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**UNIVERSITY OF NAMIBIA**



**FACULTY OF HEALTH SCIENCES  
& VETERINARY MEDICINE**

**School of Veterinary Medicine**

**PROSPECTUS 2026**



Open your mind

# **PROSPECTUS 2026**

## **SCHOOL OF VETERINARY MEDICINE**



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**NOTE**

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This Prospectus is only valid for 2026 as regulations and syllabi may be amended for 2027. The general regulations and further information appear in the General Information and Regulation Prospectus. Although the information contained in this Prospectus has been compiled as accurately as possible, it is possible that errors and omissions have inadvertently occurred, for which we apologise in advance. The University reserves the right to amend any regulation or stipulation without notice. The information is correct up to 30 November 2026.

The fact that particulars of a specific module or programme have been included in this Prospectus does not necessarily mean that the module or programme will be offered in 2026. This Prospectus must be read in conjunction with the *General Information and Regulations Prospectus 2026*.

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**SCHOOL OF VETERINARY MEDICINE PREAMBLE**

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At the heart of Veterinary Medicine lies a profound commitment to the health and well-being of animals, humans, and the environment. The School of Veterinary Medicine stands as a beacon for advancing knowledge, fostering compassion, and driving innovation in the veterinary sciences.

The school recognize the vital interconnection between animal health, public health, and ecological balance, aligning with the principles of One Health to address global challenges. With a steadfast dedication to excellence in education, research, and clinical practice, the school prepare students to become leaders in veterinary medicine, equipping them not only with technical expertise but also with the ethical grounding and empathy necessary to serve diverse communities.

Through collaboration, inclusivity, and a passion for discovery, the school empower its graduates to safeguard animal welfare, protect public health, and contribute to a sustainable future for all living beings.

**UNAM 2026 CORE DATES**

| <b>SEMESTER 1</b>         |  |
|---------------------------|--|
| 08 January                | University Open  |
| 20 January                | Academic Staff Resumes Office Duties                           |
| 04 March                  | "We care for UNAM" day   |
| 03 April                  | First Semester Break commences for students (Until 6 April)    |
| 07 April                  | Lectures resume After FIRST SEMESTER BREAK                     |
| 10 July                   | End of FIRST SEMESTER  |
| 20-24 July                | Mid-Year Break   |
| <b>SEMESTER 2</b>         |  |
| 26 August                 | Second semester BREAK for students commences (Until 27 August) |
| 28 August                 | Institutional Holiday  |
| 31 August                 | Lectures resume after SECOND SEMESTER BREAK                    |
| 04 December               | End of Second Semester   |
| 11 December               | End of Academic Year   |
| <b>2026 ACADEMIC YEAR</b> |  |
| 7 January                 | University opens for 2026 academic year                        |
| 19 January                | Academic staff resumes office duty for 2027 academic year      |

**REGISTRATION AND ACADEMIC ADMINISTRATION DATES**

| <b>DATE</b> | <b>ACTIVITY</b>  |
|-------------|--|
| 05 January  | <b>ONLINE REGISTRATION COMMENCES:</b> <ul style="list-style-type: none"> <li>All Senior Students (until 30 Jan 2026)</li> </ul>  |
| 08 January  | Institution opens (all administrative staff)   |
| 12 January  | <b>REGISTRATION COMMENCES:</b> <ul style="list-style-type: none"> <li>First year students (freshmen) until (30 Jan 2026)</li> <li><b>CORE SEMESTER</b> (New Curriculum Professional Programmes) commences 21 January</li> <li><b>CORE SEMESTER</b> (New Curriculum Programme) commences 28 February</li> </ul>   |
| 19 January  | Professional Programmes Semesters<br>Lectures commence for FIRST SEMESTER  |
| 26 January  | <b>REGISTRATION COMMENCES:</b> <ul style="list-style-type: none"> <li>Postgraduate Students (Masters and Doctorate Degrees) (until 30 Jan 2026)</li> </ul> <b>ACADEMIC ADMINISTRATION</b> – Application for module(s) exemptions commence <ul style="list-style-type: none"> <li>First year student (until 13 February)</li> <li>Senior students (until 27 March)</li> </ul> |
| 30 January  | <b>REGISTRATION ENDS:</b> <ul style="list-style-type: none"> <li>First year students (freshmen) and new curriculum students</li> </ul>   |
| 02 February | <b>LATE REGISTRATION Commences</b> (until 06 February) <ul style="list-style-type: none"> <li>All first year and senior new curriculum students</li> </ul>   |
| 06 February | <b>LATE REGISTRATION ends for:</b> <ul style="list-style-type: none"> <li>All first year and senior new curriculum students</li> </ul>   |
| 13 February | <b>ACADEMIC ADMINISTRATION</b> <ul style="list-style-type: none"> <li>Last day for module(s) exemption applications – first year students</li> <li>Last day for approval of module(s) and qualification offering types changes - First year students</li> </ul>  |
| 02 February | <b>LATE REGISTRATION Commences</b> (until 06 February) <ul style="list-style-type: none"> <li>All first year and senior new curriculum students</li> </ul>   |
| 06 February | <b>LATE REGISTRATION ends for:</b> <ul style="list-style-type: none"> <li>All first year and senior new curriculum students</li> </ul>   |
| 13 February | <b>ACADEMIC ADMINISTRATION</b> <ul style="list-style-type: none"> <li>Last day for module(s) exemption applications – first year students</li> <li>Last day for approval of module(s) and qualification offering types changes - First year students</li> </ul>  |
| 27 March    | <b>ACADEMIC ADMINISTRATION</b> – Application for module(s) exemption ends  |
| 09 April    | <b>GRADUATION:</b> Southern Campus   |
| 14 April    | <b>GRADUATION:</b> Katima Mulilo Campus  |
| 16 April    | <b>GRADUATION:</b> Rundu Campus  |

|             |  |
|-------------|--|
| 22 April    | <b>GRADUATION:</b> Northen Campuses  |
| 27 April    | <b>ACADEMIC ADMINISTRATION</b> – Last day to change offering types for year modules                            |
| 28-29 April | <b>GRADUATION:</b> Windhoek Campuses   |
| 20 July     | <b>ACADEMIC ADMINISTRATION</b> – Addition and cancellation of SECOND SEMESTER modules commence (until 24 July) |
| 24 July     | <b>ACADEMIC ADMINISTRATION</b> – Addition and cancellation of SECOND SEMESTER modules end                      |
| 08 October  | <b>SPRING GRADUATION</b>   |

#### CANCELLATION DATES

| DATE         | ACTIVITY  |
|--------------|---|
| 30 January   | Last day to cancel CORE SEMESTER modules with 100% credit   |
| 13 February  | Last day to cancel CORE SEMESTER modules with 50% credit  |
|              | Last day to cancel CORE SEMESTER modules – no credit  |
| 20 February  | Last day to cancel FIRST SEMESTER modules with 100% credit (Old curriculum students)  |
| 13 March     | Last day to cancel FIRS SEMESTER and year modules with 100% credit (New curriculum students)<br>Last day to cancel FIRST SEMESTER modules with 50% credit (Old curriculum students) |
| 13 April     | Last day to cancel FIRST SEMESTER modules with 50% credit (New curriculum students)   |
| 27 April     | Last day to cancel FIRST SEMESTER modules – no credit (All students)  |
| 06 July      | Last day to cancel YEAR modules with 50% (All students)   |
| 10 August    | Last day to cancel SEMESTER 2 modules with 100% (All students)  |
| 28 September | Last day to cancel SEMESTER 2 and YEAR modules – no credit (All students)   |

## ACADEMIC DEPARTMENTS

### ASSOCIATE DEAN (Neudamm Campus)

☎ (+264 61) 2064043

[amarais@unam.na](mailto:amarais@unam.na)

✉ Private bag 13301, Windhoek, Namibia

|                         |   |
|-------------------------|---|
| Associate Dean:         | Dr A Marais: BVSc (University of Pretoria); BSc (Hons); MSc (Stellenbosch University); PhD (University of Pretoria) |
| Administrative Officer: | Mr P Ndjodhi, BSc. Transport Management   |
| Faculty Officer:        | Mrs. Laivi Cardoso Higher Dip. Business Information System (IUM)  |
| Adjunct - Psychologist: | Vacant  |

### DEPARTMENT of VETERINARY PRE-CLINICAL STUDIES (Neudamm Campus)

☎ (+264 61) 2064001

[schitanga@unam.na](mailto:schitanga@unam.na)

✉ Private bag 13301, Windhoek, Namibia

|                         |  |
|-------------------------|--|
| Head of Department:     | Prof S Chitanga: BVSc (University of Zimbabwe); MSc (Institute of Tropical Medicine, Belgium); PhD in Veterinary Medicine (University of Ghent, Belgium).  |
| Professor:              | Prof S. Chitanga: BVSc (University of Zimbabwe); MSc (Institute of Tropical Medicine, Belgium); PhD in Veterinary Medicine (University of Ghent, Belgium).   |
| Associate Professor:    | Prof O Madzingira: BVSc (University of Zimbabwe); MPhil (University of Zimbabwe); MMed Vet (University of Pretoria); PhD in Veterinary Science (University of Pretoria).   |
| Senior Lecturer:        | Dr B Kaurivi: BSc (Biology) (University of Namibia); BVSc (University of Zimbabwe); MVSc (University of Sidney); PhD (Massey University)   |
| Senior Lecturer:        | Dr B Mushonga: BSc (Hons) Veterinary Anatomy; BVSc (University of Zimbabwe); MSc Veterinary Pathology (University of Utrecht)  |
| Senior Lecturer:        | Dr C Musara: MSc (University of Liverpool, UK). BVSc (University of Zimbabwe, Zimbabwe). MSc, (University of Zimbabwe, Zimbabwe).  |
| Lecturer:               | Dr S Chinyoka: MSc (Tropical Animal Health, University of Pretoria) BVSc (University of Zimbabwe, Zimbabwe)  |
| Lecturer:               | Dr B Chiwome: BVSc (University of Zimbabwe)  |
| Lecturer:               | Dr E Muradzwika: BVSc (University of Zimbabwe)   |
| Assistant Lecturer:     | Dr E. Hoebes: BVM (University of Namibia)  |
| Assistant Lecturer:     | Dr D Delie: BVM (University of Namibia)  |
| Senior Technologist:    | Mr M Hanghome: Nat. Dip. NRM Nature Conservation (Namibia University of Science and Technology); B Degree Environmental Engineering (Cape Peninsula University of Technology); MSc Environmental Management (University of the Free State) |
| Technologist:           | Ms E Mwenda: BSc (Hons) (University of Namibia, Namibia), BSc – Environmental Biology and Molecular and Physiological Biology (University of Namibia, Namibia)   |
| Technologist:           | Mrs. V N Harrison: BSc (Hons) Microbiology (University of Namibia)   |
| Vet. Field Technician:  | Mr U Ujava: Higher Dip Agric (UNAM)  |
| Vet. Para-professional: | Ms C O Matomola: Dip. Anim. Health (University of Namibia)   |
| Vet. Para-professional: | Mr N Simasiku: Dip Anim Health (University of Namibia)   |

**DEPARTMENT of VETERINARY PARA-CLINICAL STUDIES (Neudamm Campus)**

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|                              |  |
|------------------------------|--|
| Head of Department:          | Prof S Khaiseb: DVM (Kazan State Veterinary Academia, Russia), Dr med vet (Institute of Veterinary Pathology, University of Zurich)                            |
| Associate Professor:         | Prof C Ntahonshikira: BVM, MSc (National Agricultural University of Ukraine); PhD (Kiev Veterinary Research Institute)   |
| Associate Professor          | Prof S Khaiseb: DVM (Kazan State Veterinary Academia, Russia), Dr med vet (Institute of Veterinary Pathology, University of Zurich)                            |
| Associate Professor:         | Dr J Yabe: BVM (University of Zambia), MSc. (University of Zambia); PhD (Hokkaido University, Japan)   |
| Senior Lecturer:             | Dr M Y Hemberger: DVM (Giessen University – Germany); PhD (Giessen University –Germany)  |
| Senior Lecturer:             | Dr F Chitate: BVSc (University of Zimbabwe); MSc (University of Reading)   |
| Lecturer:                    | Dr L Mwense : BVM ( University of Zambia), MSc (Chonbuk National University), PHD (Jeonbuk National University)  |
| Lecturer:                    | Dr D Mudimba: BVSc (University of Zimbabwe), MSc (UNAM)  |
| Staff Development Fellow:    | Dr Eugene A Jacobs: Diploma in Animal Health, (Cum laude); BVM (University of Namibia)   |
| Staff Development Fellow:    | Dr Leandra van Zyl: BVM (University of Namibia)  |
| Senior Technologist:         | Mrs M M N Amukwaya: BSc (Hons) Microbiology and Chemistry (University of Namibia); MSc Clinical Microbiology and Infectious Diseases (University of Edinburgh) |
| Technologist:                | Mrs K Mwaningange: National Diploma in Agriculture (University of Namibia); BSc Agric (Hons) Food Science and Tech (University of Namibia)                     |
| Technologist:                | Mr. A Shoolongela: National Diploma in Agriculture (University of Namibia), BSc (Hons) Food Science and Tech (University of Namibia)                           |
| Vet. Para-professional:      | Mr. J. Simataa: Diploma in Animal Health (University of Namibia)   |
| General Assistant-Pathology: | Mr M Tjamuaha  |

**DEPARTMENT OF COMPANION ANIMAL CLINICAL STUDIES (Neudamm Campus)**

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Head of Department: Dr A Raath: BVSc (University of Pretoria)

Senior lecturer: Dr A Marais: BVSc (University of Pretoria); BSc (Hons); MSc (Stellenbosch University); PhD (University of Pretoria)

Senior lecturer: Dr L De Villiers: BSc, BVSc, MSc (University of Pretoria), PhD (University of Pretoria)

Assistant Clinical Lecturer: Dr W Thomas: BVM (Sokoine University of Agriculture, Tanzania)

Adjunct Lecturer: Prof J Schoeman: BVSc, MMedVet, PhD (University of Pretoria)

Adjunct Lecturer: Dr R Hassel: BVSc (University of Pretoria); PhD (Berlin)

Adjunct Lecturer: Dr V McClure: BVSc, M. Med. Vet (University of Pretoria)

Adjunct Lecturer: Dr J Kirchner: BVSc (University of Pretoria)

Staff Development Fellow: Dr P Nghinamito: BVM (University of Namibia)

Staff Development Fellow: Dr N Williams: BVM (University of Namibia)

Vet. Para-professional: Mr B Muzo: Dip. Animal Health (University of Namibia)

**DEPARTMENT OF PRODUCTION ANIMAL CLINICAL STUDIES (Neudamm Campus)**

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|                           |  |
|---------------------------|--|
| Head of Department:       | Dr P Mbiri: BVSc (University of Zimbabwe); MSc (University of Pretoria); PhD (UNAM)  |
| Associate Professor:      | Prof. A Samkange: BVSc (University of Zimbabwe); MSc, PhD (University of Pretoria)   |
| Senior Lecturer:          | Dr A Herbert: DVM (University of Toulouse, France), MSc (University of Montpellier, France)  |
| Senior Lecturer:          | Dr F Bruwer: BVSc (University of Pretoria); M. Med. Vet. (University of Pretoria)  |
| Senior Lecturer:          | Dr P Mbiri: BVSc (University of Zimbabwe); MSc (University of Pretoria)  |
| Lecturer:                 | Dr I Kaatura: Nat. Dip. Agric (Ogongo Agric College), BVM (University of Zambia); PGDM (NUST), MSc Veterinary Medicine (University of Namibia) |
| Staff Development Fellow: | Dr I Amuthitu: BVM (University of Namibia)   |
| Junior Clinician:         | Dr M Uris: BVM (UNAM)  |
| Adjunct Lecturer:         | Dr M. Jago: MA, Vet MB (Cambridge University), MRCVS   |
| Adjunct Lecturer:         | Dr B.E. Voigts: BVSc (University of Pretoria)  |
| Adjunct Lecturer:         | Dr Arnold Olivier: BVSc (University of Pretoria)   |
| Adjunct Lecturer:         | Dr O Aschenborn: BVSc (University of Pretoria); MSc (Sterling, Scotland)   |
| Vet. Paraprofessional:    | Mr Linus Mujiwa: Dip Anim Health (UNAM)  |
| Vet. Paraprofessional:    | Mr S Ndana Dip Anim Health (UNAM)  |
| Vet. Paraprofessional:    | Mr P Awasman: Dip Agric (UNAM)   |

**VETERINARY ACADEMIC HOSPITAL (MAIN CAMPUS AND NEUDAMM CAMPUS)**

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|                                    |   |
|------------------------------------|---|
| Head of Hospital:                  | Dr A Marais: BVSc (University of Pretoria); BSc (Hons); MSc (Stellenbosch University); PhD (University of Pretoria) |
| Hospital Administrator:            | Mr B Tjizu: BA Hons Industrial Psychology and Sociology (UNAM)  |
| Associate Professor:               | Prof F Stegmann: BVSc, MMed Vet (University of Pretoria)  |
| Senior Clinician/ Head of Section: | Dr I. Baines: BVSc (University of Pretoria)   |
| Senior Clinician/ Head of Section: | Dr V.G. Mutjavikua: BVSc (University of Pretoria) (BSc. Agric-animal science-University of Namibia)                 |
| Senior Clinician:                  | Dr L Hepplestone: BVSc (University of Pretoria)   |
| Senior Clinician:                  | Dr F van der Linde: BVSc (University of Pretoria)   |
| Clinician:                         | Dr M Garbade: BVSc (University of Pretoria)   |
| Clinician:                         | Dr B Nyahoda: BVM (University of Namibia)   |
| Clinician:                         | Dr F Samuntu: BVM (University of Namibia), MSc (University of Pretoria)   |
| Clinician:                         | Dr M Pretorius: BVM (University of Namibia)   |
| Clinician:                         | Dr N Bornman: BVM (University of Namibia)   |
| Junior Clinician (Surgery):        | Dr V Kuume: BVM (University of Namibia)   |
| Junior Clinician:                  | Dr F Nyathi: BVM (University of Namibia)  |
| Junior clinician:                  | Dr E Nambinga: BVM (University of Namibia) Adjunct  |
| Junior Clinician:                  | D R Tjimbundu: BVM (University Of Namibia)  |
| Lecturer:                          | Dr D. Rodenwoldt: BVSc (University of Pretoria)   |
| Senior Veterinary Nurse:           | Sr Leandra Vermeulen Dip. Vet. Nursing (University of Pretoria)   |
| Senior Veterinary Nurse:           | Sr M Loschke: Dip. Vet. Nursing (University of Pretoria)  |
| Vet-Paraprofessional (Theatre):    | Ms J. Shiingidwa: Dip. Animal Health (University of Namibia)  |

**DIPLOMA IN ANIMAL HEALTH (MAIN CAMPUS AND NEUDAMM CAMPUS)**

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|                       |  |
|-----------------------|--|
| Academic Coordinator: | Dr S Chinyoka BVSc (University of Zimbabwe), MSc Tropical Animal Health (University of Pretoria)   |
| Associate Professor:  | Dr O Madzingira: BVSc (University of Zimbabwe); MPhil (University of Zimbabwe); MMed Vet (University of Pretoria); PhD in Veterinary Science (University of Pretoria)            |
| Lecturer:             | Dr Esther Muradzikwa Agriculture Diploma (Unam) BVSc (University of Zimbabwe)  |
| Lecturer:             | Dr Simbarashe Chinyoka BVSc (University of Zimbabwe), MSc Tropical Animal Health (University of Pretoria)  |
| Lecturer:             | Esther Mariana Muradzikwa National Diploma in Agriculture (University of Namibia); and BVSc (University of Zimbabwe)   |
| Technologist:         | Evelyn Mwenda B.Sc Double Major in Biology: Environmental Biology & Physiological and Molecular Biology (University of Namibia) B.Sc honors Microbiology (University of Namibia) |
| Paraprofessional:     | Mr. Simasiku Nicky, Diploma in Animal Health (University of Namibia),  |

**General enquiries regarding the School of Veterinary Medicine and the qualifications offered by the school should be directed to:**

Mrs Laivi Cardoso  
The Faculty Officer  
School of Veterinary Medicine  
University of Namibia  
Private Bag 13301  
WINDHOEK  
Telephone: +264-61-206  
E-mail: [lcardoso@unam.na](mailto:lcardoso@unam.na)

**Purpose of the qualification**

The purpose of this qualification is to provide students with a strong foundation in veterinary medicine, to encourage critical thinking, and to base their work ethic on evidence-based decision making and lifelong learning.

In order to respond to national and international imperatives such as sustainable development goals and Vision 20/30, in the context of the 4th industrial revolution, the Bachelor of Veterinary Medicine curriculum is designed to nurture interest in One Health, veterinary ethics and legislation, animal welfare and international trends in animal medicine including wildlife. Day one veterinary competencies are aligned with National and International guidelines as prescribed by the Namibian Veterinary Council and the World Organisation of Animal Health, and include competencies in non-technical skills such as communication, business literacy and emotional intelligence. The School of Veterinary Medicine veterinary graduate is prepared for entry-level practice and the provision of animal health care aligned to global standards in a variety of species. The transformed Bachelor of Veterinary Medicine curriculum allows students to acquire specific technology related skills, which are integral to the uptake and implementation of the latest technology in the work place.

**GRADUATE EMPLOYABILITY ATTRIBUTES****General attributes:**

- Independent lifelong learning by way of compulsory continued professional development
- Ethical and moral leadership and conduct in terms of the rules of the Veterinary Act 1 of 2013

**Specific attributes:**

- Systematic problem-solving approach to clinical cases and public health
- Innovative and entrepreneurial attitude to veterinary medicine and veterinary practice
- Compassion and empathy towards animals and their owners
- Constant regard for animal welfare

**CAREER OPPORTUNITIES**

24BVET holders enjoy a wide spectrum of career opportunities nationally and internationally. As a dental practitioner:

1. The graduate may be employed in the public sector usually at the state run hospital
2. The graduate may be employed as a General Practitioner in the private sector.
3. Once registered with NVC, the Namibian Veterinary Council has also the option of being self-employed in his/her own clinic.
4. May be employed at the university as academic staff

**DURATION OF STUDY**

The minimum duration for the Bachelor of Veterinary Medicine (24BVET) is six (6) years. Candidates must complete the 24BVET programme within seven (8) years of full-time study.

**ARTICULATION OPTIONS**

This qualification may serve as an entry point to the MSc degree in Veterinary Medicine, or Animal Science, which is a related qualification, or other relevant qualifications.

**CRITERIA FOR ADMISSION**

The minimum admission requirements into the Bachelor of Veterinary Medicine programme are as follows:

- (a) A Namibian Senior Secondary Certificate (NSSC) at NSSCO (Ordinary Level) and NSSCAS (Advanced Subsidiary Level) with a minimum of 35 points in five subjects on the UNAM Evaluation Scale; or a recognized equivalent qualification. In addition to the above, the following subjects and grades will be required:
  - i. English with a minimum **B** symbol or better at NSSC Ordinary Level, or a minimum **d** or better at NSSCAS Level
  - ii. Biology with a minimum **c** symbol or better at NSSCAS Level
  - iii. Mathematics with a minimum **c** symbol or better at NSSCAS Level
  - iv. Chemistry with a minimum **c** symbol or better at NSSCAS Level
  - v. One additional subject, with a minimum **B** symbol or better at NSSC Ordinary Level or a minimum **d** symbol or better at NSSCAS Level
- (b) Alternatively, candidates who have successfully passed mathematics, biology and chemistry at school level and a completed Science degree based on a curriculum relevant to Veterinary Medicine (e.g. Animal Science, Wildlife Management, Biochemistry, Microbiology) NQA evaluated level 7 or 8, may be admitted into the first year of the Bachelor of Veterinary Medicine programme if they have attained an average of 60% in the final year and no module less than 60%.

- (c) Candidates with a three-year Diploma in Animal Health or related field, with a combined average pass of 70% or higher, with no module less than 65%, from a recognized and accredited institution, may be granted admission to the Bachelor of Veterinary Medicine degree programme at the discretion of the school.
- (d) Applicants wishing to join the UNAM Bachelor of Veterinary Medicine programme from another veterinary faculty or school will be required to write an entrance examination. The entrance examination will be based on the individual candidate's application for exemption from either first, second or third year of the Bachelor of Veterinary Medicine programme. Successful candidates may be admitted upon achieving a minimum of 50% in the entrance examination, and placement will be contingent to places available and exemptions granted based on the examination. School leaving marks for mathematics, biology and chemistry will be considered during the evaluation process.

#### **Additional Selection Criteria**

Meeting the minimum admission requirements does not necessarily ensure admission. Admission is based on the number of places available and is awarded on the basis of merit and other criteria, e.g. regional representation, marginalized students, and admission of international students, as determined by the School on a quota system.

In addition to the above, final admission for all candidates will depend on a successful interview and pre-selection test.

Only candidates who have applied for Bachelor of Veterinary Medicine as first choice will be considered for selection into the programme.

#### **ASSESSMENT CRITERIA**

The common rules and regulations of the University of Namibia including Faculty and School specific regulations governing evaluation of student performance as stated below shall apply.

Students will be evaluated through both continuous assessment and/or examinations.

Students will be eligible to write examinations if they have obtained a continuous assessment mark of 40% and above.

Unless otherwise stated for an individual module, the continuous assessment mark for semester modules will constitute a weighting of 40% of the final mark whilst the examination will constitute a weighting of 60% of the final mark.

In the case of year modules, the continuous assessment mark will constitute a weighting of 60% of the final mark whilst the examination will constitute a weighting of 40% of the final mark.

Students may qualify for a supplementary examination in any paper if they obtain an examination mark of 45 – 49%, and < 50% for the examination mark of the module (combination of theory and practical or clinical, where applicable).

A mark of below 45% (subminimum) in either paper (practical or theory) of a module constitutes a fail in the module, and the entire module will be repeated.

Students will pass a module when they have obtained a final mark of 50% and above, with >45% in each paper and a CA mark of above 40%.

All examinations including practical exams will be written during the first opportunity examination period. Supplementary examinations will be written during the second opportunity examination period.

Students who have not attended 80% of lectures and / or practicals may not be granted admission into the examination.

