University of Pretoria Yearbook 2017

BSc Extended programme - Biological and Agricultural Sciences (02130014)

Duration of study	4 years
Total credits	152

Admission requirements

Candidates who do not comply with the minimum admission requirements of programmes in the Department of Biological Sciences, may be considered for admission to the BSc – Extended programme for the Biological and Agricultural Sciences. The BSc – Extended programme takes place over a period of four years instead of the normal three years.

Minimum requirements for 2017												
Achievement level												
Afrikaans or English				**Mathematics**				**Physical Sciences**				**APS**
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
4	3	D	D	4	3	D	D	4	3	D	D	24

Additional requirements

a. Students who are admitted to one of the BSc four-year programmes register for one specific programme. Three extended programmes are available:

- BSc (Four-year programme) – Mathematical Sciences
- BSc (Four-year programme) – Biological and Agricultural Sciences
- BSc (Four-year programme) – Physical Sciences

b. These programmes are followed by students who, as a result of exceptional circumstances, will benefit from an extended programme.

c. Students who do not comply with the normal three-year BSc entrance requirements for study in the Faculty of Natural and Agricultural Sciences, may nevertheless be admitted to the Faculty by being placed on the BSc (Four-year programme). Generally the BSc (Four-year programme) means that the first study year in Mathematics, Physics, Biology and Chemistry is extended to take two years. After completing the BSc (Four-year programme) successfully, students join the second year of the normal BSc programme to complete their degrees. The possibility of switching over to other faculties such as Engineering, Built Environment and Information Technology, Veterinary Science and Health Sciences, after one or two years in the four-year programme, exists. This depends on selection rules and other conditions stipulated by the other faculties.

d. Students who wish to follow one of the BSc four-year programmes will be subjected to an Institutional Proficiency Test and will be considered for admission by the Admissions Committee. Information in this

regard is available at the Client Services Centre.

e. Applications for admission to the BSc (Four-year programme) should be submitted before 30 September each year. Details are obtainable from the Student Administration at the Faculty of Natural and Agricultural Sciences.
f. The rules and regulations applicable to the normal study programmes apply mutatis mutandis to the BSc (Four-year programme), with exceptions as indicated in the regulations pertaining to the BSc (Four-year programme). For instance, students placed in the BSc (Four-year programme) must have a National Senior Certificate with admission for degree purposes.
g. An admissions committee considers applications for the BSc (Four-year programme) annually. Regarding subject choices, admitted students are individually placed on the BSc (Four-year programme) according to their prospective field of study. Students may NOT change this placement without the permission of the Chairperson of the admissions committee.

Other programme-specific information

The Dean may, on the recommendation of the programme manager, approve deviations with regard to the composition of the study programme.

Please note: Where elective modules are not specified, these may be chosen from any modules appearing in the list of modules.

It remains the student's responsibility to acertain, prior to registration, whether they comply with the prerequisites of the modules they want to register for.

The prerequisites are listed in the alphabetical list of modules.

Promotion to next study year

Academic promotion requirements
It is expected of students who register for the first year of the BSc (Four-year programme) to pass all the prescribed modules of the first year.
It is expected of students accepted into the BSc (Four-year programme) to finish a complete corresponding BSc first year within the two years of enrolment in the BSc (Four-year programme). Students who do not show progress during the first semester of the first year will be referred to the Admissions Committee of the Faculty.

Curriculum: Year 1

Minimum credits: 88

Minimum credits:

Fundamental = 24

Core = 64

NB Students may register for an extended programme module only once.

Fundamental modules

Language, life and study skills 133 (LST 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences
Prerequisites	As for BSc Four-year programme and BCom Four-year programme
Contact time	4 discussion classes per week, Foundation Course, MAMELODI
Language of tuition	Module is presented in English
Academic organisation	Natural + Agric Sciences Dean
Period of presentation	Semester 1

Module content

In this module students use different information and time management strategies, build academic vocabulary, revise basic grammar concepts and dictionary skills, examine learning styles, memory and note-taking techniques, practise academic reading skills and explore basic research and referencing techniques, learn how to use discourse markers and construct definitions, and are introduced to paragraph writing. The work is set in the context of the students' field of study.

