and a pass mark in Accounting 3B (RV302) or a mark of at least 55% for General Accounting 3B (RGV302).
- A weighted average of at least 60% for Database Systems (WRDV301), Project (WRRV301), Management Information Systems 3.1 (WRBV301), Management Information Systems 3.2 (WRBV302), User Interface Design (WUIV302), ERP Systems 3.1 (WREV301) and Enterprise Systems Development (WREV312).

provided that all these marks have been achieved in the two years preceding the year of registration for the Honours programme.

### ***STATUTORY AND OTHER REQUIREMENTS***

The semester in which modules are offered can differ annually. The Department must be consulted prior to registration to confirm in which semester a particular module will be offered.

Not all modules will necessarily be presented every year; presentation thereof will be determined by student numbers and staff availability

### **DURATION**

The qualification shall extend over at least one year of full-time study and a maximum of three years of part-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Corporate Reporting	Year	RCR400	30
Information Systems Research Project in Accounting Information Systems	Year	WPCV400	36
Electronic Commerce	Semester 1 or 2	WREV402	11
Business Intelligence	Semester 1 or 2	WBIV402	11
Information Systems Project Management	Semester 1	WHVV401	11
<b>Select at least 22 credits from the following modules: For details of when elective modules will be presented, candidates must consult with the Computing Sciences Department</b>			
<i>Capita Selecta</i>	Semester 1 or 2	WHZV401	11
Data Warehousing	Semester 1 or 2	WDWV401	11
Usability Engineering	Semester 1 or 2	WEUV401	11
Design in the Digital Domain	Semester 1 or 2	WDDV401	11
Environmental Information Systems	Semester 1 or 2	WEIM411	11
<b>Total Credits</b>			<b>121</b>

## **BACHELOR OF COMMERCE HONOURS (INFORMATION SYSTEMS AND AUDITING) (NO NEW INTAKE)**

<b>Qualification code:</b>	21532
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	121

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

A person holding a BCom Honours in Information Systems with Auditing will be allowed to do the following two international qualifications:

- Certified Internal Auditor (CIA).
- Certified Information Systems Analyst (CISA).

### **ADMISSION REQUIREMENTS**

Unless otherwise approved by the Head of Department, and subject to General Rule G3.6, the prerequisites for entry into the Honours modules are as follows:

- A pass mark in Auditing 3A (ROV301) or General Auditing 3A (RGOV301) and a pass mark in Auditing 3B (ROV302) or a mark of at least 55% for General Auditing 3B (RGOV302).
- A weighted average of at least 60% for Database Systems (WRDV301), Project (WRRV301), Management Information Systems 3.1 (WRBV301), Management Information Systems 3.2 (WRBV302), User Interface Design (WUIV302), ERP Systems 3.1 (WREV301) and Enterprise Systems Development (WREV312).

provided that all these marks have been achieved in the two years preceding the year of registration for the Honours programme.

### **STATUTORY AND OTHER REQUIREMENTS**

The semester in which modules are offered can differ annually. The Department must be consulted prior to registration to confirm in which semester a particular module will be offered.

Not all modules will necessarily be presented every year; presentation thereof will be determined by student numbers and staff availability

### **DURATION**

The qualification shall extend over at least one year of full-time study and a maximum of three years of part-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Risk-based Auditing	Semester 1	RRO401	15
Information Systems Auditing	Semester 2	RIS402	15
Information Systems Research Project in Computing Auditing	Year	WPAV400	36
Electronic Commerce	Semester 1 or 2	WREV402	11
Business Intelligence	Semester 1 or 2	WBIV402	11
Information Systems Project Management	Semester 1	WHVV401	11
<b>Select two of the following modules: For details of when elective modules will be presented, candidates must consult with the Computing Sciences Department</b>			
<i>Capita Selecta</i>	Semester 1 or 2	WHZV401	11
Data Warehousing	Semester 1 or 2	WDWV401	11
Usability Engineering	Semester 1 or 2	WEUV401	11
Design in the Digital Domain	Semester 1 or 2	WDDV401	11
Environmental Information Systems	Semester 1 or 2	WEIM411	11
<b>Total Credits</b>			<b>120</b>



## BACHELOR OF COMMERCE HONOURS (INFORMATION SYSTEMS AND BUSINESS MANAGEMENT)

<b>Qualification code:</b>	21528
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	121

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Unless otherwise approved by the Head of Department, and subject to General Rule G3.6, the prerequisites for entry into the Honours modules are as follows:

- An average mark of at least 60% for the third-year Business Management modules.
- A weighted average of at least 60% for Database Systems (WRDV301), Project (WRRV301), Management Information Systems 3.1 (WRBV301), Management Information Systems 3.2 (WRBV302), User Interface Design (WUIV302), ERP Systems 3.1 (WREV301) and Enterprise Systems Development (WREV312).

provided that all these marks have been achieved in the two years preceding the year of registration for the Honours programme.

### **STATUTORY AND OTHER REQUIREMENTS**

The semester in which modules are offered can differ annually. The Department must be consulted prior to registration to confirm in which semester a particular module will be offered.

Not all modules will necessarily be presented every year; presentation thereof will be determined by student numbers and staff availability

### **DURATION**

The qualification shall extend over at least one year of full-time study and a maximum of three years of part-time study.

### **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Business Research	Year	EBMR420	10
	Information Systems Research Project in Business Management Information Systems	Year	WPBV400	36
	Electronic Commerce	Semester 1 or 2	WREV402	11
	Business Intelligence	Semester 1 or 2	WBIV402	11
	Information Systems Project Management	Semester 1	WHVV401	11
<b>Select one of the following modules:</b>				
	Advanced Strategic Management	Semester 1	EBMH411	20

		Presented	Module Code	Credit Value
<b>First Year</b>				
	Advanced Financial Management	Semester 2	EBMJ402	20
	Investment Management	Semester 2	EBMG402	20
	Advanced Strategic and International Marketing Management	Semester 2	EBMI402	20
	Entrepreneurship and Small Business Management	Year	EBMN410	20
<b>Select two of the following modules: For details of when elective modules will be presented, candidates must consult with the Computing Sciences Department</b>				
	<i>Capita Selecta</i>	Semester 1 or 2	WHZV401	11
	Data Warehousing	Semester 1 or 2	WDWV401	11
	Usability Engineering	Semester 1 or 2	WEUV401	11
	Design in the Digital Domain	Semester 1 or 2	WDDV401	11
	Environmental Information Systems	Semester 1 or 2	WEIM411	11
	<b>Total Credits</b>			<b>121</b>

## BACHELOR OF COMMERCE HONOURS IN MATHEMATICAL STATISTICS

<b>Qualification code:</b>	20508
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Mathematical Statistics is a Bachelor's degree with either Mathematical Statistics or Statistics as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department of Statistics, and on such conditions as may be determined by the Department and approved by FMC. The same rules will apply to candidates joining the programme after obtaining Bachelor's degrees at other universities. For these students, however, the Department of Statistics reserves the right to refuse students with inadequate Mathematical and End User Computing skills.

### **STATUTORY AND OTHER REQUIREMENTS**

The curriculum normally consists of five modules chosen from the list below. Candidates may replace some of these modules with other appropriate modules with the permission of the Department.