Specific assessment criteria are indicated in the individual module descriptors.

For certain modules, as outlined in the applicable study guide for relevant modules, the "fatal flaw" concept will apply to the practical and clinical examinations and tests of that module. Once a pre-defined fatal flaw is committed, the student will automatically fail that assessment with a sub-minimum mark.

## MINIMUM REQUIREMENTS FOR RE-ADMISSION INTO THE PROGRAMME

A student will not be re-admitted into the **Bachelor of Veterinary Medicine programme** if she/he has not passed / attained at least:

By the end of the first year of registration

- A pass in either V3581ES (Veterinary Structure & Function I) or V3582ES (Veterinary Structure & Function II), as well as 14 additional credits

By the end of the second year of registration

- Passed all first year modules

By the end of the third year of registration

- Passed all first year and at least 80 of year 2 credits

By the end of the fourth year of registration

- Passed all first and second year modules

By the end of the fifth year of registration

- Passed all first, second and third year modules

By the end of the sixth year of registration

- Passed all first, second, third and fourth year modules

By the end of the seventh year of registration

- Passed all first, second, third, fourth and fifth year modules

By the end of the eighth year of registration

- Passed all first, second, third, fourth, fifth and sixth year modules

**All of the above is subject to a minimum of 56 credits attained per year.**

## ACADEMIC ADVANCEMENT AND PROGRESSION RULES

|   |   |
|---|---|
| <b>First Year to Second Year of Veterinary</b>  | To advance to the second year of the Bachelor of Veterinary Medicine programme a student must have passed all first year modules. A student who has passed both V3581ES (Veterinary Structure & Function I) <b>and</b> V3582ES (Veterinary Structure & Function II), will be allowed to register for a maximum of 48 second year credits (in addition to the failed modules) provided that:<br>(i) the relevant pre-requisites have been passed and<br>(ii) there are no time table clashes   |
| <b>Second Year to Third Year of Veterinary</b>  | To advance to the third year of the Bachelor of Veterinary Medicine programme a student must have passed all first and second year modules. A student who has passed all first year modules and at least an additional 30 second year credits, will be registered as a second year student. Such a student will be allowed to register for a maximum of 20 third year credits over the year (in addition to the failed modules) provided that:<br>(i) the relevant pre-requisites have been passed and<br>(ii) there are no timetable clashes |
| <b>Third Year to Fourth Year of Veterinary:</b> | To advance to the fourth year of the Bachelor of Veterinary Medicine programme a student must have passed all first, second- and third-year modules. A student who has passed all first- and second-year modules and passed at least 98 third year credits, will be allowed to enroll for a maximum of 40 fourth year credits over the year (in addition to the failed modules), provided that:<br>(i) the relevant pre-requisites have been passed and<br>(ii) there are no timetable clashes  |
| <b>Fourth Year to Fifth Year of Dentistry:</b>  | To advance to the fifth year of the Bachelor of Veterinary Medicine programme a student must have passed all first, second, third- and fourth-year modules. A student who has passed all first, second- and third-year modules and passed at least 120 fourth year credits, will be allowed to enroll for a maximum of 40 fifth year credits over the year (in addition to the failed modules), provided that:<br>(i) the relevant pre-requisites have been passed and<br>(ii) there are no timetable clashes                                 |
| <b>Fifth Year to Sixth Year of Veterinary:</b>  | To advance to the sixth and final year of the Bachelor of Veterinary Medicine programme a student must have passed all first, second, third, fourth- and fifth-year modules as well as the integrated OSCE examination. A student will not be allowed to carry any modules over to the sixth year of study as this involves clinical rotations.   |

## REQUIREMENTS FOR QUALIFICATION AWARD:

This qualification will be awarded to candidates credited with a minimum of 978 credits and who have met all other relevant UNAM requirements.

| number of <i>Modules</i> /Credits to be Passed/Obtained at the Various Year Levels in order to be awarded the degree by the School |  |                    |
|--|--|--------------------|
| Year Level   | Number of Passed <i>Modules</i> Required | Credit Equivalent  |
| First year level   | 12 <i>Modules</i>                        | 132 credits        |
| Second year level  | 17 <i>Modules</i>                        | 146 credits        |
| Third year level   | 11 <i>Modules</i>                        | 149 credits        |
| Fourth year level  | 11 <i>Modules</i>                        | 153 credits        |
| Fifth year level   | 11 modules                               | 167 credits        |
| Sixth-year-level   | Clinical Rotation (21 station)           | 231-credits        |
| <b>TOTAL</b>   |  | <b>978 CREDITS</b> |

### First Year Level

At first year level, students take the University Core Curriculum modules and the required nine (9) *Veterinary Medicine modules* indicated below. The normal first year curriculum of a student registered in the Bachelor of Veterinary Medicine degree programme will therefore consist of thirteen (13) *Modules* (120 credits), compiled as follows:

| Subject                                 | <i>Modules</i> | Credits    |
|---|----------------|------------|
| University Core Curriculum              | 9*             | 34         |
| Veterinary Medicine at first year level | 3              | 98         |
| <b>Total</b>                            | <b>12</b>      | <b>132</b> |

### Curriculum

| Students take all modules below: |         |   |                                  |                             |
|----------------------------------|---------|---|----------------------------------|-----------------------------|
| Semester                         | Code    | Course Title                                      | Prerequisite(Co-requisites) /    | Compulsory (C)/Elective (E) |
| SC                               | V3520EV | Veterinary Professional Skills I                  | -                                | C                           |
| SC                               | V3520ET | Veterinary Terminology                            | -                                | C                           |
| SC                               | V3520EM | Introduction to Microscopy                        | -                                | C                           |
| SC                               | V3580ES | Introduction to Veterinary Structure and Function | -                                | C                           |
| SC                               | U3403FS | Skills Portfolio                                  | -                                | C                           |
| SC                               | U3583AL | Academic Literacy I                               | -                                | C                           |
| SC                               | U3583DD | Digital literacy                                  |                                  | C                           |
| SC                               | U3420SE | Sustainable Environment Awareness                 |                                  | C                           |
| SC                               | U3420CN | National and Global Citizenship                   |                                  | C                           |
| S1                               | V3581EF | Veterinary Structure & Function I                 | (V3520EV) & (V3520EM) (V3580ES)  | C                           |
| S2                               | V3582EF | Veterinary Structure and Function II              | (V3520EV), (V3520EM) & (V3580ES) | C                           |
| S0                               | V3503EB | Veterinary Biochemistry                           | NONE                             | C                           |

## Second Year Level

At second year level, students proceed with the University Core Curriculum modules and general Veterinary Medicine modules. The normal second year level curriculum of a student registered in the Bachelor of Veterinary Medicine degree programme will therefore consist of fifteen (15) *Modules* (193 credits), compiled as follows:

| Subject                                  | Modules   | Credits    |
|--|-----------|------------|
| University Core Curriculum               | 6*        | 25         |
| Veterinary Medicine at second year level | 11        | 136        |
| <b>Total</b>                             | <b>17</b> | <b>161</b> |

| Students take all modules below: |         |                                     |   |                             |
|----------------------------------|---------|-------------------------------------|---|-----------------------------|
| Semester                         | Code    | Course Title                        | Prerequisite(Co-requisites) /                   | Compulsory (C)/Elective (E) |
| SC                               | V3610EV | Veterinary Professional Skills II   | -   | C                           |
| SC                               | V3620EF | Animal Production Farm Visits       | -   | C                           |
| SC                               | V3660EP | Pasture Science                     | V3581ES & V3582ES                               | C                           |
| SC                               | V3660EM | Veterinary Microbiology I           | -   | C                           |
| SC                               | U3683AL | Academic Literacy II                | -   | C                           |
| SC                               | U3420RT | Entrepreneurship                    | -   | C                           |
| S1                               | V3681ES | Veterinary Structure & Function III | V3520ET, V3520EM, V3581ES & V3582ES             | C                           |
| S1                               | V3603EP | Animal Production                   | (V3620EF), V3581ES & V3582ES                    | C                           |
| S1                               | V3611EM | Veterinary Microbiology II          | (V3660EM)                                       | C                           |
| S1                               | V3601EE | Animal Ethology                     | V3581ES & V3582ES                               | C                           |
| S1                               | V3621EG | Veterinary Genetics                 | -   | C                           |
| S2                               | V3602AI | Veterinary Immunology & Vaccinology | (V3660EM & V3611EM)                             | C                           |
| S2                               | V3603EP | Animal Production                   | (V3620EF), V3581ES & V3582ES                    | C                           |
| S2                               | V3612EN | Animal Nutrition                    | (V3660EP), (V3681ES) V3581ES, V3582ES & V3503EB | C                           |
| S2                               | V3622EW | Animal Welfare                      | (V3681E), (V3601EE), V3581ES & V3582ES          | C                           |
| S2                               | V3632EB | Biometry                            | -   | C                           |
| S2                               | V3642EM | Molecular Biology                   | (V3621EG)                                       | C                           |

## Third Year Level

At third year level, students proceed with the general Veterinary Medicine modules. The normal third year level curriculum of a student registered in the Bachelor of Veterinary Medicine degree programme will therefore consist of sixteen (16) *Modules* (175 credits), compiled as follows:

| Subject                                 | Modules   | Credits    |
|---|-----------|------------|
| Veterinary Medicine at third year level | 16        | 175        |
| <b>Total</b>                            | <b>16</b> | <b>175</b> |

| Students take all modules below: |         |                               |                               |                             |
|----------------------------------|---------|-------------------------------|-------------------------------|-----------------------------|
| Semester                         | Code    | Course Title                  | Prerequisite(Co-requisites) / | Compulsory (C)/Elective (E) |
| S1                               | V3711AI | Infectious Diseases I         | V3660EM & V3611EM             | C                           |
| S1                               | V3731AP | Veterinary Parasitology I     | V3681ES, V3682ES & V3503EB    | C                           |
| S1                               | V3701CS | Veterinary General Surgery    | V3681ES & V3682ES             | C                           |
| S1                               | V3721CD | Veterinary Diagnostic Imaging | (V3722CC), V3681ES & V3682ES  | C                           |

|    |         |                                    |  |   |
|----|---------|------------------------------------|--|---|
| S1 | V3721PF | Fish and Bee Medicine              | V3660EM & V3611EM  | C |
| S1 | V3721EV | Veterinary Professional Skills III | -  | C |
| S2 | V3732AP | Veterinary Parasitology II         | (V3731AP), V3681ES<br>V3682ES & V3503EB                    | C |
| S2 | V3712AI | Infectious Diseases II             | (V3711AI), V3660EM<br>& V3611EM                            | C |
| S2 | V3722CC | Clinical diagnostics               | V3681ES, V3682ES<br>V3503EB, V3601EE,<br>V3622EW & V3602AI | C |
| S2 | V3702CA | Veterinary Anaesthesiology         | (V3703AD), V3681ES<br>& V3682ES                            | C |
| S0 | V3703AD | Veterinary Pharmacology            | (V3722CC), V3503EB,<br>V3681ES & V3682ES                   | C |
| S0 | V3723AG | General Pathology                  | V3681ES, V3682ES &<br>V3602AI                              | C |
| S0 | V3763AT | Toxicology & Ethno-Vet Medicine    | V3503EB, V3681ES &<br>V3682ES                              | C |

#### Fourth Year Level

At fourth year level, students proceed with the general Veterinary Medicine modules. The normal fourth year level curriculum of a student registered in the Bachelor of Veterinary Medicine degree programme will therefore consist of seventeen (17) *Modules* (225 credits), compiled as follows:

| Subject                                  | Modules   | Credits    |
|--|-----------|------------|
| Veterinary Medicine at fourth year level | 17        | 225        |
| <b>Total</b>                             | <b>17</b> | <b>225</b> |

| Students take all modules below: |         |                                      |  |                             |
|----------------------------------|---------|--------------------------------------|--|-----------------------------|
| Semester                         | Code    | Course Title                         | Prerequisite(Co-requisites) /  | Compulsory (C)/Elective (E) |
| S1                               | V3803AS | Systemic Pathology                   | V3723AG  | C                           |
| S1                               | V3811AV | Veterinary Public Health I           | V3731AP, V3732AP<br>V3711AI, V3712AI &<br>V3723AG  | C                           |
| S1                               | V3813CC | Companion Animal Clinical Studies I  | (V3821CC), V3731AP<br>V3732AP, V3703AD,<br>V3763AT, V3711AI,<br>V3712AI, V3701CS<br>V3721CD & V3722CC, | C                           |
| S1                               | V3831PA | Production Animal Clinical Studies I | (V3821CC), V3763AT,<br>V3711AI, V3712AI<br>V3722CC, V3703AD,<br>V3723AG, V3701CS<br>V3731AP & V3732AP  | C                           |
| S1                               | V3823PR | Theriogenology I                     | V3711AI, V3712AI,<br>V3722CC, V3703AD,<br>V3723AG & V3701CS  | C                           |
| S1                               | V3863PC | Wildlife Clinical Studies I          | V3711AI, V3712AI<br>V3722CC, V3703AD<br>V3723AG, V3701CS,<br>V3731AP & V3732AP                         | C                           |
| S1                               | V3821CC | Clinical Pathology                   | V3722CC, V3731AP &<br>V3732AP  | C                           |
| S1                               | V3843AE | Veterinary Epidemiology              | V3632EB, V3711AI &<br>V3712AI  | C                           |
| S2                               | V3812AV | Veterinary Public Health II          | (V3811AV), V3731AP,<br>V3732AP, V3711AI,<br>V3712AI & V3723AG  | C                           |
| S2                               | V3803AS | Systemic Pathology                   | V3723AG  | C                           |
| S2                               | V3822EV | Veterinary Professional Skills IV    | -  | C                           |

|    |         |                                       |   |   |
|----|---------|---------------------------------------|---|---|
| S2 | V3843AE | Veterinary Epidemiology               | V3632EB, V3711AI & V3712AI  | C |
| S2 | V3822AL | Field Practical Training: Laboratory  | V3660EM, V3611EM, V3731AP, V3732AP, V3763AT, V3723AG & V3642EM                                    | C |
| S2 | V3823PR | Theriogenology I                      | V3711AI, V3712AI, V3722CC, V3703AD, V3723AG & V3701CS   | C |
| S2 | V3832PA | Production Animal Clinical Studies II | (V3831PA),(V3821CC)<br>V3763AT<br>V3711AI,<br>V3712AI<br>V3722CC<br>V3703AD<br>V3723AG<br>V3701CS | C |
| S2 | V3863PC | Wildlife Clinical Studies I           | V3711AI, V3712AI, V3722CC, V3703AD, V3723AG, V3701CS, V3731AP, V3732AP,                           | C |
| S2 | V3813CC | Companion Animal Clinical Studies I   | (V3821CC), V3731AP, V3732AP, V3703AD, V3763AT, V3711AI, V3712AI, V3701CS, V3721CD & V3722CC       | C |

#### Fifth Year Level

At fifth year level, students proceed with the general Veterinary Medicine modules. The normal fifth year level curriculum of a student registered in the Bachelor of Veterinary Medicine degree programme will therefore consist of seventeen (17) *Modules* (218 credits), compiled as follows:

| Subject                                 | Modules   | Credits    |
|---|-----------|------------|
| Veterinary Medicine at fifth year level | 17        | 218        |
| <b>Total</b>                            | <b>17</b> | <b>218</b> |

| Students take all modules below: |         |  |  |                             |
|----------------------------------|---------|--|--|-----------------------------|
| Semester                         | Code    | Course Title                           | Prerequisite(Co-requisites) /  | Compulsory (C)/Elective (E) |
| S1                               | V3821AR | Research Methodology                   | V3843AE  | C                           |
| S1                               | V3833CC | Companion Animal Clinical Studies II   | V3813CC  | C                           |
| S1                               | V3843PR | Theriogenology II                      | V3823PR  | C                           |
| S1                               | V3851PA | Production Animal Clinical Studies III | (V3823PH), V3831PA & V3832PA   | C                           |
| S1                               | V3801PC | Wildlife Clinical Studies II           | V3830PW  | C                           |
| S2                               | V3843EV | Veterinary professional skills V       | -  | C                           |
| S2                               | V3843PR | Theriogenology II                      | V3823PR  | C                           |
| S2                               | V3872PA | Production Animal Clinical Studies IV  | (V3851PA),<br>(V3823PH), V3831PA & V3832PA   | C                           |
| S2                               | V3833CC | Companion Animal Clinical Studies II   | V3813CC  | C                           |
| S2                               | V3842AJ | Veterinary Legislation                 | (V3833CC),(V3801PC),<br>( V3851PA),<br>(V3872PA) &<br>(V3843PR)  | C                           |
| S2                               | V3882FO | Integrated OSCE Examination            | (V3833CC),<br>(V3851PA) (<br>(V3872PA),<br>(V3843PR),(V3801PC),<br>(V3823CH), V3813CC<br>V3831PA,, V3832PA | C                           |

|    |         |                                    |  |   |
|----|---------|------------------------------------|--|---|
|    |         |                                    | V3823PR, V3821CC,<br>V3722CC , V3701CS &<br>V3863PC                                      |   |
| S0 | V3883AR | Research Project                   | (V3821AR) &<br>V3843AE   | C |
| S0 | V3823CH | Equine Clinical Studies            | V3731AP, V3732AP &<br>V3703<br>AD, V3763AT,<br>V3701CS,<br>V3721CD, V3722CC &<br>V3803AS | C |
| S0 | V3823PH | Herd Health Management & Economics | (V3851PA),<br>(V3872PA),<br>(V3843PR), V3831PA,<br>V3832PA V3823PR &<br>V3843AE,         | C |

### Sixth Year Level

|    |         |                   |   |   |
|----|---------|-------------------|---|---|
| S0 | V3883FY | CLINICAL ROTATION | BVM V including<br>integrated OSCE<br>examination | C |
|----|---------|-------------------|---|---|

### COURSE DESCRIPTORS

#### FIRST YEAR LEVEL

##### V3520EV VETERINARY PROFESSIONAL SKILLS I

**Proposed NQF Level:** 5      **Credits:** 2      **Contact Hours:** Lectures: 1 x 1hr lecture / week for 6 weeks

**Content: Budgeting:** money management

Work-life balance: managing your personal affairs; saying no

Organisational skills: coping with high work volumes

Presentation skills

Conflict management strategies

Dealing with difficult people / students / lecturers

Time management

Personal boundary management

Healthy habits: meal management

Asking for help

Critical thinking and problem-solving

Attention to detail: check your work before submission

Effective stress management and resilience

**Assessment:** Continuous Assessment: 1 assignment for final CA mark (e.g. written assignment, group assignment, role-play and / or presentation).

Continuous participation assessment during compulsory lecture attendance

##### V3520ET VETERINARY TERMINOLOGY

**Proposed NQF Level:** 5      **Credits:** 2      **Contact Hours:** Lectures: 2 x 1hr lectures / week for 6 weeks

**Content:** How medical terms are formed

Terms related to body systems, pathology and procedures

Directional terms

Body planes

Positional terms

**Assessment:** Continuous assessment: Minimum 2 assignments and 1 theory test for final CA mark.

##### V3520EM INTRODUCTION TO MICROSCOPY

**Proposed NQF Level:** 5      **Credits:** 2      **Contact Hours:** Lectures and Practical: Integrated 1 x 3hr practical / week for 6 weeks

**Content:** Principles of microscopy: various microscopes; microscopy techniques and practical use of microscopes

Tissue collection and tissue processing for histology.

**Assessment:** Continuous assessment: Minimum 3 practical assessments and 1 theory assessment for final CA mark.

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### V3580ES INTRODUCTION TO VETERINARY STRUCTURE AND FUNCTION

**Proposed NQF Level:** 5      **Credits:** 8      **Contact Hours:** Lectures and 7 x 1hr lectures / week for 6 weeks  
Practical: 2 x 3hr practical / week for 6 weeks

**Content: Gross anatomy:**

Definition of anatomy and its relationship to function (physiology) and general anatomy introduction.

General and applied osteology, arthrology and syndesmology.

Bones of the head, neck, trunk, fore and hindlimbs

**Physiology**

Definition and etymology of physiology (functions).

General introduction - organ systems: Cell physiology; ionic composition of cellular fluid; cell membrane functions; cytoplasm; nucleoplasm

Overview and integration: concept of feedback loop; homeostasis; body system integration.

Bone, joints and synovial fluid: bone formation; bone growth; bone remodeling

**Developmental anatomy**

Definition and introduction to terms.

Early embryonic development: gametogenesis in the male and female; summary processes from gametogenesis to fertilization (capacitation, acrosome reaction, cortical reaction); cleavage; morulation; gastrulation; placentation in domestic animals; body folding; branchial arch formation, neurulation, body cavity formation.

**Assessment:** Continuous assessment: Minimum 3 theory assessments and 1 practical assessment for final CA mark.

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### U3403FS SKILLS PORTFOLIO

**Proposed NQF Level:** None      **Credits:** NCB      **Contact Hours:** N/A

**Content:** Academic Planning and Goal Setting, Attitude and Motivation, Learning Styles, Study Methods and Skills, Time Management, Assessment Preparation, Mental well-being, Interpersonal Communication, Financial matters and management Student Violence, Career Planning and Development

**Assessment:** 100% continuous assessment

Reflective journal on each unit (portfolio)

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### U2583AL ACADEMIC LITERACY I

**Proposed NQF Level:** 5      **Credits:** 8      **Contact Hours:** Core Semester: 4 hours /week;  
Semester 1: 2 hours/week  
Semester 2: 2 hours/week

**Content:** The module will cover study skills, reading (including extensive reading), listening, speaking, writing, referencing, and language usage and text organisation.

**Assessment:** Assessment will be based on Continuous Assessment

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### U3583DD DIGITAL LITERACY

**Proposed NQF Level:** 5      **Credits:** 8      **Contact Hours:** Semester 0: 4 hours /week;  
Semester 1: 2 hours/week  
Semester 2: 2 hours/week

**Content: Digital Proficiency:** ICT-based devices (laptops, tablets, smartphones, desktop computers, digital instruments and equipment); a mouse, keyboard, touch screen, voice control and other forms of input; screens, audio headsets and other forms of output; digital capture devices; University digital learning systems and a range of personal digital services such as social media, cloud storage services, sharing sites.

**Digital Productivity:** Basic productivity software (text editing, presentation, spreadsheets, image editing); email and other digital communication services; Internet or cloud or institutional shared spaces for Organising, managing and backing up digital files; software/apps and services suitable for learning-related tasks; digital tools fit learning and managing learning time.

**Information Literacy:** search engines, indexes or tag clouds; wikis, blog posts, scholarly journals, e-books and the open web; file spaces and folders, bookmarks, reference management software and tagging; copyright, and digital citizenship issues.

**Data and Media Literacy:** Digital data using spreadsheets and other media; data security and privacy; digital media messages – text, graphics, video, animation, audio and multimedia.

**Digital Creation and Innovation:** digital materials (video, audio, stories, presentations, infographics); new digital tools for learning in digital settings.

**Digital Communication, Collaboration and Participation:** digital communication; differences between media, norms of communicating in different spaces; false or damaging digital communications; collaborative tools and online environments; online networks.

**Digital Learning and Development:** digital learning opportunities; digital learning resources; digital tools/materials for organising, planning and reflecting on learning (mind-mapping, note-taking, e-portfolio/ learning journal/ blog)

**Digital Identity and Wellbeing:** online profiles for different networks (personal, professional, academic); digital reputation; managing personal data and privacy; digital CV or portfolio of work; digital technologies for personal development; online etiquette; wellbeing and safety online; internet addiction; cyberbullying and other damaging online behaviour.

**Assessment:** Continuous assessment: Collaborative assessment tasks

Digital productivity: cloud based collaborative digital media creation using cloud platforms

Project: Digital communication, collaboration and participation/ Digital Wellbeing

Individual assessment tasks

2.1 Assignment: information literacy assignment

2.2 Test x 2

Practical

Digital proficiency

Data and Media literacy

No written examination

#### **U3420CN NATIONAL AND GLOBAL CITIZENSHIP**

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**Proposed NQF Level:** 4      **Credits:**2      **Contact Hours:** Up to 1 contact lecture periods per week for 6 Weeks

**Content: UNIT 1: Constitution and its Importance:** What is a constitution; Functions of a constitution; What it contains; Constitution and democracy?

**UNIT 2: Global Citizenship:** The meaning of global citizenship; Importance of global awareness; World issues of concern to global citizens.

**UNIT 3: Civic Engagement:** What do we mean by civic engagement; Dimensions of civic engagement; Indicators of civic engagement; Promoting civic engagement.

**UNIT 4: Globalization:** Understanding globalization; Cultural construction of neoliberal globalization; Major players; Major domains; Major Issues; Futures of Globalization

**UNIT 5: Intercultural Communication:** Dealing with difference; Levels of culture; Stereotypes and generalizations; Intercultural communication Processes

**UNIT 6: Sustainable Development Goals and individual action:** Introduction to SDGs; Contributing to achievement of SDGs through action

**Assessment:** Continuous assessment of 100% - Assessment will be done by completing online pop-up quizzes; and developing their online portfolios of personal action as response to tasks assigned in class.

#### **V3581EF VETERINARY STRUCTURE & FUNCTION I**

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**Proposed NQF Level:** 5      **Credits:**32      **Contact Hours:** Lectures: 16x 1hr lectures / week for 13 weeks

Practical: 3x 3hr practical / week for 13 weeks

23hrs integrated lectures, practicals and tutorials / week for 13 weeks

**Content: Gross anatomy:**

Muscles of the head, neck, trunk, fore and hindlimbs.

Nervous system: general introduction to the nervous system; autonomic nervous system; central and peripheral nervous systems.

Central nervous system:

telencephalon and diencephalon; brainstem (mesencephalon, pons, medulla); cerebellum. Cranial nerves: names, courses and distribution of cranial nerves and specific dysfunction related to lesions in cranial nerves. Spinal cord: Peripheral nervous system spinal nerves. The brachial and lumbosacral plexuses: names, courses and distribution of named nerves of the brachial plexus. Names, courses and distribution of lumbosacral plexus nerves.

**Physiology:**

Nervous system: central and peripheral nervous systems; the autonomic nervous system; somatic nervous system; cerebro-spinal fluid; neurophysiology.