Language, life and study skills 143 (LST 143)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Economic and Management Sciences
Prerequisites	LST 133
Contact time	Foundation Course, 4 discussion classes per week, MAMELODI
Language of tuition	Module is presented in English
Academic organisation	Natural + Agric Sciences Dean
Period of presentation	Semester 2

Module content

In this module students learn how to interpret and use visual literacy conventions. Students write more advance paragraphs, and also learn how to structure academic writing, how to refine their use of discourse markers and referencing techniques and how to structure their own academic arguments. Students' writing is expected to be rational, clear and concise. As a final assignment all aspects of the LST 133 and LST 143 modules are combined in a research assignment. In this project, students work in writing teams to produce a chapter on a career and to present an oral presentation of aspects of the chapter. The work is set in the context of the students' field of study.

Academic information management 111 (AIM 111)

Module credits	4.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities Faculty of Law Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Theology
Prerequisites	No prerequisites.
Contact time	MAMELODI, 2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Information Science
Period of presentation	Semester 1

Module content

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology.

Academic information management 121 (AIM 121)

Module credits	4.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Humanities Faculty of Law Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Theology Faculty of Veterinary Science
Prerequisites	No prerequisites.
Contact time	2 lectures per week, MAMELODI
Language of tuition	Separate classes for Afrikaans and English

Academic organisation	Informatics
Period of presentation	Semester 2

Module content

Apply effective search strategies in different technological environments. Demonstrate the ethical and fair use of information resources. Integrate 21st-century communications into the management of academic information.

Academic orientation 120 (UPO 120)

Module credits	0.00
Language of tuition	Afrikaans and English is used in one class
Academic organisation	Humanities Dean's Office
Period of presentation	Year

Core modules

Chemistry 133 (CMY 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	As for BSc Four-year programme
Contact time	Foundation Course, Fortnightly practicals, 3 discussion classes per week, 2 lectures per week, MAMELODI
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Chemistry
Period of presentation	Semester 1

Module content

The field of Chemistry – an overview; Mathematics in Chemistry; atomic theory: historical overview; atoms, molecules and ions; relative atomic mass; electronic structure of atoms; the periodic table; periodicity; chemical bonding.

Chemistry 143 (CMY 143)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	CMY 133
Contact time	2 lectures per week, MAMELODI, 3 discussion classes per week, Foundation Course, Fortnightly practicals
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Chemistry

Period of presentation	Semester 1

Module content

Bonding and molecular geometry: VSEPR theory; bonding and organic compounds (structural formulas, classification and nomenclature); matter and its properties; mole concept; reaction stoichiometry; reactions in aqueous solutions: precipitation, acid base and redox.

Molecular and cell biology 133 (MLB 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	As for BSc Four-year programme
Contact time	MAMELODI, 2 discussion classes per week, 2 lectures per week, 2 practicals per week, Foundation Course
Language of tuition	Module is presented in English
Academic organisation	Plant and Soil Sciences
Period of presentation	Semester 1

Module content

The scientific method, the meaning of life, principles of microscopy, introduction to taxonomy and systematics, introductory study of the structure, function and composition of akaryotes, HIV/ Aids, the immune system and other health issues, ecosystems and human interference.

Molecular and cell biology 143 (MLB 143)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	MLB 133
Contact time	2 practicals per week, 2 lectures per week, MAMELODI, 2 discussion classes per week, Foundation Course
Language of tuition	Module is presented in English
Academic organisation	Plant and Soil Sciences
Period of presentation	Semester 2

Module content

Chemistry of the cell, introduction to the structure, function and composition of prokaryotic and eukaryotic cells, energy and cellular metabolism, photosynthesis.

Physics 133 (PHY 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	As for BSc Four-year programme

Contact time	MAMELODI, 2 practicals per week, 2 lectures per week, Foundation Course, 2 discussion classes per week
Language of tuition	Module is presented in English
Academic organisation	Physics
Period of presentation	Semester 1

Module content

Heat: temperature and scales, work, energy and heat, calorimetry, specific heat, expansion, heat transfer. Measurements: SI-units, measuring error and uncertainty, (graphs), significant figures, mathematical modelling.One-dimensional kinematics. Geometrical optics: reflection, refraction, dispersion, mirrors, thin lenses.