### **DURATION**

The qualification shall extend over at least one year of full-time or two years of part-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>	
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Honours Project	Year	STAT400	30
	Multi-variate Statistical Methods	Semester 1	STAT401	24
<b>Select three of the following modules:</b>				
	Time Series Analysis	Year	STAT410	24
	Quantitative Data Analysis with Statistics	Semester 1	STAT420	24
	Categorical Data Analysis	Year	STAT430	24
	Sampling Theory	Year	STAT440	24
	Selective Topics in Actuarial Statistics	Year	STAT450	24
	Non-parametric Statistics	Semester 2	STAT460	24
	Econometrics	Year	STAT470	24
	Capita Selecta A	Semester 2	STAT480	24
	Capita Selecta B	Year	STAT490	24
	Regression Analysis	Year	STAS410	24
	Analysis of Variance	Year	STAS420	24
	Probability Theory	Year	STAS430	24
	Mathematical Programming	Year	STAS440	24
	<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN AGRICULTURAL MANAGEMENT**

<b>Qualification code:</b>	21561
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This qualification will serve to consolidate and deepen the student's expertise and theoretical knowledge in a particular discipline and to develop capacity in the research methodology and techniques of that discipline. The academic programme will demand a high level of theoretical engagement and intellectual independence.

### **ADMISSION REQUIREMENTS**

- An Advanced Diploma in Agricultural OR Game Ranch Management or an equivalent

Qualification at NQF 7.

- Game Ranch Management applications will only be allowed to enrol as an animal production major student
- An average pass mark of 65% for the entering qualification is required.
- In cases of applicants who can proof other equal competence to the above, the Departmental and Nelson Mandela University's RPL process will be applied.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory modules:</b>			
Enterprise Development	Year	AED400	27
Sustainability Management	Year	ASM400	27
Research Project	Year	ARP400	30
Integrated Game Farming Practice	Year	AGP400	12
Game Utilization	Year	AGU400	12
Game Economics	Year	AGE400	12
<b>Total credits per year</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN APPLIED MATHEMATICS**

<b>Qualification code:</b>	21523
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Applied Mathematics is a Bachelor's degree with Applied Mathematics as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department. Candidates must in addition have completed the prerequisites for the modules which they select. For candidates who have not completed the prerequisite modules, it is recommended that such candidates study the honours programme over a period of two years. During the first year of study, they study the missing third year pre-requisite undergraduate modules, together with some other honours modules whose pre-requisites have been attained. The remaining honours modules and project would be studied during the second year of study.

### **STATUTORY AND OTHER REQUIREMENTS**

The Department must approve all applications for renewal of registration annually. The Department must approve the enrolment of a candidate for all the modules.

The Honours programme consists of at least four coursework modules and a Project. Successful completion of the Project is required for the degree. The Project must be completed and submitted for assessment the first week of the November examination period. Project submissions thereafter may mean the results are released with the January re-assessment marks.

The Honours programme consists of 126 credits, which are obtained from the approved modules selected from the list below. The three (3) core modules for Applied Mathematics are: MAPM411, MAPM421 and MAPM420.

Note that two elective modules offered in any year will depend on both the availability of staff and student demand. A candidate may, with the approval of the Department, obtain a maximum of 24 credits from other appropriate modules offered in other Departments, provided that no substitutions may be made in respect of the core modules.

All candidates must make themselves available for the honours programme meeting the first day of official lectures as per the Nelson Mandela University almanac.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Finite Element Methods	Year	MAPM411	24
Project	Year	MAPM420	30
Biomathematics	Year	MAPM421	24
<b>Select two of the following modules:</b>			
Numerical Linear Algebra	Year	MAPM412	24
Graph Theory	Year	MAPM413	24
Continuum Mechanics	Year	MAPM414	24
Mathematical Control Theory	Year	MAPM415	24
Capita Selecta	Year	MAPM417	24
<b>Total Credits</b>			<b>126</b>

## **BACHELOR OF SCIENCE HONOURS IN BIOCHEMISTRY**

<b>Qualification code:</b>	21531
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8

<b>Total NQF Credits for qualification:</b>	120
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### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Biochemistry is a Bachelor's degree with Biochemistry as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department.

### **STATUTORY AND OTHER REQUIREMENTS**

The pass mark for all modules is 50%.

A general oral examination is conducted at the end of the Honours programme.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
Cell Biology	Year	BCV410	12
Protein Chemistry	Year	BCV440	12
Standard Practicals	Semester 1	BCV401	20
Research Project	Year	BCV460	40
Mini-Project	Year	BCV470	12
<b>Sub-total</b>			<b>96</b>
<b>Select two of the following modules:</b>			
Analytical and Physical Biochemistry	Year	BCV430	12
Biotechnology	Year	BCV480	12
Medical Biochemistry	Year	BCV490	12
Molecular Biology	Year	BCV420	12
<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN BOTANY**

<b>Qualification code:</b>	21522
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Botany is a Bachelor's degree with Botany as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department.

### **STATUTORY AND OTHER REQUIREMENTS**

*Students may select from the following specialisation fields:*

- Conservation Biology.
- Marine Botany.
- Ecology.
- Environmental Management.
- Plant Physiology.
- Systematic Botany.

*Selected topics that may be chosen with any of the specialisation fields are:*

- Landscape Ecology and GIS.
- Environmental Management Procedures.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
Botanical Techniques	Year	BOTV410	30
Selected topic 1	Semester 1	BOTV401	15
Selected topic 2	Semester 2	BOTV402	15
Selected topic 3	Semester 2	BOTV412	15
Project 1	Year	BOTV450	20
Project 2	Year	BOTV460	20
Oral examination	Year	BOTV470	5
<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN CHEMISTRY**

<b>Qualification code:</b>	21525
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- BSc degree majoring in Chemistry.
- At least 60% for CH300 or equivalent. Students with a mark lower than 60% could be considered provided other criteria such as completion of the degree within the minimum prescribed period are met.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Analytical Methods	Year	CHA420	22
	General Theory A	Year	CHG420	22
	General Theory B	Year	CHG430	22
	<b>Sub-total</b>			<b>66</b>
<b>Select one of the following groups:</b>				
<b>A</b>	<b>Inorganic Theory</b>			
	Inorganic Theory	Year	CHI420	22
	Analytical/Inorganic Practical/Project	Year	CHI430	32
<b>B</b>	<b>Organic Theory</b>			
	Organic Theory	Year	CHO420	22
	Organic Practical/Project	Year	CHO430	32
<b>C</b>	<b>Physical / Polymer Theory</b>			
	Physical / Polymer Theory	Year	CHP420	22
	Physical / Polymer Practical/Project	Year	CHP430	32
	<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN COMPUTER SCIENCE AND INFORMATION SYSTEMS**

<b>Qualification code:</b>	21524
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**



This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

60% weighted average for at least all the following Computer Science and Information Systems modules offered at third-year level. The total credits for qualifying third-year modules must be at least 60.

- WRPV301 and WRPV302 (or equivalent); and
- WRRV301 (or equivalent); and
- WRDV301 (or equivalent); and
- WUIV302 (or equivalent); and
- Approved third-year Computer Science modules with a total credit of at least 16.

A BSc degree majoring in Computer Science is usually required for acceptance into any fourth year-level module.

### **STATUTORY AND OTHER REQUIREMENTS**

The Department must approve all applications for renewal of registration annually. The Department must approve the enrolment of a candidate for all the modules.