Muscle: muscles; types of muscles; sliding filament theory of muscle contraction; excitation-contraction coupling; locomotion; movement coordination.

**Developmental anatomy:**

Development of the:

Trunk and limbs

Neuromuscular system; including central and peripheral nervous systems

**Histology:**

Definition and etymology of microscopic anatomy.

Basic tissues: epithelial tissue; connective tissue; nervous tissue; muscle tissue.

Cerebrum, cerebellum, peripheral ganglia nerve trunk and peripheral nerve.

**Assessment:** Continuous assessment: Minimum 4 theory assessments (one in each section) and at least 3 marked practical assessments (one in each: Anatomy, Histology and Physiology).

CA calculation: Anatomy 50%; Physiology 20%; Histology 20%; Developmental Anatomy 10%

Examination:

Paper 1: 1 x 3hr Physiology integrated theory paper (50%)

Paper 2: 1 x 3hr Anatomy theory paper (25%)

Paper 3: 1 x 2hr Anatomy practical examination (25%)

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**V3503EB VETERINARY BIOCHEMISTRY**

**Proposed NQF Level:** 5

**Credits:**14

**Contact Hours:** Lectures: 2x 1hr lectures / week for 13 weeks per semester

Practicals: 1 x 3hr practical / alternate week for 13 weeks per semester

**Content: Introduction to Biochemistry:** Properties of water; the concepts of hydrogen bonding; colligative properties of solutions; ionization; ion product; pH; acids and bases; titration and buffers

**Structures and properties of the major classes of biomolecules and their biological functions:**

Protein structure and function: Basic building block of proteins, their chemistry and reactions; Oxygen Transporting Proteins: Myoglobin; Hemoglobin; Relationship between Structure and Function

Enzymes: Kinetics; Mechanisms and Regulation; Different classes of carbohydrates; Lipid classification: compounds which are non-polymeric; cell membranes and its properties; fatty acids, triglycerides, phospholipids and steroids; Nucleic acids: Chemistry of purines and pyrimidines; nucleosides and nucleotides; nucleic acids namely DNA, RNA, their structure, topology and function

**Metabolism and the laws of thermodynamics:** Energy Balance and Energy Utilization; Carbohydrate Metabolism: Glycolysis; Citric Acid Cycle; Oxidative Phosphorylation; Pentose Phosphate Pathway; Cori Cycle; Gluconeogenesis and Glycogen Metabolism; Fatty Acid Metabolism; degradation and synthesis; Urea cycle

**Assessment:** Continuous assessment: Minimum 6 theory assessments and at least 5 practical assessments

CA calculation: 70% theory and 30% practical

Examination: 1x 3hr theory paper

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**V3582EF VETERINARY STRUCTURE & FUNCTION II**

**Proposed NQF Level:** 5

**Credits:** 40

**Contact Hours:** Lectures: 16x 1hr lectures / week for 13 weeks

Practical: 3x 3hr practical / week for 13 weeks

25hrs integrated lectures, practicals and tutorials / week for 13 weeks

**Content: Gross anatomy:**

Cardiopulmonary system: External nares; nasal cavities; paranasal sinuses; nasopharynx; guttural pouches; larynx, trachea. Thorax: muscles of respiration; cranial mediastinum (oesophagus, trachea, cranial mediastinal lymph nodes, vagosympathetic trunk, recurrent laryngeal nerve); middle mediastinum; pleura and lungs; (the heart, blood supply and great vessels of the thorax); caudal mediastinum; blood supply to the neck, head, forelimb. Thoracic wall and organs; blood supply to abdominal and pelvic organs.

**Digestive system:** Mouth; oral vestibule; oral cavity proper; teeth (general structure and ageing); tongue; pharynx (general and comparison of horse and cattle); salivary glands; muscles of mastication; deglutition. Esophagus (e.g. potato and fruit potential for choking in cattle and horses, and persistent right aortic arch in dogs). Stomach. Abdominal wall and abdominal topography. Liver; pancreas.

Urinary system: General gross and topographic anatomy of the kidney; ureters; urinary bladder and urethra.

**Physiology:**

Cardiovascular system: overview of cardiovascular function; blood: composition, properties and function of blood, blood circulation, physiology of lymph, cardiac muscle, mechanism of cardiac contraction, heart beat and cardiac cycle, regulation of blood pressure and heart activity.

**Respiratory system:** organizational structure and functions, review of gas Law, breathing mechanisms, ventilation, gases exchange in the lung and in the tissue, respiratory volumes and capacities, respiratory sounds, control of respiration. Physiology of olfaction.

**Digestive system:** review of gastrointestinal tract (GIT), main functions of digestive system, physiology of taste, accessory digestive organs and glands, digestive phenomenon of monogastric and polygastric animals; regulation of the gastrointestinal tract functions.

**Excretory system:** organisational structure and functions of the kidney, urine formation, glomerular filtration rate, secretion and excretion of metabolites, control of water and electrolytes. Regulation of acid base balance and arterial blood pressure regulation.

**Developmental Anatomy:**

Development of the:

Digestive system: emphasis of the simple and ruminant stomach; the ascending colon in the dog, ruminant and horse; salivary glands; liver; pancreas

Respiratory system

Cardiovascular system: heart and blood vessels

Urinary system

**Histology:**

Cardiovascular: cardiac muscle; large, medium and small arteries; veins; venules; capillaries

Respiratory portion of the respiratory system: respiratory mucosa, olfactory mucosa, the muco-ciliary clearance complex, the alveoli, the blood-air barrier.

Digestive system: mouth; the tongue; oral papillae; taste buds; dental pad; teeth; salivary glands; esophagus; simple stomach; rumen; reticulum; omasum; abomasum; liver; pancreas; duodenum; jejunum; ileum; caecum; colon and anal canal

Urinary system: kidney; ureters; urinary bladder and urethra

**Assessment:** Continuous assessment: Minimum 4 theory assessments (one in each section) and at least 3 practical assessments (one in each: Anatomy, Histology and Physiology).

CA calculation: Anatomy 40%; Physiology 30%; Histology 20%; Developmental Anatomy 10%

Examination:

Paper 1: 1 x 3hr Physiology integrated theory paper (50%)

Paper 2: 1 x 3hr Anatomy theory paper (25%)

Paper 3: 1 x 2hr Anatomy practical examination (25%)

**SECOND YEAR LEVEL**

**V3610EV VETERINARY PROFESSIONAL SKILLS II**

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**Proposed NQF Level:** 6      **Credits:**1      **Contact Hours:** Lectures: 1 x 1hr lecture / week for 6 weeks

**Content:** Study methods: study plan

Concentration and focus

Conceptual thinking: flexibility; mental agility; change management

Stress: performance; happiness; stress management plan; including self-care in relation to compassion; burnout

Resilience: personal grit

Mind strategies (your mind is your strongest muscle)

Mindfulness: mindfulness practices; minimalism

Wheel of Life, Wheel of work: personal growth and purpose.

One Health: Global sustainability challenges and individual contribution

**Assessment:** Continuous assessment: 1 assignment for final CA mark (e.g. written assignment, group assignment, role-play and / or presentation).

Continuous participation assessment during compulsory lecture attendance

**V3620EF ANIMAL PRODUCTION FARM VISITS**

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**Proposed NQF Level:** 6      **Credits:** 2      **Contact Hours:** Lectures and Practical: Integrated 7 hours per week for 6 weeks (6 full days – 1 day per week)

**Content:** Animal production practices in different sectors: commercial, communal and semi intensive in cattle, sheep, goats, poultry and pigs.

**Assessment:** Continuous assessment: a minimum of 3 field reports.

These field reports will be used as reference material in the Animal Production module

**V3660EP PASTURE SCIENCE**

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**Proposed NQF Level:** 6      **Credits:** 6      **Contact Hours:** Lectures: 4 x 1hr lecture / week for 6 weeks  
Practicals: 1 x 3hr practical / week for 4 weeks

**Content:** Forage and hay quality

Utilization of rangelands by herbivores

**Management options:** concept of rotational grazing; application of appropriate measures towards preservation of nutritive value of pastures, hay and forages

**Palatable and non-palatable pastures** adapted to the Namibian climatic conditions

**Establishment of perennial and annual pastures:** natural and planted pastures; utilization and management

**Assessment:** Continuous assessment: Minimum 2 theory assessments (1hr - 50marks) and at least 3 marked practical assessments. Students' contribution for example in practicals and oral quizzes.

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#### V3660EM VETERINARY MICROBIOLOGY I

**Proposed NQF Level:** 6      **Credits:** 6      **Contact Hours:** Lectures: 4x 1hr lectures / week for 6 weeks  
Practical: 1 x 3hrs practical / alternate week for 6 weeks

**Content: General microbiology:** Introduction and history of microbiology; morphology, structure, growth and nutrition of bacteria, virus and fungi; systematics; taxonomy including classification and nomenclature of bacteria; microbial ecology.

**Diagnostic microbiology:** Equipment, preparation of culture media

**Mycology:** Introduction, taxonomy, classification of fungi, morphology, growth

**Virology:** Introduction to viruses, systematics, taxonomy and classification of viruses

**Assessment:** Continuous assessment: Minimum 2 theory assessments (1hr - 60marks – each test count 30%) and at least 3 marked practical assessments (each assignment count 10%).

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#### U3683AL ACADEMIC LITERACY II

**Proposed NQF Level:** 6      **Credits:** 8      **Contact Hours:** Semester 0: 4 hours/week  
Semester 2: 2 hours/week

**Content:** The module is designed for students enrolled in a bachelor's degree, which requires them to do basic research, read and listen to specific academic material, produce specific written texts and give academic presentations. The module thus, focuses on enhancing academic reading, academic vocabulary, writing, listening and speaking.

**Assessment:** Assessment will include written tests, individual and group assignments, portfolio assessments and oral presentations.

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#### U3420RT ENTREPRENEURIAL SKILLS

**Proposed NQF Level:** 4      **Credits:** 2      **Contact Hours:** 1 x 2h per week for 6 weeks

**Content: Definition and scope of entrepreneurship and entrepreneur;** Entrepreneur's environment; Characteristics of entrepreneurs; Basic concepts of entrepreneurship; Forms of entrepreneurship;

**The role of entrepreneurship;** The entrepreneurial process;

**The entrepreneurial mindset;** Decision-making skills; Creativity, innovation and entrepreneurship; Critical thinking skills; Problem solving skills; Business and personal goal-setting skills; Negotiation skills, Communication skills, Assertiveness skills, Interpersonal skills, Cognitive skills;

**Transferable skills,** Practical application of entrepreneurial skills; Starting a new business; Managing a business start-up; Growing an entrepreneurial venture; Marketing skills; Managing people; Record keeping; networking skills; Time management skills; Change management skills; Entrepreneurship success stories in the global context.

**Assessment:** The module will be assessed using 100% continuous assessment.

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#### V3681ES VETERINARY STRUCTURE & FUNCTION III

**Proposed NQF Level:** 6      **Credits:** 35      **Contact Hours:** Lectures: 6x 1hr lectures / week for 13 weeks  
Practical: 2x 3hr practicals / week for 13 weeks  
12hrs integrated lectures and practicals per week

**Content: Gross anatomy:**

Male reproductive system: gross and topographic anatomy of the testis; ductus deferens; accessory sex glands (ampulla of ductus deferens, vesicular glands, prostate glands and bulbourethral glands); penis and prepuce.

Female reproductive system: ovaries, uterine tube, uterus, vagina vestibule, vulva and mammary glands.

Integumentary / thermoregulatory system: skin; epidermal structures; horn; hooves; nails; skin glands.

Endocrine system: adenohipophysis; adrenal gland

Lympho-reticular system: spleen; lymphatic vessels; lymph node; thymus.

Special senses: eye; inner ear.

**Physiology:**

Reproductive system: genital glands; oestrus cycle; mammary gland

Integumentary / thermoregulatory system: temperature regulation in health and disease situations; functions of the skin: endothermic, poikilothermic and homoeothermic animals; body temperature regulation; animal physiological response to cold and hot environment; animal adaptation to hot climate; water and mineral balance.

Endocrine system: endocrine glands; functions of the endocrine system; systemic effects of main hormones; the renin-angiotensin-system; endocrine versus nervous system regulation.

Special senses: sight; hearing; balance; pain

**Developmental Anatomy:**

Development of the:

Reproductive system: male; female

Integumentary system: including nails; hooves; horns.

Endocrine glands: adenohipophysis; thyroid gland; adrenal glands.

Lympho-reticular system

Special senses: eye; ear

**Histology:**

Reproductive system: Male – testis; ductus deferens; accessory sex glands (ampulla of ductus deferens; vesicular glands; prostate glands; bulbourethral glands); penis. Female – ovaries; uterine tube; uterus; vagina vestibule; vulva; mammary glands.

Lympho-reticular system: spleen; lymphatic vessels; lymph nodes; thymus.

**Assessment:** Continuous Assessment: Minimum 4 theory assessments (one in each section) and at least 3 practical assessments (one in each: Anatomy, Histology and Physiology).

CA calculation: Anatomy 40%; Physiology 30%; Histology 20%; Developmental Anatomy 10%

Examination:

Paper 1: 1 x 3hr Physiology integrated theory paper (50%)

Paper 2: 1 x 3hr Anatomy theory paper (25%)

Paper 3: 1 x 2hr Anatomy practical examination (25%)

**V3603EP ANIMAL PRODUCTION**

**Proposed NQF Level:** 6

**Credits:** 16

**Contact Hours:** Lectures: 2x 1hr lectures / week for 13 weeks per semester  
Practical: 1x 3hrs practical / 4th week for 13 weeks per semester

**Content: Distribution of livestock in Namibia**

**Livestock breed characteristics** (cattle, pigs, goats, sheep and poultry) farmed in Namibia

**Importance of livestock for the Namibian economy**

**Livestock production systems applied in Namibia**

**Important husbandry/management practices and principles** for major livestock species (beef cattle, dairy cattle, sheep, goats, poultry and pigs)

**Livestock and livestock by-products, markets, marketing channels**

**Identification and traceability (NamLITS), and transportation**

**Namibia's livestock trade and trading partners**

**Opportunities and challenges in the livestock industry particularly in Namibia**

**Assessment:** Continuous Assessment: minimum 6 theory assessments and 3 practical assessments

Examination: 1 x 3hr theory paper

**V3611EM VETERINARY MICROBIOLOGY II**

**Proposed NQF Level:** 6

**Credits:** 15

**Contact Hours:** Lectures: 4x 1hr lectures / week for 13 weeks  
Practical: 1x 3hr practical / alternate week for 13 weeks

**Content: General microbiology and bacteriology:** control of microorganisms; pathogenicity; virulence and infection; endotoxins and exotoxins; bacterial genetics; plasmids and antibiotic resistance.

**Diagnostic microbiology:** Equipment; sterilization; disinfection and asepsis; staining; bacterial motility; biochemical test; aerobic and anaerobic cultivation; isolation of bacteria in pure culture; morphological and cultural characteristics; biochemical characteristics; antibiogram and slide culture technique for fungus

**Mycology:** growth, nutrition and reproduction in fungi.

**Virology:** general properties; strategy of replication and the viral transmission mechanisms in each viral family; cultivation and purification of viruses; cell-virus interactions; viral genetics and interferon; prions and prion diseases and their implication on veterinary public health.

**Assessment:** Continuous Assessment: Minimum 2 theory assessments (1hr - 60marks – each test count 30%) and at least 3 marked practical assessments (each assignment count 10%).

Examination: 1x 3hr theory paper

**V3601EE ANIMAL ETHOLOGY**

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours:** Lectures: 2x 1hr lectures / week for 13 weeks  
Practical: 1x 3hr practical / alternate week for 13 weeks

**Content: Behavioural adaptations of domestic animals** to their environment

**Appropriate animal restraining and handling practices**

**History** of the study of animal ethology

**Interpretation of animal behaviour**

**Major types of behaviour in domestic animals**

### **Selected animal breeds**

**Assessment:** Continuous Assessment: minimum 6 assessments (Theory and Practical assessments)

Examination: 1 x 2hr paper

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### **V3621EG VETERINARY GENETICS**

**Proposed NQF Level:** 6      **Credits:** 8      **Contact Hours:** Lectures: 2x 1hr lectures /week for 13 weeks  
Practical: 1 x 3hr practical / 4th week for 13 weeks

**Content: Aspects of genetics relevant to animal diseases and production**

**Mendelian genetics**

**Modes of gene action: dominance; additive; epistasis**

**Single gene disorders**

**Chromosomal mutations**

**Gene mutations**

**Applied population genetics**

**Quantitative variation**

**Inbreeding**

**Crossbreeding**

**Types of commercial breeding programmes in beef cattle**

**Introduction to immunogenetics**

**The MHC**

**Genetics of disease resistance**

**Biotechnology in animal production and disease diagnosis:** AI; MOET; IVM; IVF; control of sex ratio; PCR-based disease diagnostics

**Special topics:** case studies of breeding for disease resistance

**Assessment:** Continuous Assessment (CA): Minimum 2 theory assessments and at least 3 marked practical assessments

Examination: 1 x 2hr theory paper

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### **V3602AI VETERINARY IMMUNOLOGY & VACCINOLOGY**

**Proposed NQF Level:** 6      **Credits:** 8      **Contact Hours:** Lectures: 2x 1hr lectures / week for 13 weeks  
Practical: 1x 3hr practical / alternate week for 13 weeks

**Content: History and definition of concepts, types of immunity, tissues, organs and cells of the immune system, antigens and immunogenicity, antibodies and their interactions** **Immune dysfunction:** autoimmunity and autoimmune diseases; immune response to bacterial, fungal, viral and parasitic infections; relationship between immunology and vaccinology; the general principles of immunization and vaccines; types of vaccines; composition and development; factors affecting vaccine efficacy; vaccine preventable diseases; vaccination policy; immunization schedules with reference to Namibia.

**Introduction to blood collection and serum processing, applications of immunology:** immuno-serological reactions; vaccination and other immunization techniques; serological diagnosis of common animal diseases encountered in Namibia; vaccine testing.

**Assessment:** Continuous assessment: minimum two written tests (50 marks each), two quizzes (25 marks each) and five marked practicals/tutorials/assignments (50 marks total, i.e. 10 marks each).

Examination: 1x 2hr theory paper

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### **V3612EN ANIMAL NUTRITION**

**Proposed NQF Level:** 6      **Credits:** 15      **Contact Hours:** Lectures: 4x 1hr lectures / week for 13 weeks  
Practical: 1x 3hr practical / alternate week for 13 weeks

**Content: Animal nutrition including key concepts and terminologies**

**The role of animal nutrition in animal production.**

**Animal nutrition of various production and companion animals.**

Classification of animal feeds; general comparison of plants and other sources of nutrients; plants as feed sources with special focus on nutritive values, availability, affordability; feed fractions and their nutritional implications; contaminants and toxins in animal feeds; feed additives; laboratory feeds analysis methods; proximate and detergent systems; feed energy and protein partitioning using the Metabolisable System (ME & MP); digestibility and degradability estimation methods – in vitro, in vivo, in sacco techniques; feed intake and factors influencing intake in animals; feed formulation based on animal nutritional requirements; use of feed value estimates; mineral and vitamin nutrition

**Assessment:** Continuous assessment: Minimum 2 theory assessments (1hr - 60marks – each test count 30%) and at least 3 marked practical assessments (each assignment and practical count 10%). Student's contribution 10% (for example in oral quizzes)

Examination: 1 x 3hr theory paper- 150 marks

### V3622EW ANIMAL WELFARE

**Proposed NQF Level:** 6

**Credits:**8

**Contact Hours:** Lectures: 2x 1hr lectures / week for 13 weeks  
Practical: 1x 3hr practical / alternate week for 13 weeks

**Content: Aspects of animal welfare science:** Five Freedoms; OIE animal welfare recommendations.

**Behavioural and animal husbandry issues affecting welfare:** housing, handling, basic aspects of nutrition.

**Introduction to animal welfare ethics.**

**Influence of transport and the marketplace** on animal welfare

**Ethics and principles of euthanasia.**

**Current relevant Namibian animal protection and welfare legislation:** role of the welfare organisations.

**Role of veterinarians in enhancement of animal welfare.**

**Assessment:** Continuous assessment: minimum 6 assessments (Theory and Practical assessments)

Examination: 1 x 2hr paper

### V3632EB BIOMETRY

**Proposed NQF Level:** 6

**Credits:**15

**Contact Hours:** Lectures: 4x 1hr lectures / week for 13 weeks  
Tutorial: 1x 3hr tutorial / alternate week for 13 weeks

**Content: Introduction to Biometry:** types of data; random sampling; hypothesis testing; central tendency and variance; single samples; power analysis and data transformation; probability; inferences for one sample; summarizing and describing data; the two sample problem; contingency tables; introduction to non-parametric methods; the analysis of count data; Regression and correlation analysis, analysis of variance (ANOVA)

**Statistics:** descriptive; inferential; variables; qualitative versus quantitative. Data types: primary versus secondary; categorical versus discrete; continuous. Sources of data: population versus sample; types of measurements: nominal; ordinal; interval, ratio scales

**Presentation of data:** tabular forms and graphical methods: histograms; pie charts; bar charts; frequency polygons; ogives; stem-and-leaf plots; box –and-whiskers plots. Measures of central tendency: Z notation; mean; median; mode; quartiles; percentiles. Measures of dispersion: variance; standard deviation; range; inter-quartile range; skewness and kurtosis. Identification of outliers: use of scientific calculators and computer software for statistical manipulation; application of statistical analysis in biological research.

**Assessment:** Continuous assessment: Student progress will be assessed through minimum one project assignment (25%), three assignments (10% each), three 1 hr tests (15% each).

Examination: 1 X 3hour examination paper. In this exam use of a calculator is allowed and statistical tables and formulae will be provided.

### V3642EM MOLECULAR BIOLOGY

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours:** Lectures: 2x 1hr lectures / week for 13 weeks  
Practicals: 1x 3hr practical / alternate week for 13 weeks

**Content: Introduction to Molecular Biology:** historical perspectives of Molecular Biology; overview of the current advances of Molecular Biology

**Gene Structure and Function:** review of structure of nucleic acid; overview of prokaryotic gene structure; overview of eukaryotic gene structure and non-coding DNA; structural organisation of eukaryotic chromosomes; morphology and functional elements of eukaryotic chromosomes; transposable DNA elements; genome wide analysis of gene function and structure; DNA replication and fidelity of replication; transcription and translation in prokaryotes eukaryotes (transcriptome and proteome- general account); gene expression regulation in prokaryotes and eukaryotes; DNA damage, repair and recombination; exchange of genetic information between bacteria; molecular basis of genetic disorders.

**Basic Nucleic Acid Techniques:** isolation of DNA and RNA from cells; restriction enzymes and their use in Molecular Biology; cleaving and joining of DNA molecules; nucleic acid amplification techniques; importance of nucleic acid amplification; Polymerase Chain Reaction (PCR) and its applications (Real-Time PCR and its application); other nucleic acid amplification techniques; post amplification detection methods; nucleic acid and protein blotting techniques: Southern, northern and western blotting.

**Assessment:** Continuous assessment: Minimum of two (2) theory tests (total contribution of 60%), at least one (1) marked practical test (total contribution of 30%) and laboratory reports (total contribution of 10%).

Final examination: One (1) 2hr theory paper (100 marks).

### THIRD YEAR LEVEL

#### **V3721EV VETERINARY PROFESSIONAL SKILLS III**

**Proposed NQF Level:** 7      **Credits:** 8      **Contact Hours:** Lectures: 1x 1hr lecture / week for 5 weeks

**Content: Personal branding & purpose:** Who am I? What do I contribute to the world?

**Emotional Intelligence:** Managing emotions; Compassion / burnout

**Effective conflict management and interpersonal skills:** Conflict styles

**Effective communication:** with colleagues, staff, seniors, health care teams

**Client communication:** Listening skills; Non-verbal communication

**English writing skills for business:** email; letters; reports; referrals

**Professional behaviours:** Good manners; Dress for success

**Online presence:** Social media; print and electronic media; public presentations

**Problem solving:** Flexibility and creative thinking; six thinking hats; lifelong learning

**Compassion:** Empathy; integrity; concern for others; collegiality

**Cambridge-Calgary Consultation Model**

**A philosophical approach to addressing the following questions:** How do professionals deal with work pressure and remain motivated? How is professionalism promoted and encouraged among professionals? How do professional fields control and empower their members?

**Assessment:** Continuous Assessment: 1 assignment for final CA mark (e.g. written assignment, group assignment, role-play and / or presentation).

Continuous participation assessment during compulsory lecture attendance.

#### **V3722CC CLINICAL DIAGNOSTICS**

**Proposed NQF Level:** 7      **Credits:** 9      **Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: Common diagnostic procedures** used in key domestic animals

**Thorough, systematic, species specific clinical examination**

**Principles of clinical pathology**

**Problem oriented medical record keeping**

**Communication to clients**

**Anatomical landmarks for injection sites**

**Principles and procedure of diagnostic decision making.**

**Assessment:** Continuous assessment: Continuous Assessment: Minimum 1 theory assessment per species and at least 4 marked practical assessments (clinical examination of each species in the form of OSCEs)

#### **V3721PF FISH AND BEE MEDICINE**

**Proposed NQF Level:** 7      **Credits:** 9      **Contact Hours:** Lectures and Practical: Integrated 3hrs / week for 16 weeks  
(blocked)

**Content: Fish medicine:** overview of fish anatomy; fish husbandry; aetiology, diagnosis, pathology, pathogenesis, chemotherapy, control, and management of infectious and non-infectious diseases of fish, especially pertaining to cultured food and tropical fish; introduction to aquaculture; water quality; diagnostic approach in aquaculture; treatment approach in aquaculture.; fish diseases: fungal, bacterial, parasitic, toxic & viral; fish anatomy; fish anaesthesia

**Bee medicine:** honeybee husbandry; aetiology, diagnosis, pathology, pathogenesis, control, and management of infectious and non-infectious diseases of bees; bee biology; bee beekeeping; bee diseases: bacterial bee diseases, fungal bee diseases, parasitic bee diseases, viral bee diseases, multifactorial and environmental syndromes.