Precalculus 133 (WTW 133)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Health Sciences
Prerequisites	BSc and BCom students: At least 3 (40-49%) in Mathematics in the Grade 12 examination and must be taken concurrently with WTW133
Contact time	3 lectures per week, Foundation Course, MAMELODI, 1 practical per week
Language of tuition	Module is presented in English
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

Real numbers, elementary set notation, exponents and radicals. Algebraic expressions, fractional expressions, linear and quadratic equations, inequalities. Coordinate geometry: lines, circles. Functions: definition, notation, piecewise defined functions, domain and range, graphs, transformations of functions, symmetry, even and odd functions, combining functions, one-to-one functions and inverses, polynomial functions and zeros. Sequences, summation notation, arithmetic, geometric sequences, infinite geometric series, annuities and instalments. Degrees and radians, unit circle, trigonometric functions, fundamental identities, trigonometric graphs, trigonometric identities, double-angle, half-angle formulae, trigonometric equations, applications.

This module is only offered in English at the Mamelodi Campus for the BSc Extended programme. At the Hatfield and Groenkloof campuses it is offered in English and Afrikaans.

Mathematics 144 (WTW 144)

Module credits	8.00
Prerequisites	WTW 133
Contact time	Foundation Course, MAMELODI, 1 tutorial per week, 3 lectures per week
Language of tuition	Module is presented in English
Academic organisation	Mathematics and Applied Maths

Period of presentation	Semester 2

Module content

Functions: Rate of change, exponential functions, the natural logarithm, exponential growth and decay, proportionality, power functions, fitting formulas to data. Rates of change and the derivative: Instantaneous rate of change, the derivative function, interpretations of the derivative, the second derivative.
Differentiation: Formulas and rules, applications, extremes of a function. All topics are studied in the context of applications.

Physics 144 (PHY 144)

Module credits	8.00
Service modules	Faculty of Education
Prerequisites	PHY 133
Contact time	1 practical per week, 4 lectures per week, MAMELODI, Foundation Course
Language of tuition	Module is presented in English
Academic organisation	Physics
Period of presentation	Semester 2

Module content

The main topics covered in this module are Mechanics and Thermodynamics. Kinematics: Basic types of motion, one-dimensional motion, two- and three dimensional motion, linear momentum and its conservation, multi-object systems and the centre of mass.
Forces: Types of forces, Newton's Laws of Mechanics and applications, friction.
Energy: Work, heat, conservation of mechanical energy.
Thermodynamics: First law of thermodynamics, empirical gas laws, mechanical model of the ideal gas, energy of the ideal gas, basic thermodynamic processes.

Curriculum: Year 2

Minimum credits: 32

Minimum credits:

Core = 32

Elective = According to BSc programme of choice

Additional information:

NB Students may register for an extended module only once.

With regard to the rest of the third-semester modules(second year, first semester) and the second-semester, prescribed modules must be selected from the normal BSc programme of the student's choice.

Equivelent modules:

Chemistry extended modules: CMY 133, CMY 143 and CMY 154: Equivelent to BSc module CMY 117

Molecular and cell biology extended modules: MLB 133, MLB 143 and MLB 153: Equivelent to BSc module MLB 111

Physics extended modules: PHY 133, PHY 143 and PHY 154: Equivelent to BSc module PHY 131

Mathematics extended modules: WTW 133, WTW 143 and WTW 154: Equivelent to BSc module WTW 134

Core modules

Chemistry 154 (CMY 154)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	CMY 133 and CMY 143
Contact time	3 lectures per week, 2 tutorials per week, fortnightly practicals, Foundation Course
Language of tuition	Module is presented in English
Academic organisation	Chemistry
Period of presentation	Semester 1

Module content

Principles of reactivity: energy and chemical reactions. Physical behaviour of gasses, liquids, solids and solutions and the role of intermolecular forces. Rate of reactions: Introduction to Chemical kinetics. Introduction to chemical equilibrium. Introduction to organic chemistry: hybridisation, isomers (structural, geometrical and conformational), additions reactions and reaction mechanisms.

Molecular and cell biology 153 (MLB 153)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	MLB 143

Contact time	Foundation Course, 2 lectures per week, 2 practicals per week
Language of tuition	Module is presented in English
Academic organisation	Genetics
Period of presentation	Semester 1

Module content

Cell growth and cell division, Mendelian and human genetics, principles of molecular genetics, principles of recombinant DNA technology and its application.

Physics 154 (PHY 154)

Module credits	8.00
Service modules	Faculty of Education
Prerequisites	PHY 143
Contact time	4 lectures per week, Foundation Course, 1 practical per week
Language of tuition	Module is presented in English
Academic organisation	Physics
Period of presentation	Semester 1

Module content

The main topic in this module is Electricity, Sound, Optics, and Modern Physics.
Static Electricity: Electric charge and force, electric field, the electric energy, electric potential, conservation of electrical energy.
Flow of charge: Capacitors, application of charge flow to nerves.
Sound: Vibrations, waves in unconfined and confined media, applications to human hearing.
Optics: Reflection, refraction, applications to optometry and ophthalmology.
Atomic physics: Atomic models, x-rays.
Nuclear physics: The stable atomic nucleus, radioactivity, nuclear spin and applications to medical diagnostics.