The Honours course consists of at least eight semester lecture modules with a total credit value of at least 88 and a treatise on an independent project. Each module will consist of a single topic taken over either one or two semesters. A two-semester module contributes 22 credits, a one-semester module 11 credits and the treatise on the project 32 credits. A total of at least 120 credits is required for the learning programme. The final mark for the Honours course is an aggregate of the marks for the module and the treatise, weighted according to their respective credit values.

The semester in which modules are offered can differ annually. The Department must be consulted prior to registration to confirm in which semester a particular module will be offered.

### **DURATION**

The qualification shall extend over at least one year of full-time study and a maximum of three years of part-time study.

### **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Information Systems Project Management	Semester 1	WHVV401	11
	Treatise on the project	Year	WHPV400	32
<b>Select elective modules comprising 77 credits, with at least 44 credits chosen from Set A, and at most 33 credits chosen from Set B. For details of when elective modules will be presented, candidates must consult with the Computing Sciences Department</b>				
<b>Set A (select at least 44 credits) (not all modules will necessarily be presented every year; presentation thereof will be determined by student numbers and staff availability):</b>				
	Computer Graphics	Not offered in 2021	WHGV401	11
	Compiler Construction	Semester 1 or 2	WHWV401	11

	Presented	Module Code	Credit Value
<b>First Year</b>			
Usability Engineering	Semester 1 or 2	WEUV401	11
Evolutionary Computing and Intelligent Systems	Semester 1 or 2	WRCV402	11
Virtual Reality Environment Development	Semester 1 or 2	WVRV402	11
Advanced Programming	Semester 1 or 2	WHQV401	11
<b>Set B (select at most 33 credits) (not all modules will necessarily be presented every year; presentation thereof will be determined by student numbers and staff availability):</b>			
Design in the Digital Domain	Semester 1 or 2	WDDV401	11
Data Warehousing	Semester 1 or 2	WDWV401	11
Electronic Commerce	Semester 1 or 2	WREV402	11
Research Frontiers in Computing	Semester 1 or 2	WHYV401	11
<i>Capita Selecta</i>	Semester 1 or 2	WHZV401	11
Mobile Computing	Not offered in 2021	WMCV401	11
Environmental Information Systems	Semester 1 or 2	WEIM411	11
Artificial Intelligence	Semester 1 or 2	WHAI401	11
Another Honours module which <b>must</b> be approved by the HoD of Computing Science, subject to the condition that it should complement the other modules in the programme. <b>Approval is dependent upon submission of request on appropriate form available in the Department. (22 credits)</b>			
<b>Total Credits</b>	<b>Minimum</b>		<b>120</b>

## BACHELOR OF SCIENCE HONOURS IN ENVIRONMENTAL GEOGRAPHY

<b>Qualification code:</b>	21559
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Environmental Geography is a Bachelor's degree Geography as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Landscape Functions Degradation and Sustainability	Term 3	GEN412	25
Analytical Prospect on Human Environment Interaction	Term 1	GEN421	25
Research Project	Year	GEN450	30
Qualitative Research Methodologies	Term 2	GEN451	15
Issues in Sustainability	Term 4	GEN452	25
<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN FORMULATION SCIENCE**

<b>Qualification code:</b>	21540
<b>Offering:</b>	Full-time North Campus (01) <b>OR</b> Part-time North Campus (21)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

A 360-credit post-school qualification at NQF level 7 from an accredited HEI with majors in an allied science (biology, chemistry, physics, biochemistry, or pharmacy), or chemical engineering, provided the 360-credit qualification includes a two-semester sequence of Organic Chemistry consisting of at least 20 credits. A full study record must be submitted along with:

- details of related work experience where applicable; and
- a typed motivation of maximum 2 A4 pages (1.5 line spacing, font size 10) that focuses on an applicant's ability to innovate and which will be evaluated by a standing panel.

### **DURATION**

The qualification shall extend over at least one year of full-time study and two years of part-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
	Product Analysis and Testing	Year	CHFV410 12
	Consumer Product Regulatory Frameworks	Year	CHFV420 12
	Formulatory Statistical Methodologies	Year	CHFV430 12
	Technology of Formulations	Year	CHFV440 24
	Formulation Science	Year	CHFV450 15
	Formulation Project	Year	CHFV460 36
	Innovation and Entrepreneurship	Year	CHFV470 9
	<b>Total Credits</b>		<b>120</b>

### **CURRICULUM (Part-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
	Formulatory Statistical Methodologies	Year	CHFV430 12
	Technology of Formulations	Year	CHFV440 24
	Formulation Science	Year	CHFV450 15
	<b>Credits First Year</b>		<b>51</b>
<b>Second Year</b>			
	Product Analysis and Testing	Year	CHFV410 12
	Consumer Product Regulatory Frameworks	Year	CHFV420 12
	Formulation Project	Year	CHFV460 36
	Innovation and Entrepreneurship	Year	CHFV470 9
	<b>Credits Second Year</b>		<b>69</b>

## **BACHELOR OF SCIENCE HONOURS IN GEOGRAPHICAL INFORMATION SYSTEMS**

<b>Qualification code:</b>	21557
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Geographical Information Systems is a Bachelor's degree with Geography as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Cartography	Term 1	GISV421	24
Remote Sensing	Term 3	GISV422	24
Geographical Information Systems	Term 2	GISV431	24
Research Project	Term 4	GISV412	30
<b>Select one of the following:</b>			
Environmental Impact Studies <b>OR</b> Any other module in The Life, Earth, Environmental and Agricultural Sciences Cluster with credit value not less than 24	Term 4	GENV400	24
<b>Total Credits</b>			<b>126</b>

## **BACHELOR OF SCIENCE HONOURS IN GEOLOGY**

<b>Qualification code:</b>	21555
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Geology is a Bachelor's degree with Geology as a major subject. Candidates who have not obtained an average of at least 60% in

this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department.

### **STATUTORY AND OTHER REQUIREMENTS**

**Examinations:**

The examination consists of 4 written papers of equal weight (GGL411, GGL412, GGL431 and GGL421). The examination mark together with the class mark will be used to calculate the final mark for each of the above modules.

**Treatise:**

The mark for the treatise (GGL420) is equal to the final mark for one of the modules for which written exams are held.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>			
<b>Compulsory modules:</b>			
Fieldwork	Year	GGL410	10
Sedimentary Geology	Semester 1	GGL411	20
Applied Geology	Semester 2	GGL412	20
Treatise	Year	GGL420	30
Igneous Petrology	Semester 1	GGL421	20
Structural Geology	Semester 1	GGL431	20
<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN MATHEMATICAL STATISTICS**

<b>Qualification code:</b>	21537
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Only candidates who satisfy Senate that they have attained an acceptable level of competence in their studies for the Bachelor's degree, shall be admitted to studies for the Honours degree. In particular a student shall, in addition to special provisions in departmental requirements as stated in the General List of Modules, have received an average mark of at

least 60% at third-year level for the subject he/she intends to study at Honours level. Notwithstanding this requirement, FMC may grant a concession in exceptional circumstances, on the recommendation of the Head of the relevant department.

### **STATUTORY AND OTHER REQUIREMENTS**

#### **Electives:**

The curriculum normally consists of five modules chosen from the list below. Candidates may replace some of these modules with other appropriate modules with the permission of the Department.

### **DURATION**

The qualification shall extend over at least one year of full-time.