**Assessment:** The module will only be assessed through formative assessments, with no final examination. The continuous assessments will comprise of a minimum 2 theory assessments, 1 assignment, and at least 1 marked practical assessment

#### **V3711AI INFECTIOUS DISEASES I**

**Proposed NQF Level:** 7      **Credits:** 17      **Contact Hours:** Lectures: 4x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks

**Content:** Aetiology, transmission, vectors, clinical signs, pathogenesis of bacterial and fungal diseases and the specific host defences.

Diagnosis of specific diseases based on isolation, biochemical tests, culture and staining of bacteria and fungi.

Treatment and control of notifiable and tropical diseases.

**Assessment:** Continuous Assessment (CA) will entail a minimum of 2 theory assessments in a form of tests (each 100 marks) and at least 5 marked practical assessments (each 20 marks) and 2 assignments (each 10 marks).

CA [30% Theory and 10% (Practical+ Assignments)]

Examination: 1x 3hr theory paper

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**V3731AP VETERINARY PARASITOLOGY I**

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**Proposed NQF Level:** 7**Credits:**17**Contact Hours:** Lectures: 4x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks**Content:** Introduction to general parasitology: terminology used in parasitology; general morphology, biology and general characteristics of various parasite classes.

General parasitology: parasites and parasitism; types of hosts; host-parasite relationships; mode of transmission of parasites; methods of dissemination of infective stages of parasites; parasite specificity in relation to species, breed, sex and location; immunity against parasitic infestations.

Helminthology: classification of helminths; characteristics of main groups; life cycle of helminths in relation to transmission, pathogenesis, epidemiology, diagnosis; general control measures of trematodes, cestodes and nematodes of veterinary importance in the region; diagnosis, treatment and prevention of diseases caused by helminths; biological control of endoparasites.

**Assessment:** Continuous assessment: Minimum of two (2) theory tests (total contribution of 60%), at least one (1) marked practical test (total contribution of 30%) and laboratory reports (total contribution of 10%).

Final examination: One (1) 3hr theory paper (150 marks) and one (1) practical 2hr paper.

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**V3703AD VETERINARY PHARMACOLOGY**

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**Proposed NQF Level:** 7**Credits:**18**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester  
Tutorial: 1x 3hr tutorial or field trip / alternate week for 16 weeks per semester**Content: Basic pharmacotherapeutic principles****Pharmacodynamics****Pharmacokinetics****Classification of drugs****Legal requirements** for dispensing, prescribing and record keeping of veterinary drugs**Functional pharmacology****Chemotherapeutics****Systemic drugs** acting on the various organ systems**Assessment:** Continuous assessment: Minimum 4 theory assessments as well as quizzes and assignments.

Examination: 1 x 3hr theory paper (80%) and 1 x 2hr dosage calculation paper (20%) (subminimum 50%)

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**V3723AG GENERAL PATHOLOGY**

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**Proposed NQF Level:** 7**Credits:** 18**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester  
Practical: 1x 3hr practical / alternate week for 16 weeks per semester**Content: Common post mortem changes.****Disease detection / diagnosis after somatic death.****Cell responses to different grades of stimuli / injuries (cellular adaptation), cellular/tissue lesions and death, inflammation and repair.****Lesions due to disturbance of growth and cell differentiation, genetic derangements, degenerative lesions and necrosis.****Lesions due to circulatory disturbances, hypersensitivity and aberrant immunological reactions.****Techniques used in post mortem examination.****Attend necropsies.****Assessment:** Continuous assessment: Minimum 4 (2 per semester) theory assessments (1hr - 60marks – each test count 30%) and at least 4 marked practical tests contributing to 30 % and 10% for post mortem reports.

Examination: 1 x 2hr practical examination and 1 x 3hr theory paper

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**V3701CS VETERINARY GENERAL SURGERY**

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**Proposed NQF Level:** 7**Credits:** 9**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks**Content: Surgical instrumentation:** basic soft tissue and orthopaedic instrumentation characteristics and use.**Surgical haemostasis:** application of different method of haemostasis, including physical, electrosurgical, and pharmacological haemostasis.**Suture materials:** various suture material characteristics and use.**Suture patterns and techniques:** suture pattern classification and use.**Principles of asepsis:** patient and surgeon preparation, including patient and surgeon scrubbing, gowning, gloving, draping, and Halsted principles.**Disinfectants, antiseptics and sterilization:** various disinfectant and antiseptic characteristics and use, as well as methods of sterilization.**Traumatology:** introduction to the surgical principles of traumatology.

**Wound healing:** stages of wound healing and associated complications.

**Wound infection:** detection, treatment and prevention of surgical wound infection.

**Wound management:** wound evaluation, lavage, debridement, drainage, and closure.

**Bandaging:** bandage materials, composition, principles, and complications, as well as various types and use.

**Assessment:** Continuous assessment: Theory: 2 class tests, 2 quizzes, 2 class assignments

Practical: 2 OSCEs, 1 group work assessment, 1 flipped classroom presentation

The final continuous assessment mark will constitute a weighting of 100% of the final mark.

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#### V3763AT TOXICOLOGY & ETHNO-VET MEDICINE

**Proposed NQF Level:** 7      **Credits:** 18      **Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester

Practical: 4x 2hr field trips / year

**Content: Nature, effects and detection of various types of poison and poisoning**

**Treatment of poisoning**

**Identification, habitat, and phenology of relevant toxic plants of importance in the livestock industry in Namibia**

**Effects of relevant toxic plants** on various species, economic importance, and treatment

**Identification, collection and preservation of toxic and medicinal plants** of importance to livestock in Namibia.

**Indigenous Knowledge Systems (IKS)** as related to the use and application of herbal and traditional medicines; identification, collection and preparation of medicinal plants

**Traditional Medicine Systems (TMS); the practice of ethno-veterinary medicine as related to the different farming systems in developing countries and particularly in the communal areas in Namibia.**

**Assessment:** Continuous assessment: Minimum 2 theory assessments per semester. Collection, identification and preservation of at least 20 plants throughout the year will be assessed for the CA mark.

Examination: 1 x 1hr practical examination to identify plants and poisons and 1 x 3hr theory paper.

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#### V3732AP VETERINARY PARASITOLOGY II

**Proposed NQF Level:** 7      **Credits:** 17      **Contact Hours:** Lectures: 4x 1hr lectures / week for 16 weeks

Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: Entomology:** classification of veterinary ectoparasites (e.g., mosquitoes, biting flies, fleas, lice, ticks and mites) relevant to Namibia and southern Africa; morphology and biology of various arthropod ectoparasites; life cycle and diagnosis of selected species;; parasitic role of different ectoparasites and their economic impact and human impact; vector role of different ectoparasites and/or intermediate hosts of protozoan/rickettsial diseases; control methods for ectoparasites including role and importance of biological control methods and chemical control and its effects on the environment; emergence of drug resistance and ways of mitigating resistance emergence.

**Protozoology & Rickettsia:** classification of protozoa and rickettsia; pathogenesis, pathology and clinical signs associated with various specific genera and/or species; diagnosis of different genera and/or species; control of different protozoa and rickettsia; use of vector control as a method of controlling specific protozoa and/or rickettsia.

**Assessment:** Continuous assessment: Minimum of two (2) theory tests (total contribution of 60%), at least one (1) marked practical test (total contribution of 30%) and laboratory reports (total contribution of 10%).

Final examination: One (1) theory paper (150 marks) and one 2hr practical paper

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#### V3712AI INFECTIOUS DISEASES II

**Proposed NQF Level:** 7      **Credits:** 17      **Contact Hours:** Lectures: 4x 1hr lectures / week for 16 weeks

Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: Virus families of veterinary importance:** associated diseases in different animal species; aetiology, pathogenicity, pathogenesis, clinical signs, diagnosis, prevention and control

**Prions and prion diseases.**

**Assessment:** Continuous Assessment (CA) will entail a minimum of 2 theory assessments in a form of tests (each 100 marks) and at least 5 marked practical assessments (each 20 marks) and 2 assignments (each 10 marks).

CA [30% Theory and 10% (Practical+ Assignments)]

Examination: 1 x 3hr theory paper

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#### V3702CA VETERINARY ANAESTHESIOLOGY

**Proposed NQF Level:** 7      **Credits:** 9      **Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks

Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: The anaesthetist's role for safe anaesthetic management of patients using injectable and inhalation anaesthetics:** patient evaluation; selection and knowledge of premedication, induction and maintenance anaesthetic drugs; anaesthetic equipment; monitoring depth of anaesthesia; physiologic function.

**Species-specific differences in drug and equipment choices/requirements.**

**Assessment:** Continuous assessment: Minimum of 2 theoretical assessments and 1 marked assignment (33% each for CA)

Examination: 1 x 2 hour theory paper

### **V3721CD VETERINARY DIAGNOSTIC IMAGING**

**Proposed NQF Level:** 7

**Credits:** 9

**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: Radiographic and ultrasound machines:** the components, functions, and use of a radiographic and ultrasound machine, respectively.

**Radiation safety:** measures of radiation; exposure; and radiation protection.

**Principles of radiography:** overview of the general principles related to radiography; including collimation; grids; intensifying screens; radiographic film; film processing; quality evaluation; contrast resolutions; and technique charts.

**Radiographic positioning and species differences:** positioning techniques and radiography species differences, including those related to the thorax, abdomen and musculoskeletal system.

**Radiographic interpretation:** radiographic opacity; radiographic geometry; radiographic perception; and systematic evaluation of soft tissue and bone opacity changes.

**Principles of ultrasonography:** overview of the general principles related to ultrasonography; including attenuation; resolution; transducers; and interpretation of echogenicity.

**Abdominal ultrasonography:** approach to conducting a basic abdominal ultrasound scan.

**Contrast media and techniques:** classification and use of contrast media procedures.

**Introduction to digital radiography, computed tomography, magnetic resonance imaging, nuclear medicine, dental radiography, and echocardiography:** overview of different diagnostic imaging modalities.

**Assessment:** Continuous assessment: Minimum of 2 theoretical assessments and 1 marked practical assessment.

Examination: 1 x 2 hour integrated theory paper

### **FOURTH YEAR LEVEL**

#### **V3822EV VETERINARY PROFESSIONAL SKILLS IV**

**Proposed NQF Level:** 8

**Credits:** 9

**Contact Hours:** Lectures: 1x 1hr lectures / week for 16 weeks

**Content: Business management:** human resource management

**Business strategy and annual planning:** goal setting; budgeting

**Management and Leadership:** leadership styles

**Employee management:** performance management, goal setting; appraisals; motivation; training & development, career management

**Namibian Labour Law:** high level overview; managing labour relations

**Organisational change management**

**Disease reporting** to relevant competent authorities (MOHSS and MAWLR).

**Veterinary ethics**

**Assessment:** Continuous assessment: Minimum 2 assessments and 2 assignments for final CA mark (e.g. written assignment, group assignment, role-play and / or presentation).

Continuous participation assessment during compulsory lecture attendance

#### **V3822AL FIELD PRACTICAL TRAINING: LABORATORY**

**Proposed NQF Level:** 8

**Credits:** 9

**Contact Hours:** Lectures and Practical: Integrated 3hrs / week for 4 weeks

**Content:** Quality assurance

CVL departments: Clinical microbiology, Serology, Biotechnology, Food hygiene section, Toxicology and residue analysis, Pathology (Parasitology, Histopathology and Rabies)

**Assessment:** Each student fill in a logbook and the section supervisor assesses the student using a rubric prepared by the module coordinator out of 100. The report (logbook) is further assessed by the module coordinator who gives it an academic mark. This mark constitutes 60% against 40% of the marks by the section supervisor. The student will receive a calculated final mark based on these criteria. There is no exam for this module.

#### **V3821CC CLINICAL PATHOLOGY**

**Proposed NQF Level:** 8

**Credits:** 10

**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks

**Content:**

**Haematology:** sample collection; preparation; and interpretation of results for routine haematology; including blood smear preparation and evaluation; and interpretation of a complete blood count.

**Cytology:** sample collection; preparation; and systematic approach to evaluation of cytological samples; Discussions include cytology of the lymph nodes, liver, and body cavity fluids; as well as cytological characteristics of neoplasia.

**Biochemistry:** sample collection; preparation; and interpretation of results for routine biochemistry related to various organs systems; including the kidneys, liver and pancreas; Discussions include interpretation of enzymes, proteins, electrolytes, minerals and ketone bodies.

**Urinalysis:** sample collection; preparation; and interpretation of results for routine urinalysis, including organoleptic test, determination of urine specific gravity; urine dipstick analysis; and sediment evaluation; interpretation of proteinuria.

**Assessment:** Continuous assessment: Theory: 2 class tests, 2 quizzes, 2 class activities  
Practical: 2 OSCEs, 1 group work assessment, 1 flipped classroom presentation  
The final continuous assessment mark will constitute a weighting of 100% of the final mark.

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### V3803AS SYSTEMIC PATHOLOGY

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**Proposed NQF Level:** 8      **Credits:** 20      **Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester  
Practical: 1x 3hr practical / alternate week for 16 weeks per semester

**Content: Diseases affecting body systems:** cardiovascular system; central nervous system; haemolymphatic system; urinary system; musculoskeletal system; respiratory system; integumentary system; female reproductive system and the udder; male reproductive system; endocrine system; digestive system; hepatobiliary systems; pathology of the eye and ear.

**Major and common malformations:** characteristic features

**Degenerative lesions:** gross and microscopic pictures

**Inflammatory lesions:** gross and microscopic pictures

**Tissue lesions due to diseases**

**Specific lesions peculiar to the systems**

**Parasites found in the system:** their effects

**Neoplasms:** especially primary neoplasms affecting the system.

**Assessment:** Continuous assessment: Minimum 4 (2 per semester) theory assessments (1hr - 60marks – each test count 30%) and at least 4 marked practical tests contributing to 30 % and 10% for post mortem reports.

Examination: 1 x 2hr practical examination and 1 x 3hr theory paper

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### V3811AV VETERINARY PUBLIC HEALTH I

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**Proposed NQF Level:** 8      **Credits:** 19      **Contact Hours:** Lectures: 3x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: Introduction to the One Health Concept:** The history and evolution to One health; One health, interface and health-related interfaces; One health in the southern Africa; A systematic approach to One health at interfaces.

**Emerging and re-emerging diseases at human/animal interfaces:** Define a reservoir of infection; Discuss drivers of emerging diseases; listing examples of emerging human pathogens from animal reservoirs; List neglected tropical diseases and explaining the reasons for underdiagnosing and neglect of these diseases

**Basic principles of food safety and food safety system development:** pre-requisites; HACCP principles

**Development and enforcement of laws and regulations impacting food animal processing industries and food consumers:** traceability; ante- and post-mortem inspection; certification requirements.

**Practices relevant to national, regional and international trade requirements.**

**Assessment:** Continuous assessment: Minimum 2 theory assessments (1hr - 60marks – each test count 30%) and at least 4 marked practical tests contributing to 40%.

Examination: 1 x 3hr theory examination

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### V3813CC COMPANION ANIMAL CLINICAL STUDIES I

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**Proposed NQF Level:** 8      **Credits:** 40      **Contact Hours:** Lectures: 3x 1hr lectures / week for 16 weeks per semester  
Practical:

1x 3hr practical / alternate week for 16 weeks per semester

3-6hrs integrated lectures and practicals per week

**Content: Main Topics: Pathophysiology; Diagnosis; Clinical Management; Best Treatment Options of disease processes affecting various organ systems.**

Subtopics: Medicine; Surgery; Applied Clinical Pathology; Applied Diagnostic Imaging; Clinical Diagnostics.

In this is a multi-disciplinary module the above main topics and subtopics are integrated to equip the student with a holistic blended approach to the diagnosis, treatment and prevention of diseases in small animal patients.

The module content is in compliance with the requirements of current Namibian veterinary legislation and subject to audit by the Namibian Veterinary Council

**Assessment:** Continuous assessment: Minimum 2 theory assessments and 1 practical test in each semester, a minimum total of 4 theory assessments and 2 practical tests per year

The final examination consists of 1 x 3hr integrated written theory paper, as well as a 20 min oral examination.

The theory paper will contribute 80% towards the examination mark and the oral will contribute 20%.

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**V3831PA PRODUCTION ANIMAL CLINICAL STUDIES I**

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**Proposed NQF Level:** 8**Credits:** 19**Contact Hours:** Lectures: 3x 1hr lectures / week for 16 weeks  
Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: Pigs:** Nutrition and related disorders of pigs. Diagnosis and treatment of important parasitic and infectious diseases and other miscellaneous conditions; applied surgical techniques; herd basis strives improvement of the health status and production effectiveness of piggeries from a holistic and cost-effective viewpoint.

**Poultry:** Avian anatomy and physiology; poultry flock health and management programmes, including vaccination programs, aspects of housing and production systems, nutrition and nutritional diseases. Diagnosis and treatment of parasitic, infectious and management-related diseases of importance in the poultry industry.

**Assessment:** Continuous assessment: Minimum 2 theory assessments and at least 3 marked practical assessments.

The final examination consist of 1 x 3hr integrated theory paper, as well as a 15 min oral examination. The theory paper will contribute 80% towards the examination mark and the oral will contribute 20%.

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**V3823PR THERIOGENOLOGY I**

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**Proposed NQF Level:** 8**Credits:** 20**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester  
Practical: 1x 3hr practical / alternate week for 16 weeks per semester

**Content: Applied anatomy of the male and female reproductive organs**

**Physiology of the reproduction cycles including spermatogenesis and oogenesis.**

**Introduction to semen evaluation and andrology in selected animals**

**Semen evaluation, semen preservation and breeding manipulation:** general reproduction for livestock species, including canine, feline and porcine.

**Assessment:** Continuous assessment: Minimum 4 theory assessments and at least on 2 marked practical assessment. Theory and practical assessments will constitute 75% and 25%, respectively, of the total continuous assessment mark. The rest of the practical shall be signed off in the Skills Log Book as per Day-one competency requirements.

Examination: 1 x 2hr practical examination (25%) and 1 x 3hr theory paper (75%).

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**V3863PC WILDLIFE CLINICAL STUDIES I**

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**Proposed NQF Level:** 8**Credits:** 20**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester  
Practical: 1x 3hr practical / alternate week for 16 weeks per semester

**Content: Wildlife in Namibia:** Namibia – water, land use, wildlife numbers, economic returns; effects of climate change; value of wildlife in Namibia today and in the future

**Conservation:** key terms in wildlife conservation; conservation principles in terms of wildlife management, successful conservation, approaches to conservation, wildlife value; community involvement in successful conservation; relevant Namibian legislation; components of wildlife protection; components of wildlife biology and behavior; habitat; range; management principles; population dynamics; management styles

**Game Ranching:** four pillars of game ranching; nutrition management practices; genomics; Intentional Genetic Manipulation; negative impacts of selective and intensive breeding; Namibia's "Golden Opportunity"

**Veld Management for Wildlife:** types of vegetation occurring; land degradation; natural veld managers; ecological disturbance; grazing management practices

**Disease Ecology:** ecological, epidemiological and disease emergence concepts; the Ecosystem; Ecosystem interferences; epidemiological concepts; disease emergence; disease categories

**One Health:** mitigation of effects of crises that originate at the interface between humans, animals and their various environments including antibiotic resistance

**Emerging and Re-Emerging Diseases**

**Wildlife Diagnosis/Effects of Disease in Wildlife:** diagnostic process; origin of (emergence of) disease; potential negative impacts of disease

**Wildlife Disease Management (Prevention and Control):** disease management options; strategies to prevent and control disease; wild animal population management in Namibia to control disease in domestic animals

**Snake Bite Management in Animals**

**Game Camp Design**

**Wildlife Diseases:** epidemiology; clinical picture; diagnosis and control of selected diseases including Bovine TB; Anthrax; Brucellosis; Rabies, MCF; Canine Distemper Virus; Theileriosis and epidemiology of Bovine Viral Diarrhoea; Rift Valley Fever; Canine Parvovirus; Feline Herpes; Coronavirus; Retroviruses; Elephant viruses; Heartwater; Anaplasma, Babesia and trypanosomes.

**Transboundary Animal Diseases (TADs):** including FMD; African Horse Sickness; PPR; African Swine Fever

**Parasites of Wildlife:** endo and ecto-parasite control

**Chemical Wildlife Poisoning**

**Wildlife Pathology, the Post Mortem, Sample Collection and Forensics**

**Disease Surveillance in Wildlife**

**Wildlife Trade – Legal and Illegal**

**Wildlife Monitoring**  
**Wildlife Legislation**  
**Safety in Wildlife Practice**  
**Ethics and the Wild Animal**  
**Drug injection systems for game capture**  
**Physical Capture of Wildlife:** including plastic mass-capture boma; net gun; helicopter; box / cage trap; free-darting  
**Wild Animal Transport Systems and regulations**  
**Wild Animal Holding Facilities and Management**  
**Capture related deaths and Injuries**  
**Record Keeping in Wildlife Veterinary Practice**  
**Human Wildlife Conflict & Mitigation**  
**Hand Rearing the Captive Wild Animal**

**Assessment:** Continuous assessment: Test 1 – 4 (15% each); Clinical / Practical Scenarios (40%). Additionally there may be adhoc quizzes, debates, class discussions.

Final Exam: Paper: 1x 3hr theory paper (75% of final exam points); Practical: 1x 1hr practical exam (25% of final exam points)

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#### V3843AE VETERINARY EPIDEMIOLOGY

**Proposed NQF Level:** 8      **Credits:** 20      **Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks in per semester  
 Practical: 1x 1hr tutorial / week for 16 weeks per semester

**Content: Introduction to epidemiological concepts, definitions, purpose, meaning and scope:** disease causation; intrinsic and extrinsic determinants of disease; disease ecology; disease transmission; disease events in populations; measuring disease frequency and production; host-agent-environmental interaction; temporal, spatial and clustering factors; epidemiological and statistical measures of association; concepts of bias; confounding and interaction variables and control; application of concepts; design of observational epidemiological studies; sampling methodology; sample size determination; principles and concepts of diagnostic-test validation and performance and clinical trial

**Data and information management:** principles and applications of questionnaire design; use of geographic information systems; concepts of monitoring and surveillance; survey design; introduction to risk analysis; planning, designing, managing and implementing disease control; eradication programmes; emergency preparedness and contingency planning.

**Assessment:** Continuous Assessment (CA) will entail a minimum of 2 theory assessments in the form of tests each allocated 100 marks and at least 5 marked tutorial assessments each allocated 20 marks and 2 assignments each allocated 10 marks.

CA (30% Theory and 10% Practical)

Examination: 1 x 3hr theory paper

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#### V3812AV VETERINARY PUBLIC HEALTH II

**Proposed NQF Level:** 8      **Credits:** 19      **Contact Hours:** Lectures: 3x 1hr lectures / week for 16 weeks  
 Practical: 1x 3hr practical / alternate week for 16 weeks

**Content: Global strategies to prevent and control pathogens, and elaborate on the development and coordination of human–animal–ecosystems interfaces applicable at the national, regional and global levels**

**Climate change and environmental pollution (especially waste and waste management):** implications and preventative measure and solutions to the current situations.

**Veterinary public health programmes and overarching principles of food control systems:** possible infrastructures and approaches for national and international systems.

**Globalization of the food supply chain**

**Increasing importance of the Codex Alimentarius Commission**

**Obligations emerging from the World Trade Organization (WTO) Agreements**

**Assessment:** Continuous assessment: Minimum 2 theory assessments (1hr - 60marks – each test count 30%) and at least 4 marked practical tests contributing to 40%.

Examination: Minimum 20 minutes per student for practical examination and 1 x 3hr theory paper

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#### V3832PA PRODUCTION ANIMAL CLINICAL STUDIES II

**Proposed NQF Level:** 8      **Credits:** 20      **Contact Hours:** Lectures: 3x 1hr lectures / week for 16 weeks  
 Practical: 1x 3hr practical / week for 16 weeks

**Content: Common disorders of the major body systems of cattle, sheep and goats:** clinical signs, diagnostic tests and treatment options for disorders of individual animals as well as herd management; preventative care; selected surgical procedures.

**Pathophysiology, symptomatology, differential diagnoses, diagnostic approach, clinical management (medical and surgical) and prognosis** of the more important/common clinical conditions affecting cattle, sheep and goats related to relevant systems

**Assessment:** Continuous assessment: Minimum 2 theory assessments and at least 3 marked practical assessments.  
Examination: 1x 3hr integrated theory paper, as well as a 15 min oral examination. The theory paper will contribute 80% towards the examination mark and the oral will contribute 20%.

#### **FIRTH YEAR LEVEL**

##### **V3821AR RESEARCH METHODOLOGY**

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**Proposed NQF Level:** 8      **Credits:** 10      **Contact Hours:** Lectures: 1x 1hr lecture / week for 6 weeks  
Tutorial: 2x 1hr online tutorial / week for 6 weeks

**Content: Research process:** research problem formulation and research objectives; research methods and principles of research; experimental design; sampling methods including sample size determination and replication; ethics of research; the scientific method; observations, asking questions and formulation of hypothesis (null and alternative); predictions.

**Scientific writing:** literature review; research proposal; report writing; plagiarism; finding and using literature references; citation of references; presentation of results.

**Assessment:** Continuous assessment: 6 evaluated weekly assessments (CA 100%).

- Assignment 1: Ethical principals in research (10%)
- Assignment 2: Effectively retrieve and manage information (15%)
- Assignment 3: The principles of the scientific method (10%)
- Assignment 4: Project planning and budgeting (10%)
- Assignment 5: Design a research proposal, with timetable (35%)
- Assignment 6: Design an effective oral presentation (20%)

##### **V3842EV VETERINARY PROFESSIONAL SKILLS V**

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**Proposed NQF Level:** 8      **Credits:** 9      **Contact Hours:** Lectures: 3x 1hr lectures / alternate week for 6 weeks

**Content: Goal setting and annual planning**

**Business strategy:** annual planning implementation, M&E, budgeting

**Organisational performance management**

**Employee management:** motivation; training & development, career management

**Organisational change management**

**Finding your niche:** CV and cover letter writing, job search, job applications, interviews, professional networking, practical experience, being relevant

**Veterinary ethics**

**Interpretation of applicable legislation for state veterinary offices**

**Assessment:** Continuous assessment: Minimum 2 assessments and 2 assignments for final CA mark (e.g. written assignment, group assignment, role-play and / or presentation).