Mathematics 154 (WTW 154)

Module credits	8.00
Service modules	Faculty of Education
Prerequisites	WTW 144
Contact time	3 lectures per week, 1 tutorial per week, Foundation Course
Language of tuition	Module is presented in English
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

Module content

Integration: Accumulated change, the definite integral, anti-derivatives, the definite integral as an area, interpretations of the definite integral.
Matrices and systems of linear equations: Matrix addition and scalar multiplication, matrix multiplication, systems of linear equations. All topics are studied in the context of applications.

Elective modules

Biometry 120 (BME 120)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences Faculty of Veterinary Science
Prerequisites	At least 4 (50-59%) in Mathematics in the Grade 12 examination, or at least 50% in both Statistics 113, 123
Contact time	1 practical per week, 4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Statistics
Period of presentation	Semester 2

Module content

Simple statistical analysis: Data collection and analysis: Samples, tabulation, graphical representation, describing location, spread and skewness. Introductory probability and distribution theory. Sampling distributions and the central limit theorem. Statistical inference: Basic principles, estimation and testing in the one- and two-sample cases (parametric and non-parametric). Introduction to experimental design. One- and twoway designs, randomised blocks. Multiple statistical analysis: Bivariate data sets: Curve fitting (linear and non-linear), growth curves. Statistical inference in the simple regression case. Categorical analysis: Testing goodness of fit and contingency tables. Multiple regression and correlation: Fitting and testing of models. Residual analysis. Computer literacy: Use of computer packages in data analysis and report writing.

Plant biology 161 (BOT 161)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education
Prerequisites	MLB 111 GS
Contact time	fortnightly practicals, 2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Plant and Soil Sciences
Period of presentation	Semester 2

Module content

Basic plant structure and function; introductory plant taxonomy and plant systematics; principles of plant molecular biology and biotechnology; adaptation of plants to stress; medicinal compounds from plants; basic principles of plant ecology and their application in natural resource management.

General chemistry 127 (CMY 127)

Module credits	16.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
Prerequisites	Natural and Agricultural Sciences students: CMY 117 GS or CMY 154 GS Health Sciences students: none
Contact time	1 practical per week, 4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Chemistry
Period of presentation	Semester 2

Module content

Theory: General physical-analytical chemistry: Chemical equilibrium, acids and bases, buffers, solubility equilibrium, entropy and free energy, electrochemistry. Organic chemistry: Structure (bonding), nomenclature, isomerism, introductory stereochemistry, introduction to chemical reactions and chemical properties of organic compounds and biological compounds, i.e. carbohydrates and aminoacids. Practical: Molecular structure (model building), synthesis and properties of simple organic compounds.

Science and world views 155 (FIL 155)

Module credits	6.00
Service modules	Faculty of Health Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	Module is presented in English
Academic organisation	Philosophy
Period of presentation	Semester 1

Module content

This is a broad introduction to the philosophy and history of science. Examples of themes and historical periods which are covered include: world views in ancient Greece; Socrates; Plato – the founder of Western thought; Aristotle – the foundation of a new tradition; Leonardo da Vinci; the foundation of modern science; the wonder years of the seventeenth century – the flourishing of the sciences and philosophy; the rising of mechanization; a drastic turn in man's vision – the rise of psychology; how the theory of relativity changed our view of the cosmos; quantum theory and its implications for the modern world view; the biological sciences and the secrets of life; the rise and role of psychology; the neuro-sciences; the place, role and benefit of philosophical thought in the sciences.

Financial accounting 111 (FRK 111)

Module credits	10.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Law Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Accounting
Period of presentation	Semester 1

Module content

The nature and function of accounting; the development of accounting; financial position; financial result; the recording process; processing of accounting data; treatment of VAT; elementary income statement and balance sheet; flow of documents; accounting systems; introduction to internal control and internal control measures; bank reconciliations; control accounts; adjustments; financial statements of a sole proprietorship; the accounting framework.