### **CURRICULUM (Full-time)**

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Honours Project	Year	STAT400	30
	Multi-variate Statistical Methods	Semester 1	STAT401	24
<b>Select three of the following modules:</b>				
	Time Series Analysis	Year	STAT410	24
	Quantitative Data Analysis with Statistics	Year	STAT420	24
	Categorical Data Analysis	Year	STAT430	24
	Sampling Theory	Year	STAT440	24
	Selective Topics in Actuarial Statistics	Year	STAT450	24
	Non-parametric Statistics	Year	STAT460	24
	Econometrics	Year	STAT470	24
	Capita Selecta A	Year	STAT480	24
	Capita Selecta B	Year	STAT490	24
	Regression Analysis	Year	STAS410	24
	Analysis of Variance	Year	STAS420	24
	Probability Theory	Year	STAS430	24
	Mathematical Programming	Year	STAS440	24
	<b>Total Credits</b>			<b>120</b>

# BACHELOR OF SCIENCE HONOURS IN MATHEMATICS

<b>Qualification code:</b>	21527
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

## **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

## **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Applied Mathematics is a Bachelor's degree with Applied Mathematics as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department. Candidates must in addition have completed the prerequisites for the modules which they select. For candidates who have not completed the prerequisite modules, it is recommended that such candidates study the honours programme over a period of two years. During the first year of study, they study the missing third year pre-requisite undergraduate modules, together with some other honours modules whose pre-requisites have been attained. The remaining honours modules and project would be studied during the second year of study.

## **STATUTORY AND OTHER REQUIREMENTS**

The Department must approve all applications for renewal of registration annually. The Department must approve the enrolment of a candidate for all the modules. All candidates must make themselves available for the honours programme meeting the first day of official lectures as per the Nelson Mandela University almanac. The Honours programme consists of four coursework modules and a Project. Successful completion of the Project is required for the degree. The Project must be completed and submitted for assessment the first week of the November examination period. Submissions of the report thereafter may mean the results are released with the January re-assessment marks.

### *Electives:*

The curriculum normally consists of five modules chosen from the list below. Candidates may replace one of these modules with other appropriate modules with the permission of the Head of the Department.

## **DURATION**

The qualification shall extend over one year of full-time and two years of part-time study.

## **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Project	Year	MATH430	30
	Functional Analysis	Year	MATH440	24
	Topology	Year	MATH450	24



	Presented	Module Code	Credit Value
<b>First Year</b>			
Abstract Algebra	Year	MATH460	24
<b>Select one of the following modules:</b>			
Modern Applied Algebra	Year	MATH420	24
Capita Selecta	Year	MATH470	24
Measure and Integration Theory	Year	MATH480	24
<b>Total Credits</b>			<b>126</b>

## BACHELOR OF SCIENCE HONOURS IN MICROBIOLOGY

<b>Qualification code:</b>	21530
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Microbiology is a Bachelor's degree with Microbiology as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme if they scored a combined average of 60% between Microbiology and Biochemistry as major subject or with the special permission of the Department, and on such conditions as may be determined by the Department.

### **STATUTORY AND OTHER REQUIREMENTS**

*General evaluation:*

The pass mark for all modules is 50%. A general oral examination is conducted at the end of the Honours programme.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Techniques Course	Year	BMV410	18
General Microbiology	Year	BMV420	12
Molecular Biology	Year	BMV430	12

	Presented	Module Code	Credit Value
<b>First Year</b>			
Industrial Microbiology	Year	BMV440	12
Seminars	Year	BMV450	6
Project	Year	BMV460	60
<b>Total Credits</b>			<b>120</b>

## BACHELOR OF SCIENCE HONOURS IN NATURAL RESOURCE MANAGEMENT

<b>Qualification code:</b>	21570
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This qualification will serve to consolidate and deepen the student's expertise and theoretical knowledge in a particular discipline (forestry, agriculture, nature conservation or socio-ecological systems), and to develop capacity in the research methodology and techniques of that discipline.

### ***Programme outcomes:***

- Critically analyse and explain the inter-relatedness of social, economic and biophysical environments and their influences in the broad discipline of sustainable Natural Resource Management. (Students will be exposed to the broader global natural resource management environment, yet deeply rooted in local resource and management aspects.)
- Critically analyse, review and interpret contemporary issues and challenges related to one of the following four areas: Forest Management, Agricultural Management, Conservation Management and Socio-Ecological Systems.
- Conduct research in Natural Resource Management.
- Provide solutions to support sustainable management of natural resources in the southern African context.

### ***ADMISSION REQUIREMENTS***

- An Advanced Diploma in Forestry, Wood Technology, Nature Conservation, Agricultural Management or Game Ranch Management or an equivalent qualification.

### ***DURATION***

The qualification shall extend over at least one year of full-time study.

### ***CURRICULUM (Full-time)***

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
	Statistical Techniques for Research	Year	FAB410 20
	Research Project	Year	FRP410 35
	Principles of Sustainability	Year	FSB410 25
<b>Select 1 module:</b>			
	Forest Management	Year	FMN410 40
	Agricultural Management	Year	FAM410 40
	Conservation Management	Year	FCM410 40
	Socio-ecological Systems	Year	FSE410 40
	<b>Total Credits</b>		<b>120</b>

## BACHELOR OF SCIENCE HONOURS IN PHYSICS

<b>Qualification code:</b>	21558
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The admission requirement for the Honours degree in Physics is a Bachelor's degree with a weighted average of at least 60% in Physics as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department.

### **STATUTORY AND OTHER REQUIREMENTS**

The Honours programme consists of 120 credits, which are obtained from approved modules selected from the list below:

Three compulsory theoretical modules:

- F411: Quantum Mechanics
- F412: Statistical Mechanics and Thermodynamics
- F421: Electrodynamics

One theoretical module on or relating to Solid State Physics, as determined by the department:

- F422: Solid State Physics
- F432: Semiconductor Physics
- F442: Electron Diffraction and Image-Contrast Theory

F420: Module on topics in physics prescribed by the Department or taken in conjunction with other Departments.

- A practical module F410 based on experimental techniques and the utilisation of advanced research equipment. This could include a mini project which would be written up as a treatise for external examination.
- Seminars, which form an integral part of the BSc Honours curriculum. Students are expected to submit their seminars in written format after presentation.

### **DURATION**

The qualification shall extend over at least one year of full-time study.

### **CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Quantum Mechanics	Semester 1	F411	22
Statistical Mechanics and Thermodynamics	Semester 2	F412	22
Electrodynamics	Semester 1	F421	22
Practical	Year	F410	32
<b>Sub-total</b>			<b>98</b>
<b>Select one of the following modules:</b>			
Solid State Physics	Year	F422	22
Semiconductor Physics	Year	F432	22
Electron diffraction, image contrast theory	Year	F442	22
Courses as prescribed by the Department	Year	F420	22
<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN PHYSIOLOGY**

<b>Qualification code:</b>	21550
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Physiology is a Bachelor's degree with Physiology as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the

Department. **Any equivalent NQF 7 qualification or RPL as approved by the departmental selection committee.**

### **STATUTORY AND OTHER REQUIREMENTS**

#### *General evaluation:*

The pass mark for all modules is 50%. An oral examination of the research project (BSPV400) will be conducted at the end of the Honours programme.