Continuous participation assessment during compulsory lecture attendance.

##### **V3883AR RESEARCH PROJECT**

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**Proposed NQF Level:** 8      **Credits:** 40      **Contact Hours:** Lectures:  
2x 1hr lectures / week for 10 weeks in semester 1  
2x 1hr lectures / week for 16 weeks in semester 2

**Content:** Independent research on a chosen topic in any field related to veterinary medicine.

**Assessment:** Continuous Assessment 100%: Oral presentation (25%) and publishable written research report (75%)

##### **V3833CC COMPANION ANIMAL CLINICAL STUDIES II**

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**Proposed NQF Level:** 8      **Credits:** 40      **Contact Hours:** Lectures: 4x 1hr lectures / week for 16 weeks per semester  
Practical: 1x 3hr practical / week for 16 weeks per semester

**Content: Main Topics: Pathophysiology; Diagnosis; Clinical Management; Best Treatment Options of disease processes affecting various organ systems and species as outlined above.**

Subtopics: Medicine; Surgery; Applied Clinical Pathology; Applied Diagnostic Imaging; Clinical Diagnostics; Ovario-hysterectomy; Emergency treatment; Critical Care; Dental Procedures; Behaviour; Cage birds; Small mammals and Reptiles.

In this is a multi-disciplinary module the above main topics and subtopics are integrated to equip the student with a holistic blended approach to the diagnosis, treatment and prevention of diseases in small animal patients.

The module content is in compliance with the requirements of current Namibian veterinary legislation and subject to audit by the Namibian Veterinary Council.

**Assessment:** Continuous Assessment: Minimum 2 theory assessments and 1 practical assessment in each semester, and at least 6 theory assessments and 3 practical assessments per year

Examination: 1 x 3hr integrated written theory paper, as well as a 20 min oral examination.

The theory paper will contribute 80% towards the examination mark and the oral will contribute 20%.

#### **V3843PR THERIOGENOLOGY**

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|------------------------------|--------------------|--|
| <b>Proposed NQF Level:</b> 8 | <b>Credits:</b> 20 | <b>Contact Hours:</b> Lectures: 2x 1hr lectures / week for 16 weeks per semester<br>Practical: 1x 3hr practical / alternate week for 16 weeks per semester |
|------------------------------|--------------------|--|

**Content: Physiology of reproductive cycles in selected domestic animals.**

**Manipulation of oestrus and ovulation synchronization in selected farm animals:** Principles of assisted animal reproduction in livestock and equines

**Diagnose, manage and resolve dystocia cases in selected domestic animals:** Caesarian sections and other interventions

**Principles of assisted animal reproduction in livestock and equines:** breeding soundness examination; semen collection and processing; reproductive cycle synchronization; artificial insemination; embryo transfer.

**Assessment:** Continuous Assessment: Minimum 4 theory assessments and at least on 2 marked practical assessment. Theory and practical assessments will constitute 75% and 25%, respectively, of the total continuous assessment mark. The rest of the practical shall be signed off in the Skills Log Book as per Day-one competency requirements.

Examination: 1 x 2hr practical examination (25%) and 1 x 3hr theory paper (75%).

#### **V3851PA PRODUCTION ANIMAL CLINICAL STUDIES III**

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| <b>Proposed NQF Level:</b> 8 | <b>Credits:</b> 20 | <b>Contact Hours:</b> Lectures: 4x 1hr lectures / week for 16 weeks<br>Practical: 1x 3hr practical / week for 16 weeks |
|------------------------------|--------------------|--|

**Content: Common disorders of the major body systems of cattle, sheep and goats:** clinical signs, diagnostic tests and treatment options for disorders of individual animals as well as herds and flocks; preventative care and selected surgical procedures.

**Musculoskeletal diseases**

**Neurology**

**Dermatology**

**Urology**

**Nephrology**

**Assessment:** Continuous Assessment: Minimum 2 theory assessments and at least 3 marked practical assessments

Examination: 1x 3hr integrated paper (80%), and a 15 minutes practical examination (20%)

#### **V3801PC WILDLIFE CLINICAL STUDIES II**

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|                              |                    |  |
|------------------------------|--------------------|--|
| <b>Proposed NQF Level:</b> 8 | <b>Credits:</b> 10 | <b>Contact Hours:</b> Lectures: 2x 1hr lectures / week for 16 weeks<br>Practical: 1x 3hr practical / alternate week for 16 weeks |
|------------------------------|--------------------|--|

**Content: Physiology for Chemical Restraint:** nervous, cardiovascular, gastrointestinal, respiratory systems

**Pharmacology for Wildlife**

**Specific Chemical Restraint Veterinary Medicines**

**Opioids:** Agonists: etorphine, fentanyl, thiafentanil (carfentanil); Mixed agonists/antagonists: butorphanol (nalbuphine, nalorphine); Antagonists: diprenorphine, naltrexone, naloxone

**Cyclohexylamines:** Dissociative anaesthetics (ketamine and tiletamine); combinations (ketamine/medetomidine; tiletamine/zolazepam)

**Sedatives & Tranquilizers:** azaperone; haloperidol; zuclopenthixol; perphenazine; diazepam, midazolam; zolazepam; xylazine, detomidine, medetomidine; romifidine

**Other Game Capture Vet meds:** depolarising neuromuscular blockers; non-depolarising neuromuscular blockers; Doxapram; Hyaluronidase; Biperidine; oxygen; analgesics and anti-inflammatories (meloxicam)

**Accidental Human Exposure:** appropriate first aid in the case of accidental human exposure to S5 drugs

**Megaherbivores capture, care and transport**

**Antelope capture, care and transport**

**Carnivores capture, care and transport**

**Monitoring Immobilisation**

### Responding to Critical Immobilisation Scenarios

#### Humane Euthanasia of Wildlife

#### Wildlife Legislation in Namibia & Record Keeping for wildlife in Namibia

#### Wildlife Ethics

**Assessment:** Continuous Assessment: Test 1 and 2 (35% each); Dosage calculations (5%); Basic Life Support (10%); Field Trip (15%). Additionally, there will be ad hoc quizzes, debates, class discussions

Examination: Theory Paper: 1x 2hr paper (75% of final exam points); Practical: 1x 2hr practical exam (25% of final exam points). The fatal flaw concept will be applied during the practical examination (anesthesia of a wild animal). Committing a fatal flaw during this examination will result in failure of the module with a sub minimum mark.

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### V3823CH EQUINE CLINICAL STUDIES

**Proposed NQF Level:** 8

**Credits:** 20

**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester

Practical: 1x 3hr practical / alternate week for 16 weeks per semester

**Content:** Detailed General Clinical Examination of the horse

International equine identification criteria

Insurance certification

Pre-purchase examination of horses

Diagnosis, treatment and control of conditions and diseases affecting the various organ systems of the horse.

Infectious and parasitic diseases, clinical diagnostics, clinical pathology, diagnostic imaging, medical and surgical treatment options as well as preventative measures.

Gastro-enteric, cardio-vascular, urinary and respiratory diseases and conditions.

Musculoskeletal disorders: incidence; pathophysiology; and diagnosis of lameness.

Equine dentistry: comprehensive dental examination; routine floating of teeth.

Neurology: neurological examination.

Disorders affecting the central and peripheral nervous systems

Dermatology: diseases of the skin and hooves.

Common disorders of the haemolymphatic system

Ophthalmology: systematic examination of the eye; most common disorders.

Oncology: basic diagnosis and treatment of important equine neoplasms.

Endocrinology: most relevant endocrine conditions.

**Assessment:** Continuous Assessment: Minimum 2 theory assessments per semester and one practical test.

Examination: 1 x 3hr written integrated theory paper, as well as a 15 min oral examination.

The theory paper will contribute 80% towards the examination mark and the oral will contribute 20%.

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### V3823PH HERD HEALTH MANAGEMENT & ECONOMICS

**Proposed NQF Level:** 8

**Credits:** 20

**Contact Hours:** Lectures: 2x 1hr lectures / week for 16 weeks per semester  
Practical: 1x 3hr practical / alternate week for 16 weeks per semester

**Content: Herd Health Management:** herd health, production and reproduction management programmes in dairy cattle; management of replacement rearing, dry period, milk production, herd fertility, udder health, lactation, nutrition and body condition scoring; biosecurity measures and the containment of diseases; management strategies for newborn animals, weaners and adults; management of metabolic disease conditions, hoof problems and mastitis; record keeping and gynaecological herd health; different parlour types and milking machines. Aspects of herd/flock health, production and reproduction management programmes in cattle and small stock; management of replacement rearing, milk production, herd fertility, and nutrition in cattle; flock health, nutrition and production management of small stock; biosecurity measures and the containment of diseases.

**Animal Health Economics:** Economical aspects of the dairy herd and productivity schemes; economic importance and contribution of the dairy sector in the Namibian economy. Importance of animal diseases in efficiency of animal production; consumer's perception of animals and animal products; global trade; analysis of economic problems using basic methods such as partial budgeting, cost-benefit analysis and decision analysis; critical steps in systems analysis and appropriate modelling types and techniques, e.g. headmaster; implementation and evaluation of animal health programmes; policy development and implementation process.

**Assessment:** Continuous assessment 100%:

Theory: at least 4 class tests

Practical: 5 marked practical assignments

Feedlot challenge: group work applied practical throughout the year

**V3872PA PRODUCTION ANIMAL CLINICAL STUDIES IV**

Proposed NQF Level: 8

Credits: 9

Contact Hours: Lectures: 2x 1hr lectures / week for 13 weeks

**Content: The formulation and implementation of public policy through legislation, regulation and operational strategy. Focus will be on Namibian legislation and the Namibian Constitution.**

**Namibian legislation:** regulating the veterinary profession; veterinary medicines; animal health; certification; animal welfare trade in animals and animal products in Namibia.

**Legislation governing the practice of veterinary medicine by professionals and para-professionals:** the code of conduct; veterinary ethics; rules and standards. Specific Acts: The Veterinary and Veterinary Para-professions Act 1 of 2013, including related Regulations and Rules; The Animal Health Act 1 of 2011 including related Regulations; The Prevention of Undesirable Residue in Meat Act 21 of 1991; The Medicines and Related Substances Control Act 13 of 2003, including related Regulations as amended; The Animal Protection Act 71 of 1962.

**Assessment:** Continuous assessment 100%: Minimum 2 theory assessments, minimum of 1 assignment, group discussions in class

**V3882FO INTEGRATED OSCE EXAMINATION**

Proposed NQF Level: 8

Credits: Non-credit bearing

Contact Hours: N.A

**Content: Integrated examination covering a variety of clinical skills** taught in the following modules:

Clinical Diagnostics, Clinical Pathology, Companion Animal Clinical Studies I, Companion Animal Clinical Studies II, Equine Clinical Studies, Production Animal Clinical Studies I, Production Animal Clinical Studies II, Production Animal Clinical Studies III, Production Animal Clinical Studies IV, Theriogenology I, Theriogenology II, Veterinary General Surgery, Wildlife Clinical Studies I, Wildlife Clinical Studies II

**Assessment:** Examination entrance is through achieving prescribed CA marks in all pre-and co-requisite modules listed above.

The Objective Structured Clinical Examination (OSCE) consists of a circuit of multiple stations which the students rotate round in sequence, completing a variety of tasks. OSCEs are marked using a detailed checklist accompanied by global rating scores with a pass mark calculated via a borderline regression.

Results are provided to students on the same day of the examination and students will have the opportunity to practice and repeat any failed station(s) until the skill is mastered, within the next five days. To pass the examination, every station must be passed.

Failure of the OSCE examination will result in non-admittance to the BVM VI year.

Examination mark contributes 100% to the final module mark.

**Sixth year level****V3883FY CLINICAL ROTATIONS**

Proposed NQF Level: 8

Credits: 231

Contact Hours: 51 weeks, all practical

**Content:** Intensive clinical rotation for 1 year: each student will be exposed to various rotations under supervision of trained registered professional veterinarians and other experts in their fields to develop their clinical skills and attain their "Day One Competencies" as recommended by the WOA and NVC. Each student will be required to successfully complete a number of clinical rotations including core or compulsory rotations and elective rotations, as per the individual schedule prepared for each student.

| Module code   | Module name  | NQF Level | Credits | Weeks | (Co-requisites) / Pre-requisites            |
|---------------|--|-----------|---------|-------|---|
| <b>Year 6</b> |  |           |         |       |   |
| V3883FY       | CLINICAL ROTATION  | 8         | 231     | 51    | BVM V including integrated OSCE examination |
|               | Theriogenology (Equine, Bovine, Small stock and Canines) |           |         |       |   |
|               | Herd Health  |           |         |       |   |
|               | Veterinary Public Health (Abattoir, Food Safety Systems) |           |         |       |   |
|               | Production Animal Clinic and Ambulatory Clinic           |           |         |       |   |
|               | Small Animal Surgery                                     |           |         |       |   |
|               | Cadaver Surgery  |           |         |       |   |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Anaesthesiology and Pharmacology                                       |  |  |  |
|  | Equine Clinic  |  |  |  |
|  | Equine Medicine  |  |  |  |
|  | Pathology and Parasitology   |  |  |  |
|  | Private Veterinary Practice  |  |  |  |
|  | State Veterinary Practice  |  |  |  |
|  | Companion Animal Clinic  |  |  |  |
|  | Mobile Animal Clinic   |  |  |  |
|  | Diagnostic Imaging (Radiography, Ultrasonography)                      |  |  |  |
|  | Animal Welfare Clinic  |  |  |  |
|  | Isolation Clinic   |  |  |  |
|  | Outpatients Clinic   |  |  |  |
|  | Elective Rotation (Wildlife, Mobile Animal Clinic, Student preference) |  |  |  |
|  | Veterinary Association of Namibia Congress                             |  |  |  |

**Assessment:** Continuous assessment: Compulsory submission of completed clinical skills logbook. Marking rubrics designed for each rotation (subminimum for each rotation 40%). Students who achieve less than 40% for any rotation listed above will not get examination entrance and will repeat the clinical rotation year.

**Examination:**

**A. 2 theory papers:**

- 1. Paraclinical Veterinary Studies** (all species, incorporating all modules relating to Veterinary Public Health (35%); pathology (35%); epidemiology (15%); Policy, Legislation and Juris Prudence (15%))
- 2. Clinical Veterinary Studies** (incorporating all modules relating to companion animals including equines (50%), production animals including wildlife (50%))

**B. 2 practical exams:**

**1. Practical 1:** practical examination in Veterinary Public Health and Veterinary Pathology

**2. Practical 2:**

- Clinical cases workup (clinical reasoning) of a canine or feline (40%), **and** an equine patient (20%), **and** a ruminant patient (40%)
- Sterilisation of a dog or cat (50%) **and** pregnancy diagnosis of 4 cows (50%)

Subminimum for each paper, theory 40% and practical 40%.

A pass mark of 50% is required for each of the theory papers and practical examinations.

Final calculation of exam mark: Average of the four sections.

Final mark: 50% continuous assessment (log book plus clinical rotations) and 50% Exam mark

Pass mark: 50%.

Fatal flaw concept applies to Pregnancy diagnoses, Anaesthesiology and Surgery, which constitutes a subminimum mark.

Candidates with a final mark of 45-49%, or 45-49% in any of the four sections above, will be invited to a single opportunity supplementary oral (theory) or practical examination on a maximum of one section, concentrating on the failed section. Those who fail the supplementary oral or practical examination, including any candidates who failed a section or sections with <45%, or committed a fatal flaw during the initial examinations, will repeat relevant rotations and / or lectures over a period of 5 months, and rewrite the failed section(s) in the midyear examination period.

Candidates who achieve a final mark below 45% or who achieve 45-49% in more than one section of the examination will repeat the clinical rotation year and rewrite all sections of the examination.

**Purpose of the qualification**

The Diploma in Animal Health aims to capacitate Animal Health Technicians to appropriately develop and support farmer training in the rural periphery and assist in the carrying out of appropriate research.

This will enrich students with agricultural extension methods and communication strategies, and norms and standards of agricultural extension in Namibia. The programme will prepare student to demonstrate knowledge of animal health, apply animal health disease prevention in the field and provide primary animal health care to emerging livestock farmers and semi-commercial farmers in the rural communities. This will enable students to perform general

**GRADUATE EMPLOYABILITY ATTRIBUTES**

Holders of this qualification will be registrable as Veterinary Paraprofessionals (Veterinary Health Technicians) with the Namibian Veterinary Council according to Act 1 of 2013. According to this Act, "a veterinary paraprofessional means any person who is registered or deemed to be registered in terms of this Act to practice a veterinary para-profession which has as its object the rendering of services supplementing the services deemed in terms of the rules to pertain specially to a veterinary profession, working under the direction of a veterinarian."

The following are the key skills of graduates of the programme:

- Ability to carry out animal disease surveillance,
- Ability to inspect animal establishments ensuring they comply with the set national and international standards of operation.
- Ability to properly enforce legislation pertaining to animal health, welfare, identification and animal and animal products imports and exports.
- Ability to assist a registered veterinary professional when executing surgery under field conditions or outside a theatre environment.
- Ability to execute veterinary paraprofessional procedures that do not need supervision by a registered veterinarian.
- Ability to collect, package, preserve and examine samples as deemed fit by a Veterinarian.

**CAREER OPPORTUNITIES**

DAH Holders qualification are able to:

1. Implement the whole livestock value chain development plans, livestock investment feasibility strategies, and advise on aspects of entrepreneurship and business management in the livestock industry.
2. Assist in conducting effective applied research and development and implementation of outreach programs.
3. Manage livestock farms, livestock development projects and programs, and livestock extension activities.
4. Design and implement effective biosecurity measures in practice and field settings.
5. Venture into registrable livestock and wildlife related entrepreneurial activities.
6. Assist in the enforcement of import and export trade policies affecting animal production, marketing, internal trade and welfare of the animals themselves, producers and consumers.
7. Assist with animal (s) and animal products (imports and exports) at entry and exit points.
8. Develop and demonstrate qualities, skills and other attributes in the areas such as animal health, public health, diagnostic laboratories, animal welfare and legislation, intellectual/cognitive skills, transferable skills, and values and attitudes.

- Graduates of the programme will be able to Work as a Veterinary Health Technician
- Establish or work in a Veterinary Para-professional practice
- Work as a Farm manager

**DURATION OF STUDY**

The minimum duration for the Diploma in Animal Health (DAH) is (3) years.

**ARTICULATION OPTIONS**

This programme serves as an alternative entry point to the following related qualifications: Bachelor of Veterinary Medicine degree, BSc Animal Science and BSc Wildlife Management and Tourism Studies. Transfer of credits may not be more than 50%.

**CRITERIA FOR ADMISSION**

The minimum admission requirements into the Diploma in Animal Health programme are as follows:

(a) A total of at least 23 points in five subjects on the UNAM Evaluation Scale obtained in five different subjects as follows or a recognised equivalent qualification:

i. Mathematics and either Biology or Agriculture on Namibia Senior Secondary Certificate Advanced Subsidiary (NSSCAS) level with a minimum of E.

ii. 3 subjects on Namibia Senior Secondary Certificate Ordinary (NSSCO) level with a D or higher in Chemistry or Physical Science and English (compulsory) plus any other subject.

(b) Candidates may be admitted to the Diploma in Animal Health programme based on Recognition of Prior Learning (RPL), based on procedures in the UNAM RPL Policy.

In addition to the above, final admission for all candidates shall include either an interview and or pre-selection test.

Meeting the minimum admission requirements does not necessarily guarantee admission. Admission is based on the number of places available and is granted on the basis of merit after a rigorous selection process. The Faculty reserves the right to interview candidates with similar meritorious levels before admission.

#### **Additional Selection Criteria**

Only candidates who have applied for Diploma in Animal Health as first choice will be considered for selection into the programme. The applicants with the highest points on the UNAM evaluation scale per Region will be selected. A quota will be applied to marginalized and international students.

#### **ASSESSMENT CRITERIA**

Student evaluation will be through formative (continuous assessment) and / or summative (final examinations) assessments. Unless otherwise specified in individual module descriptors, the continuous assessment mark for a semester module contributes 40% to the final mark, while the final examination mark will contribute 60% to the final mark.

In order to pass a module, a student must obtain a final mark of at least 50%, with a subminimum mark of 40% in each of the theory examination papers and a subminimum of 50% in each of the practical and/or oral examinations. For modules with theory and practical examinations, the final mark will be calculated based on 60% theory and 40% practical, unless otherwise specified in the module descriptor.

## MINIMUM REQUIREMENTS FOR RE-ADMISSION INTO THE PROGRAMME

A student will be re-admitted into the Diploma in Animal Health programme if she/he has passed / attained at least:

By the end of the first year of registration

- 42 credits

By the end of the second year of registration

- Passed all first-year modules

By the end of the third year of registration

- Passed all first-year modules and has a total minimum of 240 credits

By the end of the fourth year of registration

- Passed all first- and second-year modules

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By the end of the fifth year of registration

- Passed all first, second- and third-year modules

## ACADEMIC ADVANCEMENT AND PROGRESSION RULES

|   |  |
|---|--|
| <b>First Year to Second Year of Animal Health</b> | To advance to the second year of the Diploma in Animal Health programme a student must have passed all first-year modules. A student who has attained 80 credits in the first year of study will be allowed to register for a maximum of 42 credits in the second year (in addition to the failed modules) provided that:<br>(i) the relevant pre-requisites have been passed and<br>(ii) there are no timetable clashes |
| <b>Second Year to Third Year of Veterinary</b>    | To advance to the third year of the Diploma in Animal Health programme a student must have passed all first- and second-year modules. A student will not be allowed to carry any modules over to the third year of study as this involves paraclinical rotations.  |

## REQUIREMENTS FOR QUALIFICATION AWARD:

A minimum of **443 credits** and who have met all other relevant UNAM requirements.

| Number of <i>Modules/Credits</i> to be Passed/Obtained at the Various Year Levels in order to be awarded the Diploma by the School |  |                    |
|--|--|--------------------|
| Year Level   | Number of Passed <i>Modules</i> Required | Credit Equivalent  |
| First year level   | 17 <i>Modules</i>                        | 136 credits        |
| Second year level  | 17 <i>Modules</i>                        | 143 credits        |
| Third year level   | 4 <i>Modules</i>                         | 164 credits        |
| <b>TOTAL</b>   |  | <b>443 CREDITS</b> |

## First Year Level

At first year level, students take the University Core Curriculum modules and the required Seven (7) Veterinary Medicine *modules* indicated below. The normal first year curriculum of a student registered in the Diploma in Animal Health programme will therefore consist of seventeen (17) *Modules* (136 credits), compiled as follows:

| Subject                           | <i>Modules</i> | Credits    |
|-----------------------------------|----------------|------------|
| University Core Curriculum        | 7*             | 24         |
| Animal Health at first year level | 10             | 112        |
| <b>Total</b>                      | <b>17</b>      | <b>143</b> |

## Curriculum

| Students take all modules below: |         |   |   |                             |
|----------------------------------|---------|---|---|-----------------------------|
| Semester                         | Code    | Course Title                                | Prerequisite(Co-requisites) /   | Compulsory (C)/Elective (E) |
| SC                               | U3403FS | Skills Portfolio                            | -   | C                           |
| SC                               | U3583AL | Academic Literacy I                         | -   | C                           |
| SC                               | U3583DD | Digital Literacy                            | -   | C                           |
| SC                               | U3420CN | National and Global citizenship             | -   | C                           |
| SC                               | V2420EQ | Veterinary Paraprofessional Skills I        | -   | C                           |
| SC                               | V2440EM | Fundamentals of Microbiology and Immunology | -   | C                           |
| SC                               | V2460EF | Field and Laboratory Safety                 |   | C                           |
| S1                               | V2411EA | Animal Anatomy I                            | (V2460EF Field and Laboratory Safety)   | C                           |
| S1                               | V2431EP | Animal Physiology I                         | (V2460EF Field and Laboratory Safety)   | C                           |
| S1                               | V2421EB | Animal Behaviour and Handling               | (V2460EF Field and Laboratory Safety)   | C                           |
| S1                               | V2401EW | Fundamentals of Animal Welfare              | (V2460EF Field and Laboratory Safety)   | C                           |
| S1                               | V2471EI | Infectious Animal Diseases I                | (V2460EF Field and Laboratory Safety), (V2440EM Fundamentals of Microbiology and Immunology), | C                           |
| S2                               | V2412EA | Animal Anatomy II                           | (V2460EF Field and Laboratory Safety), (V2411EA Animal Anatomy I)                             | C                           |
| S2                               | V2432EP | Animal Physiology II                        | (V2460EF Field and Laboratory Safety), (V2431EP Animal Physiology I)                          | C                           |
| S2                               | V2452EL | Livestock Production I                      | (V2460EF Field and Laboratory Safety)   | C                           |
| S2                               | V2402EP | Animal Parasitology                         | (V2460EF Field and Laboratory Safety)   | C                           |
| S2                               | V2442ET | Basic Toxicology                            | (V2460EF Field and Laboratory Safety)   | C                           |

### Second Year Level

At second year level, students proceed with the University Core Curriculum modules and general Animal Health modules. The normal second year level curriculum of a student registered in the Diploma in Animal Health programme will therefore consist of seventeen (17) *Modules* (143 credits), compiled as follows:

| Subject                            | Modules   | Credits    |
|------------------------------------|-----------|------------|
| University Core Curriculum         | 7*        | 24         |
| Animal Health at second year level | 10        | 120        |
| <b>Total</b>                       | <b>17</b> | <b>144</b> |

| Students take all modules below: |         |                                   |                               |                             |
|----------------------------------|---------|-----------------------------------|-------------------------------|-----------------------------|
| Semester                         | Code    | Course Title                      | Prerequisite(Co-requisites) / | Compulsory (C)/Elective (E) |
| SC                               | U3683AL | Academic Literacy II              | Academic Literacy I -         | C                           |
| SC                               | U3420RT | Entrepreneurial Skills            | -                             | C                           |
| SC                               | U3520TH | Introduction to Critical Thinking |                               | C                           |
| SC                               | V2520EH | Human First Aid                   | -                             | C                           |
| SC                               | V2560EB | Animal Breeds                     | -                             | C                           |
| SC                               | V2540EG | Principles of Genetics            | -                             | C                           |
| SC                               | U3420PJ | Project Management Skills         |                               | C                           |

|    |         |                                       |   |   |
|----|---------|---------------------------------------|---|---|
| S1 | V2511EL | Livestock Production II               | V2460EF Field and Laboratory Safety, V2452EL Livestock Production I, (V2551EN Livestock and Pet Nutrition)  | C |
| S1 | V2531EC | Basic Pharmacology                    | V2460 Field and Laboratory Safety (V2442ET Basic Toxicology)  | C |
| S1 | V2521EH | Essential of Veterinary Public Health | V2460EF Field and Laboratory Safety   | C |
| S1 | V2511EI | Infectious Animal Diseases II         | V2460EF Field and Laboratory Safety, V2440EM Fundamentals of Microbiology and Immunology, V2471EI Infectious Animal Diseases I-   | C |
| S1 | V2551EN | Livestock and Pet Nutrition           | V2460 Field and Laboratory Safety (V2511EL Livestock Production II)   | C |
| S2 | V2502EV | Basic Veterinary Epidemiology         | V2402EP Animal Parasitology, V2471EI Infectious Animal Diseases I, V2511EI Infectious Diseases II   | C |
| S2 | V2532EP | Animal Pathology                      | V2460EF Field and Laboratory Safety, V2471EI Infectious Animal Diseases I, V2411EA Animal Anatomy I, V2412EA Animal Anatomy II, (V2511EI Infectious Animal Diseases II) | C |
| S2 | V2552ER | Fundamentals of Animal Reproduction   | V2460EF Field and Laboratory Safety, V2432EP Animal Physiology II, V2412EA Animal Anatomy II  | C |
| S2 | V2572EX | Animal Health Extension               | V2420EQ Veterinary Paraprofessional Skills I-   | C |
| S2 | V2522EF | Veterinary First Aid                  | V2420EQ Veterinary Paraprofessional Skills I, V2460EF Field and Laboratory Safety   | C |

### Third Year Level

At third year level, students proceed with the general Animal Health modules. The normal third year level curriculum of a student registered in the Diploma in Animal Health programme will therefore consist of sixteen (16) *Modules* (175 credits), compiled as follows:

| Subject                           | Modules  | Credits    |
|-----------------------------------|----------|------------|
| Animal Health at third year level | 1        | 140        |
| <b>Total</b>                      | <b>1</b> | <b>140</b> |

| Students take all modules below: |         |  |                                      |                             |
|----------------------------------|---------|--|--------------------------------------|-----------------------------|
| Semester                         | Code    | Course Title   | Prerequisite (Co-requisites) /       | Compulsory (C)/Elective (E) |
| S0                               | V2683ET | Paraprofessional Rotation<br>Herd and Flock Management<br>Laboratory Diagnostics<br>Meat Inspection and Abattoir Hygiene<br>State Paraprofessional Practice<br>Livestock Traceability<br>Bovine Practice<br>Small Stock Practice<br>Dairy Cattle Production<br>Border Control<br>Artificial Insemination<br>Wildlife | All year 1 and 2 Year modules passed | C                           |

## COURSE DESCRIPTORS

### First Year Level

#### U2583AL ACADEMIC LITERACY I

**Proposed NQF Level:** 5      **Credits:** 8      **Contact Hours:** Core Semester: 4 hours /week;  
Semester 1: 2 hours/week  
Semester 2: 2 hours/week

**Content:** The module will cover study skills, reading (including extensive reading), listening, speaking, writing, referencing, and language usage and text organisation.