Financial accounting 121 (FRK 121)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Natural and Agricultural Sciences
Prerequisites	FRK 111 GS
Contact time	4 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Accounting
Period of presentation	Semester 2

Module content

Property, plant and equipment; intangible assets; inventories; liabilities; presentation of financial statements; enterprises without profit motive; partnerships; companies; close corporations; cash flow statements; analysis and interpretation of financial statements.

Physiology 110 (FSG 110)

Module credits	6.00
Service modules	Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Physiology
Period of presentation	Semester 1

Module content

Introduction (terminology and anatomical orientation); chemical principles; cytology and histology; neuro-physiology and the senses; haematology and body fluids; cardiovascular system.

Physiology 120 (FSG 120)

Module credits	6.00
Service modules	Faculty of Humanities Faculty of Natural and Agricultural Sciences
Prerequisites	FSG 110
Contact time	3 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Physiology
Period of presentation	Semester 2

Module content

Respiratory system; nutrition; digestion and metabolism; kidneys and acid-base equilibrium; endocrinology; reproduction physiology and reproduction; skin and body temperatures.

Introductory genetics 161 (GTS 161)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Veterinary Science
Prerequisites	MLB 111 GS
Contact time	fortnightly practicals, 2 lectures per week

Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Genetics
Period of presentation	Semester 2

Module content

Chromosomes and cell division. Principles of Mendelian inheritance: locus and alleles, dominance interactions and epistasis. Probability studies. Sex determination and sex linked traits. Pedigree analysis. Extranuclear inheritance. Genetic linkage and chromosome mapping. Chromosome variation.

Introduction to microbiology 161 (MBY 161)

Module credits	8.00
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	MLB 111 GS
Contact time	2 lectures per week, 1 practical per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Microbiology and Plant Path
Period of presentation	Semester 2

Module content

The module will introduce the student to the field of Microbiology. Basic Microbiological aspects that will be covered include introduction into the diversity of the microbial world (bacteria, archaea, eukaryotic microorganisms and viruses), basic principles of cell structure and function, microbial nutrition and microbial growth and growth control. Applications in Microbiology will be illustrated by specific examples i.e. bioremediation, animal-microbial symbiosis, plant-microbial symbiosis and the use of microorganisms in industrial microbiology. Wastewater treatment, microbial diseases and food will be introduced using specific examples.

Psychology 110 (SLK 110)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	2 discussion classes per week, 2 lectures per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Psychology
Period of presentation	Semester 1

Module content

This module is a general orientation to Psychology. An introduction is given to various theoretical approaches in Psychology, and the development of Psychology as a science is discussed. Selected themes from everyday life are explored and integrated with psychological principles. This module focuses on major personality theories. An introduction is given to various paradigmatic approaches in Psychology.

Psychology 120 (SLK 120)

Module credits	12.00
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 discussion classes per week
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Psychology
Period of presentation	Semester 2

Module content

This module introduces the student to a basic knowledge and understanding of the biological basis of human behaviour. The module addresses the key concepts and terminology related to the biological subsystem, the rules and principles guiding biological psychology, and identification of the interrelatedness of different biological systems and subsystems. In this module various cognitive processes are studied, including perception, memory, thinking, intelligence and creativity. Illustrations are given of various thinking processes, such as problem solving, critical, analytic and integrative thinking.

Animal diversity 161 (ZEN 161)

Module credits	8.00
Service modules	Faculty of Education Faculty of Veterinary Science
Prerequisites	MLB 111 GS or TDH
Contact time	2 lectures per week, fortnightly practicals
Language of tuition	Separate classes for Afrikaans and English
Academic organisation	Zoology and Entomology
Period of presentation	Semester 2

Module content

Animal classification, phylogeny, organization and terminology. Evolution of the various animal phyla, morphological characteristics and life cycles of parasitic and non-parasitic animals. Structure and function of reproductive, respiratory, excretory, circulatory and digestive systems.

Basic food preparation 121 (VDS 121)

Module credits	6.00
Service modules	Faculty of Health Sciences
Prerequisites	VDS 111
Contact time	1 practical per week, 1 lecture per week
Language of tuition	Afrikaans and English is used in one class
Academic organisation	Consumer Science
Period of presentation	Semester 2

Module content

Module 1: Principles and practices of food preparation and cooking techniques. Mise en place, weighing and measurement techniques, equipment and terminology as applied in food preparation. Basic food quality control.
Module 2: Food preparation basics of the following: starches and cereals

The information published here is subject to change and may be amended after the publication of this information. The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the General Rules section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.