#### **DURATION**

The qualification shall extend over at least one year of full-time study

#### **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Compulsory modules:</b>				
	Research Project	Year	BSPV400	40
	Core Laboratory Techniques	Semester 1	BSPV401	20
	Advanced Integrative Physiology	Year	BSPV410	40
	Special Skills in Physiology	Semester 1	BSPV411	20
	<b>Total Credits</b>			<b>120</b>

## **BACHELOR OF SCIENCE HONOURS IN ZOOLOGY**

<b>Qualification code:</b>	21560
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	8
<b>Total NQF Credits for qualification:</b>	120

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

The entrance qualification for the Honours degree in Zoology is a Bachelor's degree with Zoology as a major subject. Candidates who have not obtained an average of at least 60% in this major subject will only be admitted to the Honours programme with the special permission of the Department, and on such conditions as may be determined by the Department. Candidates must in addition have completed the prerequisites for the modules which they select.

### **STATUTORY AND OTHER REQUIREMENTS**

The semester in which elective modules are offered can differ annually. The Department must be consulted prior to registration to confirm in which semester a particular elective module will be offered.

*Continuous assessment (CA) mark:*

Varies from module to module. Detailed information will be supplied at the start of each module.

**Examination mark:**

The right to write exams for a module is not automatic but must be earned by achieving a “Duly Performed” (DP) status. If you do not qualify for DP status, you are not allowed to write the exams.

**DP status requirements:**

Attendance of all lectures, field trips, excursions and other activities as indicated by the Zoology Department, satisfactory performance in all assignments and a continuous assessment (CA) mark of at least 40%.

**Computation of final mark:**

The CA mark generally contributes 60% and the Exam mark 40% to the final mark *but this may vary from module to module and year to year.*

**Requirements to pass:**

Each module has the same requirements, i.e. a final mark of 50% for the module. Candidates must accumulate 120 Honours level credits from the list of approved modules and must pass ZOOV410 and ZOOV420.

**DURATION**

The qualification shall extend over at least one year of full-time study.

**CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>First Year</b>			
<b>Compulsory modules:</b>			
Data Skills	Year	ZOOV410	21
Research Competencies	Year	ZOOV420	35
<b>Sub-total</b>			<b>56</b>
<b>Select four of the following modules: For details of when elective modules will be presented, candidates must consult with the Zoology Department</b>			
Sustaining Exploited Marine Resources	Semester 1 or 2	ZOOV401	16
Coastal Zone Integrated Environmental Management	Semester 1 or 2	ZOOV411	16
Marine Predators	Semester 1 or 2	ZOOV402	16
Conservation Biology and Planning	Semester 1 or 2	ZOOV412	16
Ecology of African Animals	Semester 1 or 2	ZOOV431	16
Applied Ecophysiology	Semester 1 or 2	ZOOV441	16
Global Change and Biodiversity	Semester 1 or 2	ZOOV461	16
Fish Conservation	Semester 2	ZOOV472	16
<b>Total Credits</b>			<b>120</b>

# MASTERS DEGREES

## MASTER OF ARTS (GEOGRAPHY) (RESEARCH)

<b>Qualification code:</b>	25027
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- The General Rules for Masters' degrees are applicable.
- A candidate must also comply with the requirements in the departmental policy document regarding studies towards a Master's degree.
- The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science).
- BA Honours: Geography or equivalent.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	GENV500	180

## **MASTER OF COMMERCE (COMPUTER SCIENCE AND INFORMATION SYSTEMS) (RESEARCH)**

<b>Qualification code:</b>	25012
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Unless Senate decides otherwise, candidates shall be admitted to the studies for the Master's degree in Computer Science and Information Systems only if they hold one of the following degrees: BCom Honours: Computer Science & Information Systems, BCom Information Systems Honours, or equivalent; and have obtained a weighted average mark of at least 60% for all Honours modules in Computer Science and/or Information Systems and at least 65% for the Honours treatise (project), as well as complying with such other selection criteria as laid down by the Department.

### ***SELECTION PROCEDURE***

All candidates shall be subject to selection.

### ***RE-ADMISSION***

Unless Senate decides otherwise, candidates shall be re-admitted to the studies for the degree if they have completed at least two additional chapters of the dissertation to the satisfaction of their supervisor(s) in the previous academic year. The Department must approve all applications for renewal of registration annually.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science) within 6 months of registration.

### ***DURATION***

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year



Maximum period – 4 years

**CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	WRMD500	180

**MASTER OF COMMERCE  
(STATISTICS)  
(RESEARCH)**

Qualification code:	25011
Offering:	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
Aligned NQF Level:	9
Total NQF Credits for qualification:	180

**THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

**ADMISSION REQUIREMENTS**

Candidates may be admitted to the studies for the Master's degree in Statistics only if they hold an Honour's degree in Statistics/Mathematical Statistics and have obtained a weighted average mark of at least 60% for all Honours modules in Statistics/Mathematical Statistics and at least 60% for the Honours treatise (project), unless Senate decides otherwise

**STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

**DURATION**

**Full-time**

Minimum period – 1 year

Maximum period – 3 years

**Part-time**

Minimum period – 1 year

Maximum period – 4 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and dissertation	Year	STAV500	180

## **MASTER OF SCIENCE (AGRICULTURE) (RESEARCH)**

<b>Qualification code:</b>	25060
<b>Offering:</b>	Full-time George Campus (02) <b>OR</b> Part-time George Campus (20)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

#### ***Qualification objective:***

To provide an opportunity for the student to undertake a research project in the broad field of Agriculture. Candidates work independently under the guidance of a supervisor with a view to writing a research dissertation that is acceptable for the level of study. The dissertation must comply with the normal technical requirements and rules regarding scope, quality and layout. Students are expected to submit, from their dissertation, one article for publication in a peer-reviewed journal.

### ***ADMISSION REQUIREMENTS***

Advanced Diploma: Agricultural Management and BSc Honours or equivalent qualification.

### ***STATUTORY AND OTHER REQUIREMENTS***

#### ***Full-time vs Part-time registration:***

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

**CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	AGR500	180

**MASTER OF SCIENCE  
(APPLIED MATHEMATICS)  
(RESEARCH)**

<b>Qualification code:</b>	22053
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

**THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

**ADMISSION REQUIREMENTS**

Students wishing to register for this degree must be in possession of an Honours degree in Mathematics or Applied Mathematics and have demonstrated ability in the chosen area of specialisation.

**STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

Upon recommendation by the Department, changes in the prescribed syllabus may be considered.

*Dissertation:*

- The presentation of a dissertation on an approved research project.
- The presentation of at least one seminar on an approved topic.
- Additional courses or advanced lectures on current topics, which may be prescribed by the Department in special circumstances, must be completed.

**DURATION**

The qualification shall extend over at least one year of full-time study.

**Full-time**

Minimum period – 1 year

Maximum period – 3 years

**CURRICULUM (Full-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	MAPV500	180

## MASTER OF SCIENCE (BIOCHEMISTRY) (RESEARCH)

<b>Qualification code:</b>	25021
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

**THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

**ADMISSION REQUIREMENTS**

Bachelor of Science Honours: Biochemistry.

**STATUTORY AND OTHER REQUIREMENTS***Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

Upon recommendation by the Department, changes in the prescribed syllabus may be considered.