**Assessment:** Assessment will be based on Continuous Assessment

#### U3583DD DIGITAL LITERACY

**Proposed NQF Level:** 5      **Credits:** 8      **Contact Hours:** Semester 0: 4 hours /week;  
Semester 1: 2 hours/week  
Semester 2: 2 hours/week

**Content: Digital Proficiency:** ICT-based devices (laptops, tablets, smartphones, desktop computers, digital instruments and equipment); a mouse, keyboard, touch screen, voice control and other forms of input; screens, audio headsets and other forms of output; digital capture devices; University digital learning systems and a range of personal digital services such as social media, cloud storage services, sharing sites.

**Digital Productivity:** Basic productivity software (text editing, presentation, spreadsheets, image editing); email and other digital communication services; Internet or cloud or institutional shared spaces for Organising, managing and backing up digital files; software/apps and services suitable for learning-related tasks; digital tools fit learning and managing learning time.

**Information Literacy:** search engines, indexes or tag clouds; wikis, blog posts, scholarly journals, e-books and the open web; file spaces and folders, bookmarks, reference management software and tagging; copyright, and digital citizenship issues.

**Data and Media Literacy:** Digital data using spreadsheets and other media; data security and privacy; digital media messages – text, graphics, video, animation, audio and multimedia.

**Digital Creation and Innovation:** digital materials (video, audio, stories, presentations, infographics); new digital tools for learning in digital settings.

**Digital Communication, Collaboration and Participation:** digital communication; differences between media, norms of communicating in different spaces; false or damaging digital communications; collaborative tools and online environments; online networks.

**Digital Learning and Development:** digital learning opportunities; digital learning resources; digital tools/materials for organising, planning and reflecting on learning (mind-mapping, note-taking, e-portfolio/ learning journal/ blog)

**Digital Identity and Wellbeing:** online profiles for different networks (personal, professional, academic); digital reputation; managing personal data and privacy; digital CV or portfolio of work; digital technologies for personal development; online etiquette; wellbeing and safety online; internet addiction; cyberbullying and other damaging online behaviour.

**Assessment:** Continuous assessment: Collaborative assessment tasks

Digital productivity: cloud based collaborative digital media creation using cloud platforms

Project: Digital communication, collaboration and participation/ Digital Wellbeing

Individual assessment tasks

- 2.1 Assignment: information literacy assignment
- 2.2 Test x 2

Practical

Digital proficiency

Data and Media literacy

No written examination

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#### U3420CN NATIONAL AND GLOBAL CITIZENSHIP

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**Proposed NQF Level:** 4      **Credits:**2      **Contact Hours:** Up to 1 contact lecture periods per week for 6 Weeks

**Content: UNIT 1: Constitution and its Importance:** What is a constitution; Functions of a constitution; What it contains; Constitution and democracy?

**UNIT 2: Global Citizenship:** The meaning of global citizenship; Importance of global awareness; World issues of concern to global citizens.

**UNIT 3: Civic Engagement:** What do we mean by civic engagement; Dimensions of civic engagement; Indicators of civic engagement; Promoting civic engagement.

**UNIT 4: Globalization:** Understanding globalization; Cultural construction of neoliberal globalization; Major players; Major domains; Major Issues; Futures of Globalization

**UNIT 5: Intercultural Communication:** Dealing with difference; Levels of culture; Stereotypes and generalizations; Intercultural communication Processes

**UNIT 6: Sustainable Development Goals and individual action:** Introduction to SDGs; Contributing to achievement of SDGs through action

**Assessment:** Continuous assessment of 100% - Assessment will be done by completing online pop-up quizzes; and developing their online portfolios of personal action as response to tasks assigned in class.

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#### V2420EQ VETERINARY PARA-PROFESSIONAL SKILLS I

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**Proposed NQF Level:** 4      **Credits:**2      **Contact Hours:** 3 hours blended lectures and practical per week for 6 weeks

**Content: Client communication:** Listening skills; verbal and non-verbal communication

Fundamental and applied ethics Effective conflict management strategies

**Report activities:** writing, filling and filing forms

**Assessment:** Continuous Assessment: 100 %, minimum 2 marked assignments for final CA mark (written assignment, group assignment, role-play and / or presentation).

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#### V2440EM FUNDAMENTALS OF MICROBIOLOGY AND IMMUNOLOGY

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**Proposed NQF Level:** 4      **Credits:** 2      **Contact Hours:** 3 hours blended lectures and practical per week for 6 weeks (18 hours)

Module Content:

**General microbiology:** Introduction to microbiology; morphology, growth and nutrition of bacteria, mycoplasma, virus, and fungi; and nomenclature of bacteria; microbial ecology and pathogenicity **Basic laboratory techniques:** safety rules, cleaning and sterilization, equipment, media preparation, bacteria and fungi culturing, staining and identification. Tutorials on laboratory diagnosis of viral diseases. 26

**Immunity:** concepts, types of immunity, tissues, organs and cells of the immune system, antigens and immunogenicity, antibodies, antigen and antibody interactions (serological reactions), immunological disorders (immunodeficiencies, hypersensitivities, autoimmune disorders), vaccines and vaccination

### Assessment

Continuous Assessment: 100 %, minimum 2 marked assignments for final CA mark (written assignment, group assignment, practicals and / or presentation).

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### V2460EF FIELD AND LABORATORY SAFETY

**Proposed NQF Level:** 4      **Credits:** 2      **Contact Hours:** Integrated lecture and practical 1x 3 hour per week for 6 weeks

Module Content:

**Field and Laboratory biosafety and rules:** basic understanding of rules to follow in a laboratory “Do’s and Don’ts”, protocols used in case of an emergency

**Operation of basic laboratory equipment:** operate and correct usage of the laboratory equipment such as the microscopy, centrifuge, incubator, spectrophotometer, water bath and autoclave

### Assessment

Continuous Assessment: 100% (Minimum 3 practical assessments and 2 theory assessment).

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### V2411EA ANIMAL ANATOMY I

**Proposed NQF Level:** 4      **Credits:** 14      **Contact Hours:** Integrated lecture and practical 1x 3 hour per week for 6 weeks

Module Content:

Definition of anatomical terminology, regions and planes of the animal body

**Musculoskeletal:** Introduction to microscopic and developmental anatomy of muscle and bone; osteology, arthrology, myology,

**Digestive system:** Introduction to microscopic and developmental anatomy of the alimentary tract and associated organs (liver and pancreas); gross, topographical and comparative anatomy of the mouth; oral vestibule; oral cavity proper; teeth (general structure and ageing); tongue; pharynx (general and comparative anatomy); salivary glands; muscles of mastication; deglutition esophagus; stomach (ruminant and non- ruminant); abdominal wall and abdominal topography. Liver; pancreas.

**Cardiovascular system:** Introduction to microscopic and developmental anatomy of cardiac muscle; large, medium and small arteries; veins; venules; capillaries; gross and topographical anatomy of the heart (blood supply and great vessels and lymphatics); caudal mediastinum; blood supply to the neck, head, forelimb, thoracic wall and organs; blood supply to abdominal and pelvic organs.

**Excretory:** Introduction to microscopic and developmental anatomy of the urinary system: kidney; ureters; urinary bladder and urethra. Gross and topographical anatomy of the kidney; ureters; urinary bladder and urethra. Anatomy of the skin and accessory structures; epidermal structures; horn; hooves; nails and skin glands.

**Respiratory:** Introduction to microscopic and developmental anatomy of the respiratory pathways and organs; gross and topographical anatomy of the lower and upper respiratory organs, the external nares; nasal cavities; paranasal sinuses; nasopharynx; guttural pouches; larynx, trachea. Thorax: muscles of respiration; cranial mediastinum (oesophagus, trachea, cranial mediastinal lymph nodes, vagosympathetic trunk, recurrent laryngeal nerve); middle mediastinum; pleura and lungs.

### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (50%) (one in each gross anatomy and histology) and 4 x practical assessments (50%) (two in each gross anatomy and histology))

Examination: 60% (1 x 3 hour paper: 50% and 1x 2hr practical exam: 50%)

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### V2431EP ANIMAL PHYSIOLOGY I

**Proposed NQF Level:** 4      **Credits:** 14      **Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr practical/ alternating week for 12 weeks

Module Content:

**The basic function of the cell;** fluid mosaic model, the membrane system, transport across the plasma membrane.

**Organ system integration;** structure-function relationship, body fluid balance, homeostasis.

**Physiology of the musculoskeletal;** function of muscles, muscle types, muscle fatigue, myopathies

**Digestive system;** types of digestive systems, digestion and absorption of carbohydrates, proteins and fats; differences in digestion between ruminants and non-ruminants

**Cardiovascular system;** composition and functions of blood and lymphatic system, measuring of blood parameters such as blood pressure, haematocrit, PCV, heart rate

**Excretory- Renal physiology;** urine formation, factors affecting urine production, micturition, urinalysis

**Skin physiology;** mechanical protection, permeability, sweat glands, sebaceous glands, 32

thermoregulation and excretion.

**Respiratory system;** ventilation, gaseous exchange, lung volumes, measuring respiration rate, exercise, pregnancy

**Assessment**

Continuous Assessment: 40% (Minimum 2x theory assessments (60%) and 3x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3-hour theory paper)

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**V2421EB ANIMAL BEHAVIOUR AND HANDLING**

**Proposed NQF Level:** 4

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks ;  
Practicals: 1 x 3hr P/ week, alternating for 12 weeks

Module Content:

**Normal and abnormal behavior of farm and companion animals;** major types of behavior, interpretation of animal behaviour. Correct/Appropriate handling and restraining methods of healthy and unhealthy animals (psychological, physical and chemical) as well as the impact of these methods on animal behaviour and welfare.

**Animal handling and restraining equipment:** identification and correct use such as neck clamp, crushpen, loading ramp, leash, muzzle, blanket, nose holder, dog catcher, cage boxes, ropes, and halter, isolation pens, mouth gag

**Assessment**

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments) Examination: 60% (1 x 2 hour paper)

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**V2401EW FUNDAMENTALS OF ANIMAL WELFARE**

**Proposed NQF Level:** 4

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks  
Practical's: 1 x 3hr practical / every fourth (4th) weeks for 12 weeks [3 practicals total]

Module Content:

**Animal welfare:** the Five Freedoms and WOA animal welfare recommendations.

**Welfare and ethics:** in animal production, at training institutions, research, during handling and transportation, and at the time of slaughter.

**Measures of animal welfare status:** physiological, behavioural, disease and production parameters.

**Welfare of animals in emergency situations:** drought, veld fires, floods.

Euthanasia and animal welfare.

**Role of veterinary paraprofessionals and animal welfare organisations in promoting animal welfare. Animal welfare legislation and standards:** WOA, FANMeat Scheme, SoVM animal welfare policy, Animals Protection Act (Act 71 of 1962), Animal Health Act (Act 1 of 2011)

**Assessment**

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments: 60% theory, 30% Practical and 10% Assignments and quizzes)

Examination: 60% (1 x 2 hour theory paper)

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**V2471EI INFECTIOUS ANIMAL DISEASES I**

**Proposed NQF Level:** 4

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 1.5 hr /week for 12 weeks

Module Content:

**Aetiology, epidemiology, transmission, pathogenesis, clinical signs, diagnosis, differential diagnosis** of common bacterial and fungal diseases of domestic and wild animals.

**Laboratory diagnosis** of specific bacterial and fungal diseases based on appropriate sample collection and handling, isolation, culture, staining and identification.

**Treatment, prevention, and control (biosecurity, movement control, quarantine, and vaccination)** of common bacterial and fungal diseases.

**Assessment**

Continuous Assessment: 40% (Minimum 2 x theory tests assessments; 4 x practical assessments and 1 x assignment/ quiz). CA calculation: Tests 60%; Practical 30%; Assignment/ quiz 10%.

Examination: 60% (1 x 3-hour theory paper)

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**V2412EA ANIMAL ANATOMY II**

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr P/ week for 12 weeks

Module Content:

**Male reproductive system:** gross and topographic anatomy of the testis; ductus deferens; accessory sex glands (ampulla of ductus deferens, vesicular glands, prostate glands and bulbourethral glands); penis and prepuce Female reproductive system: ovaries,

uterine tube, uterus, vagina vestibule, vulva and mammary glands. Microscopic anatomy of the major structures of male and female reproductive system

**Endocrine system:** topographical anatomy of the major endocrine glands; pituitary gland, pineal gland, thyroid gland, parathyroid gland, adrenal gland, pancreatic islets and gonads. Introduction to microscopic anatomy of basic tissues such as thyroid, gonads and pancreas

**Nervous system:** gross and topographical anatomy of the major structures of the central and peripheral nervous systems of livestock and companion animals. Central nervous system: telencephalon and diencephalon; brainstem (mesencephalon, pons, medulla); cerebellum. Cranial nerves: names, courses and distribution of cranial nerves and specific dysfunction related to lesions in cranial nerves, anatomy of the eye, external ear, and the tongue). Spinal cord: Peripheral nervous system spinal nerves. The brachial and lumbosacral plexuses: names, courses and distribution of named nerves of the brachial plexus. Names, courses and distribution of lumbosacral plexus nerves. Introduction to microscopic anatomy of basic tissues such as epithelial tissue; connective tissue; nervous tissue

**Reticulo-endothelial system:** location of major lymphatic vessels and the spleen; lymph node; thymus. Introduction to microscopic anatomy of basic tissues such as spleen; lymphatic vessels; lymph nodes; thymus  
Anatomy of birds and fish will be discussed with emphasis on the anatomical adaptations.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (50%) (One in each gross anatomy and histology) and 4 x practical assessments (50%) (two in each gross anatomy and histology)

Examination: 60% (1 x 3 hour paper: 50% and 1x 2hr practical exam: 50%)

### V2432EP ANIMAL PHYSIOLOGY II

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**Proposed NQF Level:** 4      **Credits:** 14      **Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks ;  
Practicals: 1 x 3hr practical/ alternating week for 12 weeks

Module Content:

**Reproductive system;** spermatogenesis, oogenesis, puberty, oestrus cycle, sex glands, fertilization, pregnancy and parturition

**Endocrine system;** synergy between nervous and endocrine system, endocrine glands, hormones and their functions (pancreatic, kidney, thyroid and parathyroid), positive and negative feedback loops

**Nervous system;** nerve impulse, action potential, reflexes, neurotransmission, feedback mechanism, sense organs.

**Immune system;** innate and adaptive immunity, active and passive immunity, the role of colostrum in neonates, physiology of vaccination and animal response, recognition of self and non-self, serological tests.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (60%) and 3 x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3 hour theory paper)

### V2452EL LIVESTOCK PRODUCTION I

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**Proposed NQF Level:** 4      **Credits:** 14      **Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr / week for 12 weeks

Module Content:

**Fundamental principles:** animal products; scope of the animal industry; intensive and extensive management programs; partial budgeting and cost-benefit analysis, marketing practices; consumer affairs; FAN Meat Scheme

**Production systems** (e.g feeding, management, production cycle): dairy; beef, small stock

**Breeding plans:** dairy cattle, beef cattle, small stock.

#### Assessment

Continuous Assessment: 40% (Minimum 2 x theory assessments (60%) and 3 x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3 hour theory paper (60%), 1x3 hour practical examination (40%))

### V2402EP ANIMAL PARASITOLOGY

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**Proposed NQF Level:** 4      **Credits:** 7      **Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr practical / alternate week for 12 weeks

Module Content:

**Introduction to general parasitology:** terminology used in parasitology; general morphology, biology and general characteristics of various parasite classes.

**General parasitology:** parasites and parasitism; types of hosts; host-parasite relationships; mode of transmission of parasites; methods of dissemination of infective stages of parasites

**Helminthology:** classification; characteristics of main groups; life cycle in relation to transmission, basic epidemiology; general control measures of trematodes, cestodes and nematodes of veterinary importance in the region; diagnostic methods, treatment and prevention of diseases caused by endoparasites.

**Entomology:** classification of veterinary ectoparasites (e.g ticks, fleas, lice, mites, mosquitoes and biting flies) relevant to Namibia and southern Africa; morphology of various arthropod ectoparasites; life cycle of selected species; vector role of different

ectoparasites and/or intermediate hosts of protozoan/rickettsial diseases; control methods for ectoparasites including role and importance of biological control methods and chemical control and its effects on the environment; enzootic stability; ways of mitigating resistance emergence

**Protozoology and Rickettsia:** classification of protozoa and rickettsia; pathology and clinical signs associated with various specific genera and/or species; diagnostic techniques of different genera and/or species; control of different protozoa and rickettsia

#### Assessment

Continuous Assessment: 40%, Minimum 2x theory tests (total contribution of 60% to CA), at least one (1) marked practical assessment (total contribution of 40% to CA).

Examination: 60% (1 x 2 hour theory paper: 50% and 1x 2hr practical exam: 50%)

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#### V2442ET BASIC TOXICOLOGY

**Proposed NQF Level:** 4

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1x 3hr practicals every other week

Module Content:

**Major causes of animal toxicosis in Namibia, and associated clinical signs:** toxic plants (affecting the heart, liver, lungs, GIT, nervous system, kidneys, blood), animal poisons 53

(envenomation, stings, contact poisons), minerals (arsenic, lead, mercury), chemicals (strychnine, nitrate, urea, cyanide, organophosphates, chlorinated hydrocarbons, carbamates, cyanide, lead, mercury, pesticides, herbicides, rodenticides), mycotoxins, salt/water intoxication, cyanobacteria.

Household chemicals, foods and human drugs

**First aid management of animal toxicosis:** decontamination, antidotes, activated charcoal, fluid therapy.

**Control of problem animals using poisons:** rodenticides, avicides, predicides; alternative approaches.

**Collection and packaging of samples for toxicological analysis:** vomitus, blood, urine, kidneys, livers.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments: 60% theory, 30% practical and 10% assignments and quizzes)

Examination: 60% (1 x 2 hour paper (60%) and 1 x 2 hour practical examination (40%))

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#### U3683LA ACADEMIC LITERACY II

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours: Semester 0: 4 hours/week**

**Semester 2: 2 hours/week**

Module Content:

The module is designed for students enrolled in a bachelor's degree, which requires them to do basic research, read and listen to specific academic material, produce specific written texts and give academic presentations. The module thus, focuses on enhancing academic reading, academic vocabulary, writing, listening and speaking.

#### Assessment

Assessment will include written tests, individual and group assignments, portfolio assessments and oral presentations.

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#### U3420RT ENTREPRENEURIAL SKILLS

**Proposed NQF Level:** 4

**Credits:** 2

**Contact Hours:** 1 x 2h per week for 6 weeks

Module Content:

**Definition and scope of entrepreneurship and entrepreneur;** Entrepreneur's environment; Characteristics of entrepreneurs;

Basic concepts of entrepreneurship; Forms of entrepreneurship;

**The role of entrepreneurship;** The entrepreneurial process;

**The entrepreneurial mindset;** Decision-making skills; Creativity, innovation and entrepreneurship; Critical thinking skills; Problem solving skills; Business and personal goal-setting skills; Negotiation skills, Communication skills, Assertiveness skills, Interpersonal skills, Cognitive skills;

**Transferable skills,** Practical application of entrepreneurial skills; Starting a new business; Managing a business start-up; Growing an entrepreneurial venture; Marketing skills; Managing people; Record keeping; networking skills; Time management skills; Change management skills; Entrepreneurship success stories in the global context.

#### Assessment

The module will be assessed using 100% continuous assessment.

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#### U3420TH INTRODUCTION TO CRITICAL THINKING

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**Proposed NQF Level:** 5      **Credits:** 2      **Contact Hours:** 1 hour practical session per week interfaced with limited online engagement

Module Content:

**Definition of critical thinking:** striving for understanding; to have an inquisitive yet open-minded and flexible approach to exploring ideas, the ability to evaluate information and draw clear conclusions based on the evidence at hand.

**Core critical thinking skills:** explain, infer, analyse, evaluate, problem solving, self-reflect. 59

**Deductive and inductive reasoning:** inductive reasoning- move from the specific to the general, deductive reasoning-moving from the general to specific. **Construction of argument:** construct statements that combine reasoning with evidence to support an assertion or argument.

**Problem analysis:** define problem, determine the root causes of problem, develop alternative solutions to problem, implement solution, evaluate outcome.

**Reflective learning:** asking open questions, reflect on answers, writing reflective learning essays, thinking about other's answers, asking 'why' questions.

**Understanding fallacies:** what is a fallacy? Description of various fallacies, identifying a fallacy in an argument, explaining a fallacy to an opponent in an argument.

#### Assessment

100% Continuous assessment (1 reflective learning essay, 1 problem solving activity).

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#### U3420PJ PROJECT MANAGEMENT SKILLS

**Proposed NQF Level:** 5      **Credits:** 2      **Contact Hours:** 2 hour lecture per week for the first two week and field-based practical for the remaining four weeks.

Module Content:

This module consist of two components: **The first component** is a two week theory covering the **concepts** (project vs programme) and the **phases of project life cycle ( project initiation and planning:** work breakdown, development of SMART indicators, estimation of activity duration, efforts, and costs, scheduling of activities, identification of critical path, setting of milestones, stakeholder identification and categorization, stakeholder engagement, initial risk identification, and development of the initial project plan; **project implementation & management:** forming the project team, managing people, resources allocation, responsibilities allocation, quality assurance, leadership style and project liaison; **project monitoring and control:** progress reporting and communication, quality control, time management, budget and cost management, risk management and mitigation; **project closure and evaluation:** project evaluation, project auditing process and the closure process, and final project report). **The second component** is a four week **field-based practical** where students participate in a real-life project in their immediate environment. Students are strictly required to apply the project management approach during the field-based practical.

#### Assessment

Student assessment will be 100% continuous assessment based on weekly project progress reports (50%) and the final project report (50%). A minimum pass mark for the module is 50%.

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#### V2520EH HUMAN FIRST AID

**Proposed NQF Level:** 5      **Credits:** 2      **Contact Hours:** 1x 2 hours Integrated Lectures and practicals for 6 weeks

Module Content

#### Principles of First Aid

#### Responsibilities of a First Aider Safety and scene management.

**First aid management:** Removing clothing and head gear, CPR, management of bleeding, wounds, stings, poisons, fractures, dislocations, soft tissue injuries including burns, heat or cold exposure, near drowning incidents, choking, foreign material in the eye, snake bite, monitoring vital signs.

#### Assessment

Continuous Assessment: 100% (Minimum 1 x theory assessment (50%) and 2 x practical assessments (50%))

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#### V2560EB ANIMAL BREEDS

**Proposed NQF Level:** 5      **Credits:** 4      **Contact Hours:** Integrated lectures and tutorial 1x3 hour per week for 6 weeks

Module Content

#### History of domestication of animals.

**Common Breeds;** dogs, cats, cattle, horses, pigs, goats, sheep, chicken

**Normal Animal Behaviour;** Small animals, ruminants, non-ruminants

### Assessment

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x assignment assessment (40%)).

### V2540EG PRINCIPLES OF GENETICS

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**Proposed NQF Level:** 5      **Credits:** 4      **Contact Hours:** Integrated lectures and tutorial 1x3 hour per week for 6 weeks

#### Module Content

**Animal domestication;** reasons for breeding animals, basic Mendelian genetics, polymorphism estimates, natural and artificial selection

**Principles in population genetics;** allele and genotype frequency, allele frequency, basic mechanisms of inheritance, quantitative traits, genetic variation, inheritance in populations, heritability and mass selection, crossbreeding, inbreeding, correlated response to selection, DNA markers, estimating genetic gain, maternal effects

**Breeding programmes;** conservation of farm animal genetic resources, challenges and opportunities, sustainable animal breeding, disease susceptibility, resistance and resilience

### Assessment

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x assignment assessment (40%)).

### V2511EL LIVESTOCK PRODUCTION II

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**Proposed NQF Level:** 5      **Credits:** 14      **Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr /alternate week for 12 weeks

#### Module Content

**Fundamental principles:** animal products; scope of the animal industry; intensive and extensive management programs; partial budgeting and cost-benefit analysis, marketing practices; consumer affairs.

**Production systems** (e.g feeding, management, production cycle): pig; poultry; fish;

**Breeding plans:** pigs, poultry, fish

### Assessment

Continuous Assessment: 40% (Minimum 2 x theory assessments (60%) and 3 x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3 hour theory paper (60%), 1x3 hour practical examination (40%))

### V2531EC BASIC PHARMACOLOGY

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**Proposed NQF Level:** 5      **Credits:** 14      **Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr /alternate week for 12 weeks

#### Module Content

**Classes of pharmaceutical products:** nomenclature; antibiotics, antifungals, anaesthetics, hormones, anti-inflammatories, analgesics, antihistamines, vitamins, vaccines, antisera, ectoparasiticides, endoparasiticides (anthelmintics), disinfectants, antiseptics, and antidotes.

**Drug dosage forms:** solid, liquid, semisolid, aerosols.

**Legislation** regulating the use of veterinary medicines in Namibia: Medicines and related substances control act (Act 13 of 2003); Prevention of undesirable Residues Act (Act 21 of 1991).

**Calculations in pharmacology:** conversion units; drug concentrations; drug dosage rates; drug dosage calculations.

**Routes of drug administration:** oral and parenteral (subcutaneous, intravenous, intramuscular, intrauterine); advantages and disadvantages; selection of the route of administration.

**Pharmacokinetics:** drug absorption, distribution, metabolism/biotransformation and excretion, 'first pass effect'.

**Pharmacodynamics:** receptors; drug-receptor interactions; agonists, partial agonists, antagonists; affinity, efficacy and potency; non-receptor interactions, individual variation in responses to drugs; drug interactions.

**Adverse reactions to drugs:** side effects, untoward effects, allergic reactions, idiosyncratic reactions, teratogenic effects.

Drug withdrawal periods.

Antimicrobial resistance

**Indications for pharmaceutical products:** antibiotics, antifungals, anesthetics, anti-inflammatories, analgesics, antihistamines, vitamins, vaccines, antisera, ectoparasiticides, endoparasiticides (anthelmintics), disinfectants, antiseptics, and antidotes.

**The cold chain for veterinary medicines:** from point of purchase to point of use; storage of vaccines to be used in the field; storage practices of medicines in refrigerators or on the shelf.

**Prohibited veterinary medicines** such as phenylbutazone, chloramphenicol, hormones.

### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments: 90% theory, and 10% Assignments and quizzes)

Examination: 60% (1 x 3 hour paper)

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### V2521EH ESSENTIALS OF VETERINARY PUBLIC HEALTH

Proposed NQF Level: 5

Credits: 7

Contact Hours: Lectures: 4 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr /alternate week for 12 weeks

#### Module Content

**Introduction:** abattoir registration and siting, abattoir layout (poultry and red meat abattoirs), general and specific requirements for abattoirs.

**Basic hygiene at abattoirs:** medical testing, personal hygiene, protective gear, personnel hygiene practices, abattoir sanitation, water quality, waste management, pest control.

**Ante mortem inspection procedures:** cattle, sheep, pig, and poultry,

Abattoir slaughter and dressing processes and critical areas/practices for preventing contamination: cattle, sheep, game, poultry and pig slaughter processes.

**Meat inspection procedures (cattle, sheep, game, poultry, pig):** correlation/synchronisation, primary and secondary meat inspection procedures, meat detaining and condemnation procedures, common pathological conditions detected at meat inspection and decisions.

**Meat storage:** freezing and chilling temperatures for meat of various species, freeze treatment of mild *Cysticercus bovis* infested meat.

**Waste management:** condemned meat, effluent, dung/manure, blood.

**Principles of food safety and food safety system development:** pre-requisite programs, list the seven principles of HACCP.

Zoonotic, food and water borne diseases relevant to Namibia Laws and regulations impacting food animal processing industries:

**Animal welfare, based on** OIE welfare standards at slaughter, inspection of animal transport vehicles, holding facilities, emergency slaughter, humane slaughter methods for different species.

The 'One Health' concept.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 3 x practical assessments: 60% theory, 30% Practical and 10% Assignments and quizzes)

Examination: 60% (1 x 2 hour paper: 50% and 1x 2hr practical exam: 50%)

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### V2511EI INFECTIOUS ANIMAL DISEASES II

Proposed NQF Level: 5

Credits: 14

Contact Hours: Lectures: 4 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr /alternate week for 12 weeks

#### Module content

**Viral diseases of veterinary importance:** viral diseases in different animal species; aetiology, transmission, epidemiology, pathogenesis, clinical signs, diagnosis, differential diagnosis, Management, prevention, and control of viral and prion diseases.

**Diagnosis of specific viral and prion diseases (including zoonoses) based on appropriate sample collection, handling and packaging**

Vaccination of common viral diseases in Namibia

#### Assessment

Continuous Assessment: 40% (Minimum 2 x theory tests assessments, 4 x practical assessments and 1 x assignment/ quiz). CA calculation: Tests 60%; Practical 30%; Assignment/ quiz 10%.

Examination: 60% (1 x 3 hour theory paper)

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### V2551EN LIVESTOCK AND PET NUTRITION

Proposed NQF Level: 5

Credits: 14

Contact Hours: Lectures: 4 x 1hr lectures/week

Practicals: 1x 3hr practicals every third (3rd) week for 12 weeks

#### Module Content

**Introduction to animal nutrition:** key concepts and terminologies, the role of animal nutrition in animal production, feed intake and factors influencing intake.

**Sources and classification of animal feeds:** plants, animal.

**Feed digestion:** monogastric, ruminants and hind gut fermenters.

**Nutritional value/components of animal feeds:** chemical composition of feeds, laboratory analysis for various components.

Nutritional requirements of farm animals in different physiological states and seasons including neonates:

livestock and companion animals.

**Ruminant nutrition during the dry season/drought compared to the rainy season. Feed formulation:** chickens, pigs, cattle, sheep/goats

**Nutritional disorders:** acidosis, ketosis, bloat, mineral deficiencies including white muscle disease, milk fever. **Rangeland management:** veld types of Namibia and their characteristics, grasses and other forages of Namibia, natural and cultivated forages, principles of rangeland management including carrying capacity, resting of veld, rotation, management of bush encroachment.

**Preparation and storage of feedstuff:** hay, silage, feed storage, feed additives, contaminants and toxins.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 3 x practical assessments: 60% theory, 30% Practical and 10% Assignments and quizzes)

Examination: 60% (1 x 2 hour paper: 50% and 1x 2hr practical exam: 50%)

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### V2502EV BASIC VETERINARY EPIDEMIOLOGY

**Proposed NQF Level:** 5

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Tutorials: 1 x 2hr tutorial / every alternate week for 12 weeks

#### Module Content

**Basic epidemiological concepts**, fields of epidemiology, population and its characteristics, emerging and course of a disease in populations; questionnaire administration, basics of disease survey. The importance of appropriate sampling methods and sample size will be discussed

Evaluation of disease risk factors and mode of disease transmission;

**Methods of disease control schemes, disease outbreak contingency and response plans, Basics of disease control and investigation;** monitoring, surveillance and early warning systems.

#### Assessment

Continuous Assessment: 40% (Minimum 3 theory assessments) Examination: 60% (1 x 2 hour paper)

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### V2532EP ANIMAL PATHOLOGY

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr /alternate week for 12 weeks

#### Module Content

**Introduction to pathology**, common post mortem changes such as rigor mortis, putrefaction and bile imbibition.

**General pathology**, including lesions due to various disease processes, circulatory disturbances, inflammation and neoplasia;

**Basic pathology of the major systems** (cutaneous, muscular, respiratory, endocrine, skeletal, nervous, reproductive, cardiovascular, gastrointestinal, lymphatic); 85

Identification of lesions suggestive of a pathological process Techniques used in post mortem examination

**Appropriate sampling methods:** collection, packaging, labelling, storage, transport and basic processing.

Laboratory content will focus on biosafety and biosecurity, appropriate sample handling. Learning and Teaching Strategies/Activities

Through integrated lectures, presentations, illustrations, post mortem demonstrations, class discussions, written assignments and group work.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (50%) and 4 x practical assessments (50%))

Examination: 60% (1 x 3 hour paper (50%) and Practical examination 1 x 2 hours (50%))

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### V2552ER FUNDAMENTALS OF ANIMAL REPRODUCTION

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr /alternate week for 12 weeks

#### Module Content

**The reproductive cycle;** cattle, sheep, goats, pigs, dogs and cats,

**Assisted reproductive technologies;** oestrus synchronisation; artificial insemination using both fresh and frozen semen in cattle

**Reproductive diseases and disorders:** causes; clinical signs, sampling and management; dystocia; post- partum problems; pregnant; newborn animals

**Breeding soundness examination:** livestock

#### Assessment

Continuous Assessment: 40% (Minimum 2 x theory assessments (60%) and 3 x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3-hour theory paper (60%) and 1 x 2 hours' practical paper

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#### V2572EX ANIMAL HEALTH EXTENSION

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr P/alternate week for 12 weeks

#### Module Content

**Overview of the effective para veterinary service delivery for the improved productivity of farm animals:** information dissemination techniques; principles and use of 89

participatory rural appraisal (PRA) **Standard operational procedures:** farm inspection, community visits and animal gatherings

**Perform:** animal disease surveillance, monitoring and control (vaccination, movements control; inspections, quarantine, livestock census, etc.)

**Implement a holistic approach in veterinary extension:** integrated agriculture practice, SMART agriculture, husbandry services, animal production, nutrition and reproduction, use of medicines, disease and parasite control

#### Assessment

Continuous Assessment: 40% [Minimum 2 x theory assessments (60%) and 3 x practical/assignment/case study assessments (40%)]

Examination: 60% (1 x 3-hour theory paper)

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#### V2522EF VETERINARY FIRST AID

**Proposed NQF Level:** 5

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr practical / alternate week for 12 weeks

#### Module Content

**Basic equipment and first aid kit** needed for emergency management of farm animals and 91

their use; gloves, nasogastric tube, trocar & cannula bandaging material, catheters, surgical kit, stethoscope, thermometer, veterinary drugs (antibiotics, analgesics, sedatives), , blades/ clippers, cotton wool, needles, syringes, etc.

**Aseptic preparations for field surgical procedure;** patient and surgeon preparation, including patient and surgeon scrubbing, gloving, draping, and Halsted principles.

**Basic principles of anaesthesia;** the anaesthetist's role for safe anaesthetic management of patients, patient evaluation; knowledge of premedication, induction and maintenance, anaesthetic drugs; monitoring depth of anaesthesia

**Basic emergency procedures** such as resuscitation, splinting and stabilisation of broken bones and dislocated joints, bandaging, management of allergic reactions, poisoning, burns, bleeding and bloat, colic, diarrhoea, constipation , dehydration, choke, hyperthermia, near drowning, snake bite, management of a downer cow.

**Wound management;** stages of wound healing and associated complications; wound evaluation, lavage, debridement, drainage, and closure Pre and post-operative patient care.

#### Assessment

Continuous Assessment: 40% (Minimum 2 theory assessments and 2 practical assessments), CA calculation: Tests 60% practical assessments 40%.

Examination: 60% (1 x 2hour paper: 60% and 1x 2hr practical exam: 40%)

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#### V2600EA LIVESTOCK ENTREPRENEURSHIP

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours:** 6 hours Integrated lectures and tutorials per week for 6 weeks

#### Module Content

**Types of entrepreneurship;** family business, social entrepreneurship, intrapreneurship, sole trader.

**Importance of entrepreneurship;** forces and ideas that lead to business establishment, growth and survival, role of entrepreneurship in the economy

**Entrepreneurial process;** Business incubation, sources of entrepreneurship, the entrepreneur's characteristics, traits and motivation, innovation

**Developing entrepreneurial skills;** Strength Weakness Opportunity Threats (SWOT) analysis, business opportunity identification, opportunity assessment and evaluation, management competencies, entrepreneurial start-up, marketing, financial management

**Business management;** Government policies (Small and Medium Enterprise (SME), production functions, optimum resource allocation, profit maximization, economies of size and scale, demand and supply, infant protection

#### **Assessment**

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x assignment assessment (40%)).

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### **V2640EG LEGISLATION AND JURISPRUDENCE**

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours:** 6 hours blended lectures and tutorials per week for 6 weeks

#### **Module Content**

Relevant aspects of Namibian legislation pertaining to the activities of veterinary paraprofessionals: Animal Health Act, Act 1 of 2011; Animal Protection Act, Act 12 of 1962; Veterinary and Veterinary Paraprofessionals Act, Act 1 of 2013; Meat Industry Act (Act 12 of 1981) as amended, Prevention of Undesirable Residues in Meat Act, Act 21 of 1991; Medicines and Related Substances Control Act, Act 13

of 2003; Stock Brands Act, Act 24 of 1995; Environmental Management Act (Act 7 of 2007); UNAM code of conduct for veterinary paraprofessionals.

#### **Assessment**

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x assignment assessment (40%))

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### **V2683ET PARAPROFESSIONAL ROTATIONS**

**Proposed NQF Level:** 6

**Credits:** 140

**Contact Hours:** 35 hours work integrated learning per week for 28 weeks.

#### **Module Content**

**Paraprofessional rotations:** Intensive rotations (28 weeks): students will be exposed to rotations under supervision of registered professional veterinarian (s) and other experts in order to attain 'Day 1' competencies. Students taking this option are required to successfully complete all specified rotations..

#### **Assessment**

Continuous assessment: Compulsory submission of completed and signed logbook. Marking rubrics designed for each rotation (subminimum for each rotation 40% to allow admission into the final examination).

Examination: 100%

Two theory paper: 1 x 3hr theory examination 50% (each contributing 25%);

Practical two sessions:

(i) Laboratory practical, 1x3 hours 100%, 25% contribution to final mark, with 50% subminimum;

(ii) Field practical, 1x3 hours 100%, 25% contribution to final mark with 50% subminimum).

A candidate has to score 50% or more in both the theory and practical sections to pass the examination.

(Subminimum: Theory 40%, Practical 50%, Candidates with a final mark of 45-49% will qualify for an oral examination)

### Purpose of the qualification

The Diploma in Veterinary Nursing aims to capacitate Veterinary Paraprofessionals (Veterinary Nurse) with skills to support the veterinarians in industry, government service, private practice, and clinical laboratory services, as well as assist in the carrying out of appropriate research.

The programme is aligned with National Development Plans and the Sustainable Development Goals and will enrich students with veterinary practice methods, communication strategies, norms and standards of the veterinary nursing profession in Namibia. The programme will empower students with knowledge to effectively assist veterinarians and practice clinical nursing, surgical nursing, reproductive and obstetric nursing in a veterinary facility. Students will be equipped to perform basic diagnostic tests, design and implement effective biosecurity measures in practice and field settings as prescribed by the Namibian Veterinary Council.

### GRADUATE EMPLOYABILITY ATTRIBUTES

Holders of this qualification will be registrable as Veterinary Paraprofessionals (Veterinary Nurse) with the Namibian Veterinary Council according to Act 1 of 2013. According to this Act, "a veterinary paraprofessional means any person who is registered or deemed to be registered in terms of this Act to practice a veterinary para-profession which has as its object the rendering of services supplementing the services deemed in terms of the rules to pertain specially to a veterinary profession, working under the direction of a veterinarian."

- The following are the key skills of graduates of the programme:
  - Ability to assist a veterinarian when executing surgery under a theatre or field environment.
  - Ability to execute veterinary paraprofessional procedures that do not need supervision by a registered veterinarian.
  - Ability to collect, package, preserve and examine samples as deemed fit by a registered veterinary professional.
  - Ability to implement legislation related to veterinary businesses.
  - Ability to render services aimed at relieving the suffering of an animal or to save the life of an animal in emergencies and in the absence of a registered veterinary professional.
  - Ability to practice clinical veterinary nursing at a primary animal healthcare level for all domestic animal species (production and companion animals).

### CAREER OPPORTUNITIES

DVN Holders of this qualification are able to: Holders of this qualification are able to:

1. Effectively prepare for diagnostic, medical and surgical procedures on production and companion animals, including preparation of the environment, equipment and patient.
2. Calculate dosages, administer and dispense medicines correctly.
3. Assess animals for signs of pain or disease and respond appropriately.
4. Design and implement effective biosecurity measures in practice and field settings.
5. Perform basic diagnostic tests and collect and preserve samples for testing, including diagnostic imaging.
6. Manage veterinary businesses, including stock control, record keeping, maintenance of equipment and communication with clients.
7. Perform emergency first aid to companion and production animals.
8. Communicate primary animal healthcare to clients, including appropriate nutrition, preventative medicine strategies and animal welfare for companion and production animals.

Graduates of the programme will be able to Work as a Veterinary Nurse

- Establish or work in a Veterinary Para-professional practice
- Work as a Veterinary Clinic or Hospital manager

### DURATION OF STUDY

The minimum duration for the Diploma in Veterinary Nursing (DVN) is (3) years.

### ARTICULATION OPTIONS

This programme serves as an alternative entry point to the following related qualifications: Bachelor of Veterinary Medicine (BVM) degree, BSc Animal Science and BSc Wildlife Management and Tourism Studies. Transfer of credits may not be more than 50%.

## CRITERIA FOR ADMISSION

The minimum admission requirements into the Diploma in Veterinary Nursing programme are as follows:

1. A total of at least 22 points in five subjects on the UNAM Evaluation Scale obtained in five different subjects as follows or a recognised equivalent qualification:

### 24. Exit Programme Outcomes

Holders of this qualification are able to: Holders of this qualification are able to:

1. Effectively prepare for diagnostic, medical and surgical procedures on production and companion animals, including preparation of the environment, equipment and patient.
2. Calculate dosages, administer and dispense medicines correctly.
3. Assess animals for signs of pain or disease and respond appropriately.
4. Design and implement effective biosecurity measures in practice and field settings.
5. Perform basic diagnostic tests and collect and preserve samples for testing, including diagnostic imaging.
6. Manage veterinary businesses, including stock control, record keeping, maintenance of equipment and communication with clients.
7. Perform emergency first aid to companion and production animals.
8. Communicate primary animal healthcare to clients, including appropriate nutrition, preventative medicine strategies and animal welfare for companion and production animals.

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i. Mathematics and either Biology or Agriculture on Namibia Senior Secondary Certificate Advanced Subsidiary (NSSCAS) level with a minimum of e.

ii. 3 subjects on Namibia Senior Secondary Certificate Ordinary (NSSCO) level with a D or higher in Chemistry or Physical Science and English (compulsory) plus any other subject.

(b) Candidates may be admitted to the Diploma in Animal Health programme based on Recognition of Prior Learning (RPL), based on procedures in the UNAM RPL Policy.

(c) In addition to the above, final admission for all candidates shall include either an interview and or pre-selection test.

### Additional Selection Criteria

Only candidates who have applied for the Diploma in Veterinary Nursing as a first choice will be given first priority for selection into the programme. The applicants with the highest points on the UNAM evaluation scale per Region will be prioritized. A certain quota will be reserved for the recruitment of marginalized and International students. Meeting the minimum admission requirements does not necessarily guarantee admission. Admission is based on the number of places available and is granted on the basis of merit after a rigorous selection process. The Faculty reserves the right to interview candidates with similar meritorious levels before admission.

## ASSESSMENT CRITERIA

Student evaluation will be through formative (continuous assessment) and / or summative (final examinations) assessments. Unless otherwise specified in individual module descriptors.

- The continuous assessment (CA) mark contributes 40% to the final mark, while the final examination mark will contribute 60% to the final mark.

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- To pass a module, a student must obtain a final mark of at least 50%, with a subminimum mark of 40% in each of the theory examination papers and a subminimum of 50% in each of the practical and/or oral examinations.
- For modules with theory and practical examinations, the final mark will be calculated based on 60% theory and 40% practical, unless otherwise specified in the module descriptor.

## MINIMUM REQUIREMENTS FOR RE-ADMISSION INTO THE PROGRAMME

A student will be re-admitted into the Diploma in Veterinary Nursing programme if she/he has passed / attained at least:

By the end of the first year of registration

- 42 credits

By the end of the second year of registration

- Passed all first-year modules

By the end of the third year of registration

- Passed all first-year modules and has a total minimum of 104 second year credits

By the end of the fourth year of registration

- Passed all first- and second-year modules

By the end of the fifth year of registration

- Passed all first, second- and third-year modules

## ACADEMIC ADVANCEMENT AND PROGRESSION RULES

|   |   |
|---|---|
| <b>First Year to Second Year of Animal Health</b> | To advance to the second year of the Diploma in Veterinary Nursing programme a student must have passed all first-year modules. A student who has attained 80 credits in the first year of study will be allowed to register for a maximum of 42 credits in the second year (in addition to the failed modules) provided that:<br>(i) the relevant pre-requisites have been passed and<br>(ii) there are no timetable clashes |
| <b>Second Year to Third Year of Veterinary</b>    | To advance to the third year of the Diploma in Veterinary Nursing programme a student must have passed all first- and second-year modules. A student will not be allowed to carry any modules over to the third year of study as this involves paraclinical rotations.  |

## REQUIREMENTS FOR QUALIFICATION AWARD:

A minimum of **443 credits** and who have met all other relevant UNAM requirements.

| Number of <i>Modules/Credits</i> to be Passed/Obtained at the Various Year Levels in order to be awarded the Diploma by the School |  |                    |
|--|--|--------------------|
| Year Level   | Number of Passed <i>Modules</i> Required | Credit Equivalent  |
| First year level   | 17 <i>Modules</i>                        | 136 credits        |
| Second year level  | 17 <i>Modules</i>                        | 143 credits        |
| Third year level   | 4 <i>Modules</i>                         | 164 credits        |
| <b>TOTAL</b>   |  | <b>443 CREDITS</b> |

## First Year Level

At first year level, students take the University Core Curriculum modules and the required Seven (7) Veterinary Nursing *modules* indicated below. The normal first year curriculum of a student registered in the Diploma in Veterinary Nursing programme will therefore consist of seventeen (17) *Modules* (136 credits), compiled as follows:

| Subject                           | <i>Modules</i> | Credits    |
|-----------------------------------|----------------|------------|
| University Core Curriculum        | 7*             | 24         |
| Animal Health at first year level | 10             | 112        |
| <b>Total</b>                      | <b>17</b>      | <b>143</b> |

## Curriculum

| Students take all modules below: |         |                  |                               |                             |
|----------------------------------|---------|------------------|-------------------------------|-----------------------------|
| Semester                         | Code    | Course Title     | Prerequisite(Co-requisites) / | Compulsory (C)/Elective (E) |
| SC                               | U3403FS | Skills Portfolio | -                             | C                           |

|    |         |   |  |   |
|----|---------|---|--|---|
| SC | U3583AL | Academic Literacy I                         | -  | C |
| SC | U3583DD | Digital Literacy                            | -  | C |
| SC | U3420CN | National and Global citizenship             | -  | C |
| SC | V2420EQ | Veterinary Paraprofessional Skills I        | -  | C |
| SC | V2440EM | Fundamentals of Microbiology and Immunology | -  | C |
| SC | V2460EF | Field and Laboratory Safety                 |  | C |
| S1 | V2411EA | Animal Anatomy I                            | (V2460EF Field and Laboratory Safety)  | C |
| S1 | V2431EP | Animal Physiology I                         | (V2460EF Field and Laboratory Safety)  | C |
| S1 | V2421EB | Animal Behaviour and Handling               | (V2460EF Field and Laboratory Safety)  | C |
| S1 | V2401EW | Fundamentals of Animal Welfare              | (V2460EF Field and Laboratory Safety)  | C |
| S1 | V2471EI | Infectious Animal Diseases I                | (V2460EF Field and Laboratory Safety), (V2440EM Fundamentals of Microbiology and Immunology),  | C |
| S2 | V2412EA | Animal Anatomy II                           | (V2460EF Field and Laboratory Safety), (V2411EA Animal Anatomy I)  | C |
| S2 | V2432EP | Animal Physiology II                        | (V2460EF Field and Laboratory Safety), (V2431EP Animal Physiology I)   | C |
| S2 | V2452EL | General Nursing                             | (V2420EQ Veterinary Paraprofessional Skills I) (V2420EF Field and Laboratory Safety) (V2420EM Fundamentals of Microbiology and Immunology) | C |
| S2 | V2402EP | Animal Parasitology                         | (V2460EF Field and Laboratory Safety)  | C |
| S2 | V2442ET | Basic Toxicology                            | (V2460EF Field and Laboratory Safety)  | C |