*Dissertation:*

- The presentation of a dissertation on an approved research project.
- The presentation of at least one seminar on an approved topic.
- Additional courses or advanced lectures on current topics, which may be prescribed by the Department in special circumstances.
- The presentation of one article on the dissertation for publication in a recognised journal.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	BCV500	180

## **MASTER OF SCIENCE (BOTANY) (RESEARCH)**

<b>Qualification code:</b>	25003
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Bachelor of Science Honours: Botany or equivalent.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

#### *Allocation of final mark for research project:*

The mark for a Master's dissertation is calculated as follows:

- The marks of the external examiners count 100% towards the final mark. The average of the marks allocated by them constitutes the final mark.

### *Awarding of the degree cum laude:*

A Master's candidate obtains the degree *cum laude* if he/she –

- in the case of a research degree
  - obtains a final mark of at least 75%
  - completes the degree in the maximum time period allowed
- The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science).
- See also general rules for Masters' degrees in the General Prospectus.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	BOTV500	180

## **MASTER OF SCIENCE (CHEMISTRY) (RESEARCH)**

<b>Qualification code:</b>	25015
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Bachelor of Science Honours: Chemistry or equivalent.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice

versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science).

Candidates may be required to complete coursework to the satisfaction of the supervisor in preparation of the research for the dissertation.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	CHEM500	180

## **MASTER OF SCIENCE (COMPUTER SCIENCE AND INFORMATION SYSTEMS) (RESEARCH)**

<b>Qualification code:</b>	25020
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Unless Senate decides otherwise, candidates shall be admitted to the studies for the Master's degree in Computer Science and Information Systems only if they hold an Honour's degree in Computer Science and Information Systems and have obtained a weighted average mark of at least 60% for all Honours modules in Computer Science and Information Systems and at least 65% for the Honours treatise (project), as well as complying with such other selection criteria as laid down by the Department.

### **SELECTION PROCEDURE**

All candidates shall be subject to selection.

### **RE-ADMISSION**

Unless Senate decides otherwise, candidates shall be re-admitted to the studies for the degree if they have completed at least two additional chapters of the dissertation to the satisfaction of their supervisor(s) in the previous academic year. The Department must approve all applications for renewal of registration annually.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science) within 6 months of first registration.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and dissertation	Year	WRMD500	180

## **MASTER OF SCIENCE (FORESTRY) (RESEARCH)**

<b>Qualification code:</b>	25062
<b>Offering:</b>	Full-time George Campus (02) <b>OR</b> Part-time George Campus (20)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

#### *Qualification objectives:*



In their dissertations, students must demonstrate that they understand a particular problem and are able to make a proposal for the improvement/elimination of the problem. The dissertation must comply with the normal technical requirements and rules with regard to scope, quality and layout.

### **ADMISSION REQUIREMENTS**

Advanced Diploma: Forestry and BSc Honours or equivalent qualification.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

Students are expected to submit one article for publication resulting from the dissertation.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	FOR500	180

## **MASTER OF SCIENCE (GAME RANCH MANAGEMENT) (RESEARCH)**

<b>Qualification code:</b>	25064
<b>Offering:</b>	Full-time North Campus (01) <b>OR</b> Part-time North Campus (21)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

Further studies in Game Ranch Management are possible as the MSc qualification in Game Ranch Management is available as a study option. This is a research-based qualification.

### **ADMISSION REQUIREMENTS**

Advanced Diploma: Game Ranch Management and BSc Honours or equivalent qualification.

### **STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	GRP500	180

## **MASTER OF SCIENCE (GEOGRAPHY) (RESEARCH)**

<b>Qualification code:</b>	25018
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- The General Rules for Masters' degrees are applicable.
- A candidate must also comply with the requirements in the departmental policy document regarding studies towards a Master's degree.

- The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science), within six months of registration.
- BSc Honours: Geography or equivalent.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	GENV500	180

## **MASTER OF SCIENCE (GEOLOGY) (RESEARCH)**

<b>Qualification code:</b>	25005
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- The General Rules for Masters' degrees are applicable.
- A candidate must also comply with the requirements in the departmental policy document regarding studies towards a Master's degree.
- The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science) within 6 months of first registration.
- BSc Honours: Geology or equivalent.

## **STATUTORY AND OTHER REQUIREMENTS**

### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

## **DURATION**

### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

## **CURRICULUM (Full-time and Part-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and dissertation	Year	GGLV500	180

## **MASTER OF SCIENCE (MATHEMATICAL STATISTICS) (RESEARCH)**

<b>Qualification code:</b>	25007
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

## **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

## **ADMISSION REQUIREMENTS**

Candidates may be admitted to the studies for the Master's degree in Statistics only if they hold an Honour's degree in Statistics/Mathematical Statistics and have obtained a weighted average mark of at least 60% for all Honours modules in Statistics/Mathematical Statistics and at least 60% for the Honours treatise (project), unless Senate decides otherwise.

## **STATUTORY AND OTHER REQUIREMENTS**

### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend

as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and dissertation	Year	STAS500	180

## **MASTER OF SCIENCE (MATHEMATICS) (RESEARCH)**

<b>Qualification code:</b>	22055
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Students wishing to register for this degree must be in possession of an Honours degree in Mathematics and have demonstrated ability in the chosen area of specialisation.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

#### *Dissertation:*

- The presentation of a dissertation on an approved research project.

- The presentation of at least one seminar on an approved topic.
- Additional courses or advanced lectures on current topics, which may be prescribed by the Department in special circumstances, must be completed.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	MATT500	180

## **MASTER OF SCIENCE (MICROBIOLOGY) (RESEARCH)**

<b>Qualification code:</b>	25022
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Bachelor of Science Honours: Microbiology.

### **STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

*Dissertation:*

- Project proposal seminar with defence to be delivered within the department.
- Dissertation on research.
- Examining will be done according to the rules of the Faculty of Science.

- Preparation of one article in the dissertation for publication in a recognised journal.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	BMV500	180

## **MASTER OF SCIENCE (NANOSCIENCE) (COURSE WORK AND RESEARCH)**

<b>Qualification code:</b>	22050
<b>Offering:</b>	Part-time South Campus (A2) University of the Western Cape Campus (16)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

- The minimum admission requirement is a Bachelor of Science Honours Degree with a specialisation in one **or more** of the following: Chemistry, Physics or Biotechnology/Medical Biosciences.
- Applications will only be considered from students with at least 65% for the Honours Degree.
- Applications from persons with equivalent qualifications will be considered by a constituted status committee in line with the University and Faculty regulations
- Only 10 new Nelson Mandela University students can be enrolled per year.

### **RE-ADMISSION REQUIREMENTS**

As per the General Rules listed in the Prospectus.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of

postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

The qualification shall extend over at least two years of full-time study. Academic activities for modules could be offered on multiple campuses as required.

### **CURRICULUM (Full-time)**

		Presented	Module Code	Credit Value
<b>First Year</b>				
<b>Select one group from groups A to C:</b>				
<b>A</b>	<b>Nanophysics</b>			
	Central Concepts in Nanoscience	Semester 1	FSS501	4
	Management for Nanoscientists	Semester 1	FSS502	4
	Nanoscience Research Project	2nd Year	FSS503	100
	Foundations of Nanobiomedical Sciences for Non-Biologists	Semester 1	FSS513	4
	Foundations of Nanochemistry for Non-Chemists	Semester 1	FSS523	4
	Advanced Nanophysics	Year	FSS531	48
	Experimental Techniques in Nanophysics	Year	FSS532	16
<b>B</b>	<b>Nanobiomedical</b>			
	Central Concepts in Nanoscience	Semester 1	FSS501	4
	Management for Nanoscientists	Semester 1	FSS502	4
	Nanoscience Research Project	2nd Year	FSS503	100
	Advanced Nanobiomedical Science	Year	FSS511	48
	Experimental Techniques in Nanobiomedical	Year	FSS512	16
	Foundations of Nanochemistry for Non-Chemists	Semester 1	FSS523	4
	Foundations of Nanophysics for Non-Physicists	Semester 1	FSS533	4
<b>C</b>	<b>Nanochemistry</b>			
	Central Concepts in Nanoscience	Semester 1	FSS501	4
	Management for Nanoscientists	Semester 1	FSS502	4
	Nanoscience Research Project	2nd Year	FSS503	100
	Foundations of Nanobiomedical Sciences for Non-Biologists	Semester 1	FSS513	4
	Advanced Nanochemistry	Year	FSS521	48
	Experimental Techniques in Nanochemistry	Year	FSS522	16
	Foundations of Nanophysics for Non-Physicists	Semester 1	FSS533	4
	<b>Total Credits</b>			<b>180</b>



## MASTER OF SCIENCE (NATURE CONSERVATION) (RESEARCH)

<b>Qualification code:</b>	25063
<b>Offering:</b>	Full-time George Campus (02) <b>OR</b> Part-time George Campus (20)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

#### *Qualification objective:*

To provide an opportunity for the student to undertake a research project in the broad field of Nature Conservation. Candidates work independently under the guidance of a supervisor with a view to writing a research dissertation that is acceptable for the Master's level of study. The dissertation must comply with the normal technical requirements and rules with regard to scope, quality and layout.

### **ADMISSION REQUIREMENTS**

BSc Honours: Nature Conservation or equivalent qualification, which includes the module Research Methodology

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and dissertation	Year	NAT500	180

## **MASTER OF SCIENCE (OCEANOGRAPHY: BIOLOGICAL) (RESEARCH)**

<b>Qualification code:</b>	25031
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Bachelor of Science Honours or equivalent.

### ***STATUTORY AND OTHER REQUIREMENTS***

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

#### *Allocation of final mark for research project:*

The mark for a Master's dissertation is calculated as follows:

- The marks of the external examiners count 100% towards the final mark. The average of the marks allocated by them constitutes the final mark.

#### *Awarding of the degree cum laude:*

A Master's candidate obtains the degree *cum laude* if he/she –

- in the case of a research degree
  - obtains a final mark of at least 75%
  - completes the degree in the maximum time period allowed
- The research project for the dissertation must be approved by the Faculty Post Graduate Studies Committee (Science).

### ***DURATION***

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### ***CURRICULUM (Full-time and Part-time)***

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	OCEB510	180

## MASTER OF SCIENCE (OCEANOGRAPHY: CHEMICAL AND PHYSICAL) (RESEARCH)

<b>Qualification code:</b>	25034
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Bachelor of Science Honours or equivalent.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

#### *Allocation of final mark for research project:*

The mark for a Master's dissertation is calculated as follows:

- The marks of the external examiners count 100% towards the final mark. The average of the marks allocated by them constitutes the final mark.

#### *Awarding of the degree cum laude:*

A Master's candidate obtains the degree *cum laude* if he/she –

- in the case of a research degree
  - obtains a final mark of at least 75%
  - completes the degree in the maximum time period allowed
- The research project for the dissertation must be approved by the Faculty Postgraduate Studies Committee (Science).
- See also general rules for Masters' degrees in the General Prospectus.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

**Part-time**

Minimum period – 1 year

Maximum period – 4 years

**CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	OCEB510	180

**MASTER OF SCIENCE  
(PHYSICS)  
(RESEARCH)**

<b>Qualification code:</b>	25008
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

**THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

**ADMISSION REQUIREMENTS**

Bachelor of Science Honours: Physics.

After satisfactory completion of the Honours course, a candidate may complete his/her Master's degree by following a course which consists of the following:

- A dissertation completed according to the *General Rules for Master's Degrees* as published in the Prospectus of Nelson Mandela University.
- Seminars, which form an integral part of the MSc programme.
- It may be required of the student to register concurrently for one of the following modules for non-degree purposes:
  - F405: Semiconductor physics
  - F406: Electron Diffraction and Image-Contrast Theory
  - F407: Module on topics in physics prescribed by the Department or taken in conjunction with other departments.

**STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

A candidate may be required to present him/herself for an oral examination on the contents of his/her dissertation.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	FV500	180

## **MASTER OF SCIENCE (PHYSIOLOGY) (RESEARCH)**

<b>Qualification code:</b>	25035
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Bachelor of Science Honours: Physiology.

### **STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:* Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

Upon recommendation by the Department, changes in the prescribed syllabus may be considered.

*Dissertation:*

- The presentation of a dissertation on an approved research project.
- The presentation of at least one seminar on an approved topic.
- Additional courses or advanced lectures on current topics, which may be prescribed by the Department in special circumstances.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	BSPD500	180

## **MASTER OF SCIENCE (ZOOLOGY) (RESEARCH)**

<b>Qualification code:</b>	25010
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	9
<b>Total NQF Credits for qualification:</b>	180

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

After satisfactory completion of the Honours degree, a candidate may complete his Master's degree by:

- submitting a dissertation as approved by the Department on a subject chosen to satisfy the requirements and objectives of the Department;
- submitting at least one satisfactory manuscript for publication on the dissertation;
- presenting at least one formal research seminar on the dissertation;
- satisfactory participation in Departmental academic activities.
- A candidate may be required to present himself for an oral examination on the contents of his dissertation.

### **STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 1 year

Maximum period – 3 years

#### **Part-time**

Minimum period – 1 year

Maximum period – 4 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and dissertation	Year	ZOOV500	180

## **DOCTORAL DEGREES**

### **DOCTOR OF PHILOSOPHY (AGRICULTURE) (RESEARCH)**

<b>Qualification code:</b>	26300
<b>Offering:</b>	Full-time North Campus (01) <b>OR</b> Part-time North Campus (21)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

Further studies in Agricultural Management are possible as the PhD degree in Agriculture is available as a study option. This is a research-based qualification.

### **ADMISSION REQUIREMENTS**

Master of Science: Agricultural Management, Master of Technology: Agricultural Management or equivalent qualification.

### **STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time:**

Minimum period: 2 years

Maximum period: 4 years

#### **Part-time:**

Minimum period: 2 years

Maximum period: 6 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and thesis	Year	ADT600	360

## **DOCTOR OF PHILOSOPHY (AGRICULTURE) (RESEARCH)**

<b>Qualification code:</b>	26400
<b>Offering:</b>	Full-time George Campus (02) <b>OR</b> Part-time George Campus (20)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

Further studies in Agricultural Management are possible as the PhD degree in Agriculture is available as a study option. This is a research-based qualification.

### **ADMISSION REQUIREMENTS**

Master of Science: Agricultural Management, Master of Technology: Agricultural Management or equivalent qualification.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice



versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time:**

Minimum period: 2 years

Maximum period: 4 years

#### **Part-time:**

Minimum period: 2 years

Maximum period: 6 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and thesis	Year	ADTG600	360

## **DOCTOR OF PHILOSOPHY (APPLIED MATHEMATICS) (RESEARCH)**

<b>Qualification code:</b>	26513
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Master's degree in Mathematics, Applied Mathematics or MSc in a chosen area of specialisation.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

**Part-time**

Minimum period – 2 years

Maximum period – 6 years

**CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and thesis	Year	MAPV600	360

## DOCTOR OF PHILOSOPHY (BIOCHEMISTRY) (RESEARCH)

<b>Qualification code:</b>	26511
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

**THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

**ADMISSION REQUIREMENTS**

Master's degree in Biochemistry.

**STATUTORY AND OTHER REQUIREMENTS***Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

**DURATION****Full-time**

Minimum period – 2 years

Maximum period – 4 years

**Part-time**

Minimum period – 2 years

Maximum period – 6 years

**CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
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<b>Compulsory module:</b>				
	Research project and thesis	Year	BCV600	360

## DOCTOR OF PHILOSOPHY (BOTANY) (RESEARCH)

<b>Qualification code:</b>	26503
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Botany.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
	Year	BOTV600	360

## DOCTOR OF PHILOSOPHY (CHEMISTRY) (RESEARCH)

<b>Qualification code:</b>	26515
<b>Offering:</b>	Full-time South Campus (A1)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Master's degree in Chemistry.

### **STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

This qualification is awarded on completion of a comprehensive original research project in Applied Chemistry.

### **DURATION**

Full-time:

Minimum period: 2 years

Maximum period: 4 years

Part-time:

Minimum period: 2 years

Maximum period: 6 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and thesis	Year	CHEM600	360

# DOCTOR OF PHILOSOPHY (COMPUTER SCIENCE) (RESEARCH)

<b>Qualification code:</b>	26504
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

## ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

## ***ADMISSION REQUIREMENTS***

Unless Senate decides otherwise, candidates shall be admitted to the studies for the Doctor's degree in Computer Science and Information Systems only if they hold a Master's degree in Computer Science and Information Systems, and have obtained a weighted average mark of at least 65% for the Master's degree, as well as complying with such other selection criteria as laid down by the Department.

## ***SELECTION PROCEDURE***

All candidates shall be subject to selection.

## ***RE-ADMISSION REQUIREMENTS***

Unless Senate decides otherwise, candidates shall be re-admitted to the studies for the degree if they have completed at least two additional chapters of the thesis to the satisfaction of their supervisor(s) in the previous academic year. The Department must approve all applications for renewal of registration annually.

## ***STATUTORY AND OTHER REQUIREMENTS***

### ***Full-time vs Part-time registration:***

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

The research project for the thesis must be approved by the Faculty Management Committee (Science).

## ***DURATION***

### ***Full-time***

Minimum period – 2 years

Maximum period – 4 years

### ***Part-time***

Minimum period – 2 years

Maximum period – 6 years

## ***CURRICULUM (Full-time and Part-time)***

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and thesis	Year	WRV600	360

## **DOCTOR OF PHILOSOPHY (GEOGRAPHY) (RESEARCH)**

<b>Qualification code:</b>	26608
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### **THE PURPOSE OF THE LEARNING PROGRAMME**

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### **ADMISSION REQUIREMENTS**

Appropriate Master's degree.

### **STATUTORY AND OTHER REQUIREMENTS**

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### **CURRICULUM (Full-time and Part-time)**

	Presented	Module Code	Credit Value
<b>Compulsory module:</b>			
Research project and thesis	Year	GEOV600	360

## DOCTOR OF PHILOSOPHY (GEOLOGY) (RESEARCH)

<b>Qualification code:</b>	26505
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Geology.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	GGLV600	360

## DOCTOR OF PHILOSOPHY (INFORMATION SYSTEMS) (RESEARCH)

<b>Qualification code:</b>	26514
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Information Systems.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	WRV600	360



## DOCTOR OF PHILOSOPHY (MATHEMATICAL STATISTICS) (RESEARCH)

<b>Qualification code:</b>	26507
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Mathematical Statistics.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	STAS600	360

## DOCTOR OF PHILOSOPHY (MATHEMATICS) (RESEARCH)

<b>Qualification code:</b>	26506
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Mathematics, Applied Mathematics or MSc in a chosen area of specialisation.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	MATT600	360

## DOCTOR OF PHILOSOPHY (MICROBIOLOGY) (RESEARCH)

<b>Qualification code:</b>	26512
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Microbiology.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	BMV600	360

## DOCTOR OF PHILOSOPHY (NATURE CONSERVATION) (RESEARCH)

<b>Qualification code:</b>	26520
<b>Offering:</b>	Full-Time George Campus (02) Part-time George Campus (20)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

#### *Qualification objective:*

Students must produce a thesis in which they provide proof of original and creative thinking and problem-solving and make a real contribution in the field to which their research applies. The thesis must comply with the normal technical requirements and rules with regard to scope, quality and layout.

### **ADMISSION REQUIREMENTS**

Master of Science: Nature Conservation or equivalent qualification.

### **STATUTORY AND OTHER REQUIREMENTS**

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### **DURATION**

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### **CURRICULUM (Full-time and Part-time)**

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	NAT600	360

## DOCTOR OF PHILOSOPHY (OCEANOGRAPHY) (RESEARCH)

<b>Qualification code:</b>	26517
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Relevant Master's degree.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	OCEV600	360

## DOCTOR OF PHILOSOPHY (PHYSICS) (RESEARCH)

<b>Qualification code:</b>	26508
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Physics.

### ***STATUTORY AND OTHER REQUIREMENTS***

#### *Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

		<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>				
	Research project and thesis	Year	FV600	360

## DOCTOR OF PHILOSOPHY (PHYSIOLOGY) (RESEARCH)

<b>Qualification code:</b>	26530
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Physiology.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	BSPD600	360

## DOCTOR OF PHILOSOPHY (ZOOLOGY) (RESEARCH)

<b>Qualification code:</b>	26510
<b>Offering:</b>	Full-time South Campus (A1) <b>OR</b> Part-time South Campus (A2)
<b>Aligned NQF Level:</b>	10
<b>Total NQF Credits for qualification:</b>	360

### ***THE PURPOSE OF THE LEARNING PROGRAMME***

This programme has been approved in terms of the new Higher Education Qualification Sub-Framework (HEQSF).

### ***ADMISSION REQUIREMENTS***

Master's degree in Zoology.

### ***STATUTORY AND OTHER REQUIREMENTS***

*Full-time vs Part-time registration:*

Students may only register as full-time candidates if they are available on a day-to-day basis to attend and participate in the postgraduate programme. A student who is unable to attend as stated will be automatically be defined as a part-time student for the purpose of postgraduate studies. Changes to the status of a candidate from part-time to full-time or vice versa need to be approved by the Chairperson of the Faculty Postgraduate Studies Committee.

### ***DURATION***

#### **Full-time**

Minimum period – 2 years

Maximum period – 4 years

#### **Part-time**

Minimum period – 2 years

Maximum period – 6 years

### ***CURRICULUM (Full-time and Part-time)***

	<b>Presented</b>	<b>Module Code</b>	<b>Credit Value</b>
<b>Compulsory module:</b>			
Research project and thesis	Year	ZOOV600	360



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