### Second Year Level

At second year level, students proceed with the University Core Curriculum modules and Veterinary Nursing modules. The normal second year level curriculum of a student registered in the Diploma in Veterinary Nursing programme will therefore consist of seventeen (17) *Modules* (143 credits), compiled as follows:

| Subject                            | Modules   | Credits    |
|------------------------------------|-----------|------------|
| University Core Curriculum         | 7*        | 24         |
| Animal Health at second year level | 10        | 120        |
| <b>Total</b>                       | <b>17</b> | <b>144</b> |

| Students take all modules below: |         |                                   |                               |                             |
|----------------------------------|---------|-----------------------------------|-------------------------------|-----------------------------|
| Semester                         | Code    | Course Title                      | Prerequisite(Co-requisites) / | Compulsory (C)/Elective (E) |
| SC                               | U3683AL | Academic Literacy II              | Academic Literacy I -         | C                           |
| SC                               | U3420RT | Entrepreneurial Skills            | -                             | C                           |
| SC                               | U3520TH | Introduction to Critical Thinking |                               | C                           |
| SC                               | V2520EH | Human First Aid                   | -                             | C                           |
| SC                               | V2560EB | Animal Breeds                     | -                             | C                           |

|    |         |                                 |   |   |
|----|---------|---------------------------------|---|---|
| SC | V2540EG | Principles of Genetics          | -   | C |
| SC | U3420PJ | Project Management Skills       |   | C |
| S1 | V2580ER | Radiography                     | V2411EA Animal Anatomy I<br>V2412EA Animal Anatomy II   | C |
| S1 | V2531EC | Basic Pharmacology              | V2460 Field and Laboratory Safety (V2442ET Basic Toxicology)  | C |
| S1 | V2521EH | Anaesthesia                     | (V2531EC Basic Pharmacology)<br>V2431EP Animal Physiology I<br>V2432EP Animal Physiology II   | C |
| S1 | V2511EI | Infectious Animal Diseases II   | V2460EF Field and Laboratory Safety, V2440EM Fundamentals of Microbiology and Immunology, V2471EI Infectious Animal Diseases I-   | C |
| S1 | V2551EN | Livestock and Pet Nutrition     | V2460 Field and Laboratory Safety   | C |
| S2 | V2502EV | Basic Veterinary Epidemiology   | V2402EP Animal Parasitology, V2471EI Infectious Animal Diseases I, V2511EI Infectious Diseases II   | C |
| S2 | V2532EP | Animal Pathology                | V2460EF Field and Laboratory Safety, V2471EI Infectious Animal Diseases I, V2411EA Animal Anatomy I, V2412EA Animal Anatomy II, (V2511EI Infectious Animal Diseases II) | C |
| S2 | V2542EO | Obstetric and Pediatric Nursing | V2412EA Animal Anatomy II<br>V2432EP Animal Physiology II   | C |
| S2 | V2572ES | Surgical Nursing                | V2411EA Animal Anatomy I<br>V2412EA Animal Anatomy II<br>(V2531EC Basic Pharmacology)<br>(V2571ET Theatre Practice)<br>(V2521EA Anaesthesia)                            | C |
| S2 | V2512EM | Medical Nursing                 | V2471EI Infectious Animal Diseases I<br>V2452EL General Nursing<br>(V2511EI Infectious Animal Diseases II)  | C |

### Third Year Level

At third year level, students proceed with the Veterinary Nursing modules. The normal third year level curriculum of a student registered in the Diploma in Veterinary Nursing programme will therefore consist of sixteen (16) *Modules* (175 credits), compiled as follows:

| Subject                           | Modules  | Credits    |
|-----------------------------------|----------|------------|
| Core Modules                      | 3        | 24         |
| Animal Health at third year level | 1        | 140        |
| <b>Total</b>                      | <b>4</b> | <b>164</b> |

| Students take all modules below: |         |   |  |                             |
|----------------------------------|---------|---|--|-----------------------------|
| Semester                         | Code    | Course Title  | Prerequisite (Co-requisites) /               | Compulsory (C)/Elective (E) |
| SC                               | V2680EP | Veterinary Management Practice  | -  | C                           |
| SC                               | V2620EQ | Veterinary Paraprofessional Skills II   | V2420EQ Veterinary Paraprofessional Skills I | C                           |
| SC                               | V2640EG | Legislation and Jurisprudence   | NONE   | C                           |
| SO                               | V2683VN | DVN Paraprofessional Rotation<br><br>Theatre Practice<br>Diagnostic Imaging<br>Isolation Ward<br>Medical Ward<br>Surgical Ward<br>Outpatients<br>Reception<br>Clinic Practice<br>Pharmacy<br>Equine Practice<br>Bovine & Small Stock Practice<br>Laboratory Diagnostics | All year 1 and Year 2 modules passed         | C                           |

### COURSE DESCRIPTORS

#### First Year Level

##### U3583AL ACADEMIC LITERACY I

**Proposed NQF Level:** 5      **Credits:** 8      **Contact Hours:** Core Semester: 4 hours /week;  
Semester 1: 2 hours/week  
Semester 2: 2 hours/week

**Content:** The module will cover study skills, reading (including extensive reading), listening, speaking, writing, referencing, and language usage and text organisation.

**Assessment:** Assessment will be based on Continuous Assessment

##### U3583DD DIGITAL LITERACY

**Proposed NQF Level:** 5      **Credits:** 8      **Contact Hours:** Semester 0: 4 hours /week;  
Semester 1: 2 hours/week  
Semester 2: 2 hours/week

**Content: Digital Proficiency:** ICT-based devices (laptops, tablets, smartphones, desktop computers, digital instruments and equipment); a mouse, keyboard, touch screen, voice control and other forms of input; screens, audio headsets and other forms of output; digital capture devices; University digital learning systems and a range of personal digital services such as social media, cloud storage services, sharing sites.

**Digital Productivity:** Basic productivity software (text editing, presentation, spreadsheets, image editing); email and other digital communication services; Internet or cloud or institutional shared spaces for Organising, managing and backing up digital files; software/apps and services suitable for learning-related tasks; digital tools fit learning and managing learning time.

**Information Literacy:** search engines, indexes or tag clouds; wikis, blog posts, scholarly journals, e-books and the open web; file spaces and folders, bookmarks, reference management software and tagging; copyright, and digital citizenship issues.

**Data and Media Literacy:** Digital data using spreadsheets and other media; data security and privacy; digital media messages – text, graphics, video, animation, audio and multimedia.

**Digital Creation and Innovation:** digital materials (video, audio, stories, presentations, infographics); new digital tools for learning in digital settings.

**Digital Communication, Collaboration and Participation:** digital communication; differences between media, norms of communicating in different spaces; false or damaging digital communications; collaborative tools and online environments; online networks.

**Digital Learning and Development:** digital learning opportunities; digital learning resources; digital tools/materials for organising, planning and reflecting on learning (mind-mapping, note-taking, e-portfolio/ learning journal/ blog)

**Digital Identity and Wellbeing:** online profiles for different networks (personal, professional, academic); digital reputation; managing personal data and privacy; digital CV or portfolio of work; digital technologies for personal development; online etiquette; wellbeing and safety online; internet addiction; cyberbullying and other damaging online behaviour.

**Assessment:** Continuous assessment: Collaborative assessment tasks

Digital productivity: cloud based collaborative digital media creation using cloud platforms

Project: Digital communication, collaboration and participation/ Digital Wellbeing

Individual assessment tasks

2.1 Assignment: information literacy assignment

2.2 Test x 2

Practical

Digital proficiency

Data and Media literacy

No written examination

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#### U3420CN NATIONAL AND GLOBAL CITIZENSHIP

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**Proposed NQF Level:** 4      **Credits:**2      **Contact Hours:** Up to 1 contact lecture periods per week for 6 Weeks

**Content: UNIT 1: Constitution and its Importance:** What is a constitution; Functions of a constitution; What it contains; Constitution and democracy?

**UNIT 2: Global Citizenship:** The meaning of global citizenship; Importance of global awareness; World issues of concern to global citizens.

**UNIT 3: Civic Engagement:** What do we mean by civic engagement; Dimensions of civic engagement; Indicators of civic engagement; Promoting civic engagement.

**UNIT 4: Globalization:** Understanding globalization; Cultural construction of neoliberal globalization; Major players; Major domains; Major Issues; Futures of Globalization

**UNIT 5: Intercultural Communication:** Dealing with difference; Levels of culture; Stereotypes and generalizations; Intercultural communication Processes

**UNIT 6: Sustainable Development Goals and individual action:** Introduction to SDGs; Contributing to achievement of SDGs through action

**Assessment:** Continuous assessment of 100% - Assessment will be done by completing online pop-up quizzes; and developing their online portfolios of personal action as response to tasks assigned in class.

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#### V2420EQ VETERINARY PARA-PROFESSIONAL SKILLS I

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**Proposed NQF Level:** 4      **Credits:**2      **Contact Hours:** 3 hours blended lectures and practical per week for 6 weeks

**Content: Client communication:** Listening skills; verbal and non-verbal communication

Fundamental and applied ethics Effective conflict management strategies

**Report activities:** writing, filling and filing forms

**Assessment:** Continuous Assessment: 100 %, minimum 2 marked assignments for final CA mark (written assignment, group assignment, role-play and / or presentation).

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## V2440EM FUNDAMENTALS OF MICROBIOLOGY AND IMMUNOLOGY

Proposed NQF Level: 4

Credits: 2

Contact Hours: 3 hours blended lectures and practical per week for 6 weeks (18 hours)

Module Content:

**General microbiology:** Introduction to microbiology; morphology, growth and nutrition of bacteria, mycoplasma, virus, and fungi; and nomenclature of bacteria; microbial ecology and pathogenicity **Basic laboratory techniques:** safety rules, cleaning and sterilization, equipment, media preparation, bacteria and fungi culturing, staining and identification. Tutorials on laboratory diagnosis of viral diseases. 26

**Immunity:** concepts, types of immunity, tissues, organs and cells of the immune system, antigens and immunogenicity, antibodies, antigen and antibody interactions (serological reactions), immunological disorders (immunodeficiencies, hypersensitivities, autoimmune disorders), vaccines and vaccination

### Assessment

Continuous Assessment: 100 %, minimum 2 marked assignments for final CA mark (written assignment, group assignment, practicals and / or presentation).

## V2460EF FIELD AND LABORATORY SAFETY

Proposed NQF Level: 4

Credits: 2

Contact Hours: Integrated lecture and practical 1x 3 hour per week for 6 weeks

Module Content:

**Field and Laboratory biosafety and rules:** basic understanding of rules to follow in a laboratory "Do's and Don'ts", protocols used in case of an emergency

**Operation of basic laboratory equipment:** operate and correct usage of the laboratory equipment such as the microscopy, centrifuge, incubator, spectrophotometer, water bath and autoclave

### Assessment

Continuous Assessment: 100% (Minimum 3 practical assessments and 2 theory assessment).

## V2411EA ANIMAL ANATOMY I

Proposed NQF Level: 4

Credits: 14

Contact Hours: Integrated lecture and practical 1x 3 hour per week for 6 weeks

Module Content:

Definition of anatomical terminology, regions and planes of the animal body

**Musculoskeletal:** Introduction to microscopic and developmental anatomy of muscle and bone; osteology, arthrology, myology,

**Digestive system:** Introduction to microscopic and developmental anatomy of the alimentary tract and associated organs (liver and pancreas); gross, topographical and comparative anatomy of the mouth; oral vestibule; oral cavity proper; teeth (general structure and ageing); tongue; pharynx (general and comparative anatomy); salivary glands; muscles of mastication; deglutition esophagus; stomach (ruminant and non-ruminant); abdominal wall and abdominal topography. Liver; pancreas.

**Cardiovascular system:** Introduction to microscopic and developmental anatomy of cardiac muscle; large, medium and small arteries; veins; venules; capillaries; gross and topographical anatomy of the heart (blood supply and great vessels and lymphatics); caudal mediastinum; blood supply to the neck, head, forelimb, thoracic wall and organs; blood supply to abdominal and pelvic organs.

**Excretory:** Introduction to microscopic and developmental anatomy of the urinary system: kidney; ureters; urinary bladder and urethra. Gross and topographical anatomy of the kidney; ureters; urinary bladder and urethra. Anatomy of the skin and accessory structures; epidermal structures; horn; hooves; nails and skin glands.

**Respiratory:** Introduction to microscopic and developmental anatomy of the respiratory pathways and organs; gross and topographical anatomy of the lower and upper respiratory organs, the external nares; nasal cavities; paranasal sinuses; nasopharynx; guttural pouches; larynx, trachea. Thorax: muscles of respiration; cranial mediastinum (oesophagus, trachea, cranial mediastinal lymph nodes, vagosympathetic trunk, recurrent laryngeal nerve); middle mediastinum; pleura and lungs.

### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (50%) (one in each gross anatomy and histology) and 4 x practical assessments (50%) (two in each gross anatomy and histology))

Examination: 60% (1 x 3 hour paper: 50% and 1x 2hr practical exam: 50%)

### V2431EP ANIMAL PHYSIOLOGY I

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**Proposed NQF Level:** 4      **Credits:** 14      **Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr practical/ alternating week for 12 weeks

Module Content:

**The basic function of the cell;** fluid mosaic model, the membrane system, transport across the plasma membrane.

**Organ system integration;** structure-function relationship, body fluid balance, homeostasis.

**Physiology of the musculoskeletal;** function of muscles, muscle types, muscle fatigue, myopathies

**Digestive system;** types of digestive systems, digestion and absorption of carbohydrates, proteins and fats; differences in digestion between ruminants and non-ruminants

**Cardiovascular system;** composition and functions of blood and lymphatic system, measuring of blood parameters such as blood pressure, haematocrit, PCV, heart rate

**Excretory- Renal physiology;** urine formation, factors affecting urine production, micturition, urinalysis

**Skin physiology:** mechanical protection, permeability, sweat glands, sebaceous glands, 32

thermoregulation and excretion.

**Respiratory system;** ventilation, gaseous exchange, lung volumes, measuring respiration rate, exercise, pregnancy

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (60%) and 3x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3-hour theory paper)

### V2421EB ANIMAL BEHAVIOUR AND HANDLING

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**Proposed NQF Level:** 4      **Credits:** 7      **Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks ;  
Practicals: 1 x 3hr P/ week, alternating for 12 weeks

Module Content:

**Normal and abnormal behavior of farm and companion animals;** major types of behavior, interpretation of animal behaviour.

Correct/Appropriate handling and restraining methods of healthy and unhealthy animals (psychological, physical and chemical) as well as the impact of these methods on animal behaviour and welfare.

**Animal handling and restraining equipment:** identification and correct use such as neck clamp, crushpen, loading ramp, leash, muzzle, blanket, nose holder, dog catcher, cage boxes, ropes, and halter, isolation pens, mouth gag

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments) Examination: 60% (1 x 2 hour paper)

### V2401EW FUNDAMENTALS OF ANIMAL WELFARE

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**Proposed NQF Level:** 4      **Credits:** 7      **Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks  
Practical's: 1 x 3hr practical / every fourth (4th) weeks for 12 weeks [3 practicals total]

Module Content:

**Animal welfare:** the Five Freedoms and WOA animal welfare recommendations.

**Welfare and ethics:** in animal production, at training institutions, research, during handling and transportation, and at the time of slaughter.

**Measures of animal welfare status:** physiological, behavioural, disease and production parameters.

**Welfare of animals in emergency situations:** drought, veld fires, floods.

Euthanasia and animal welfare.

**Role of veterinary paraprofessionals and animal welfare organisations in promoting animal welfare. Animal welfare**

**legislation and standards:** WOA, FANMeat Scheme, SoVM animal welfare policy, Animals Protection Act (Act 71 of 1962), Animal Health Act (Act 1 of 2011)

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments: 60% theory, 30% Practical and 10% Assignments and quizzes)

Examination: 60% (1 x 2 hour theory paper)

### V2471EI INFECTIOUS ANIMAL DISEASES I

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**Proposed NQF Level:** 4      **Credits:** 14      **Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 1.5 hr /week for 12 weeks

Module Content:

**Aetiology, epidemiology, transmission, pathogenesis, clinical signs, diagnosis, differential diagnosis** of common bacterial and fungal diseases of domestic and wild animals.

**Laboratory diagnosis** of specific bacterial and fungal diseases based on appropriate sample collection and handling, isolation, culture, staining and identification.

**Treatment, prevention, and control (biosecurity, movement control, quarantine, and vaccination)** of common bacterial and fungal diseases.

#### Assessment

Continuous Assessment: 40% (Minimum 2 x theory tests assessments; 4 x practical assessments and 1 x assignment/ quiz). CA calculation: Tests 60%; Practical 30%; Assignment/ quiz 10%.

Examination: 60% (1 x 3-hour theory paper)

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#### V2412EA ANIMAL ANATOMY II

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr P/ week for 12 weeks

Module Content:

**Male reproductive system:** gross and topographic anatomy of the testis; ductus deferens; accessory sex glands (ampulla of ductus deferens, vesicular glands, prostate glands and bulbourethral glands); penis and prepuce  
**Female reproductive system:** ovaries, uterine tube, uterus, vagina vestibule, vulva and mammary glands. Microscopic anatomy of the major structures of male and female reproductive system

**Endocrine system:** topographical anatomy of the major endocrine glands; pituitary gland, pineal gland, thyroid gland, parathyroid gland, adrenal gland, pancreatic islets and gonads. Introduction to microscopic anatomy of basic tissues such as thyroid, gonads and pancreas

**Nervous system:** gross and topographical anatomy of the major structures of the central and peripheral nervous systems of livestock and companion animals. Central nervous system: telencephalon and diencephalon; brainstem (mesencephalon, pons, medulla); cerebellum. Cranial nerves: names, courses and distribution of cranial nerves and specific dysfunction related to lesions in cranial nerves, anatomy of the eye, external ear, and the tongue). Spinal cord: Peripheral nervous system spinal nerves. The brachial and lumbosacral plexuses: names, courses and distribution of named nerves of the brachial plexus. Names, courses and distribution of lumbosacral plexus nerves. Introduction to microscopic anatomy of basic tissues such as epithelial tissue; connective tissue; nervous tissue

**Reticulo-endothelial system:** location of major lymphatic vessels and the spleen; lymph node; thymus. Introduction to microscopic anatomy of basic tissues such as spleen; lymphatic vessels; lymph nodes; thymus  
Anatomy of birds and fish will be discussed with emphasis on the anatomical adaptations.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (50%) (One in each gross anatomy and histology) and 4 x practical assessments (50%) (two in each gross anatomy and histology)

Examination: 60% (1 x 3 hour paper: 50% and 1x 2hr practical exam: 50%)

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#### V2432EP ANIMAL PHYSIOLOGY II

**Proposed NQF Level:** 4

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks ;  
Practicals: 1 x 3hr practical/ alternating week for 12 weeks

Module Content:

**Reproductive system;** spermatogenesis, oogenesis, puberty, oestrus cycle, sex glands, fertilization, pregnancy and parturition

**Endocrine system;** synergy between nervous and endocrine system, endocrine glands, hormones and their functions (pancreatic, kidney, thyroid and parathyroid), positive and negative feedback loops

**Nervous system;** nerve impulse, action potential, reflexes, neurotransmission, feedback mechanism, sense organs.

**Immune system;** innate and adaptive immunity, active and passive immunity, the role of colostrum in neonates, physiology of vaccination and animal response, recognition of self and non-self, serological tests.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (60%) and 3 x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3 hour theory paper)

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#### V2452EG GENERAL NURSING

**Proposed NQF Level:** 4

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks  
Practicals: 1 x 3hr P/ alternate week

Module Content:

**Hospital hygiene-**disinfection and basic hygiene- personal protective clothing, waste management, infection control, monitoring and evaluation. **General safety aspects and preventative** measures during observation, hospitalisation, basic nursing procedures and treatment of patients. **Hospital administration and record keeping-**daily operations, finance, staff, quality assurance and compliance. **Methods, arrangements and equipment used to transport animals of all sizes when unconscious or anesthetized.**

**Observation of the patient:** normal and abnormal appearance, abnormalities of appetite and behaviour, signs of pain. Physical examination of animal. **Care of patients:** general care necessary for all patients. Special care for all weakly and premature animals.

**Dressings and bandages:** materials in common used health, and safety precautions. Areas can be bandaged. Types of bandages: Ehmer sling, Velpeau sling, a Robert Jones bandage, pressure bandage. **Common nursing procedure:** giving medication, feeding, assisted feeding, care of recumbent and soiled, care of the vomiting animal, preparation and giving enemas, cephalic catheterization, fluid therapy on skills lab models.

#### Assessment

Continuous Assessment: 60% (Minimum 2x theory assessments and 3x practical assessments)

Examination: 40% (1 x 2 hour paper)

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#### V2402EP ANIMAL PARASITOLOGY

**Proposed NQF Level:** 4

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr practical / alternate week for 12 weeks

Module Content:

**Introduction to general parasitology:** terminology used in parasitology; general morphology, biology and general characteristics of various parasite classes.

**General parasitology:** parasites and parasitism; types of hosts; host-parasite relationships; mode of transmission of parasites; methods of dissemination of infective stages of parasites

**Helminthology:** classification; characteristics of main groups; life cycle in relation to transmission, basic epidemiology; general control measures of trematodes, cestodes and nematodes of veterinary importance in the region; diagnostic methods, treatment and prevention of diseases caused by endoparasites.

**Entomology:** classification of veterinary ectoparasites (e.g ticks, fleas, lice, mites, mosquitoes and biting flies) relevant to Namibia and southern Africa; morphology of various arthropod ectoparasites; life cycle of selected species; vector role of different ectoparasites and/or intermediate hosts of protozoan/rickettsial diseases; control methods for ectoparasites including role and importance of biological control methods and chemical control and its effects on the environment; enzootic stability; ways of mitigating resistance emergence

**Protozoology and Rickettsia:** classification of protozoa and rickettsia; pathology and clinical signs associated with various specific genera and/or species; diagnostic techniques of different genera and/or species; control of different protozoa and rickettsia

#### Assessment

Continuous Assessment: 40%, Minimum 2x theory tests (total contribution of 60% to CA), at least one (1) marked practical assessment (total contribution of 40% to CA).

Examination: 60% (1 x 2 hour theory paper: 50% and 1x 2hr practical exam: 50%)

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#### V2442ET BASIC TOXICOLOGY

**Proposed NQF Level:** 4

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1x 3hr practicals every other week

Module Content:

**Major causes of animal toxicosis in Namibia, and associated clinical signs:** toxic plants (affecting the heart, liver, lungs, GIT, nervous system, kidneys, blood), animal poisons 53

(envenomation, stings, contact poisons), minerals (arsenic, lead, mercury), chemicals (strychnine, nitrate, urea, cyanide, organophosphates, chlorinated hydrocarbons, carbamates, cyanide, lead, mercury, pesticides, herbicides, rodenticides), mycotoxins, salt/water intoxication, cyanobacteria.

Household chemicals, foods and human drugs

**First aid management of animal toxicosis:** decontamination, antidotes, activated charcoal, fluid therapy.

**Control of problem animals using poisons:** rodenticides, avicides, pesticides; alternative approaches.

**Collection and packaging of samples for toxicological analysis:** vomitus, blood, urine, kidneys, livers.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments: 60% theory, 30% practical and 10% assignments and quizzes)

Examination: 60% (1 x 2 hour paper (60%) and 1 x 2 hour practical examination (40%))

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#### U3683LA ACADEMIC LITERACY II

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours: Semester 0: 4 hours/week**

**Semester 2: 2 hours/week**

Module Content:

The module is designed for students enrolled in a bachelor's degree, which requires them to do basic research, read and listen to specific academic material, produce specific written texts and give academic presentations. The module thus, focuses on enhancing academic reading, academic vocabulary, writing, listening and speaking.

### Assessment

Assessment will include written tests, individual and group assignments, portfolio assessments and oral presentations.

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### U3420RT ENTREPRENEURIAL SKILLS

**Proposed NQF Level:** 4                      **Credits:** 2                      **Contact Hours:** 1 x 2h per week for 6 weeks

Module Content:

**Definition and scope of entrepreneurship and entrepreneur;** Entrepreneur's environment; Characteristics of entrepreneurs; Basic concepts of entrepreneurship; Forms of entrepreneurship;

**The role of entrepreneurship;** The entrepreneurial process;

**The entrepreneurial mindset;** Decision-making skills; Creativity, innovation and entrepreneurship; Critical thinking skills; Problem solving skills; Business and personal goal-setting skills; Negotiation skills, Communication skills, Assertiveness skills, Interpersonal skills, Cognitive skills;

**Transferable skills,** Practical application of entrepreneurial skills; Starting a new business; Managing a business start-up; Growing an entrepreneurial venture; Marketing skills; Managing people; Record keeping; networking skills; Time management skills; Change management skills; Entrepreneurship success stories in the global context.

### Assessment

The module will be assessed using 100% continuous assessment.

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### U3420TH INTRODUCTION TO CRITICAL THINKING

**Proposed NQF Level:** 5                      **Credits:** 2                      **Contact Hours:** 1 hour practical session per week interfaced with limited online engagement

Module Content:

**Definition of critical thinking:** striving for understanding; to have an inquisitive yet open-minded and flexible approach to exploring ideas, the ability to evaluate information and draw clear conclusions based on the evidence at hand.

**Core critical thinking skills:** explain, infer, analyse, evaluate, problem solving, self-reflect. 59

**Deductive and inductive reasoning:** inductive reasoning- move from the specific to the general, deductive reasoning-moving from the general to specific. **Construction of argument:** construct statements that combine reasoning with evidence to support an assertion or argument.

**Problem analysis:** define problem, determine the root causes of problem, develop alternative solutions to problem, implement solution, evaluate outcome.

**Reflective learning:** asking open questions, reflect on answers, writing reflective learning essays, thinking about other's answers, asking 'why' questions.

**Understanding fallacies:** what is a fallacy? Description of various fallacies, identifying a fallacy in an argument, explaining a fallacy to an opponent in an argument.

### Assessment

100% Continuous assessment (1 reflective learning essay, 1 problem solving activity).

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### U3420PJ PROJECT MANAGEMENT SKILLS

**Proposed NQF Level:** 5                      **Credits:** 2                      **Contact Hours:** 2 hour lecture per week for the first two week and field-based practical for the remaining four weeks.

Module Content:

This module consist of two components: **The first component** is a two week theory covering the **concepts** (project vs programme) and the **phases of project life cycle ( project initiation and planning:** work breakdown, development of SMART indicators, estimation of activity duration, efforts, and costs, scheduling of activities, identification of critical path, setting of milestones, stakeholder identification and categorization, stakeholder engagement, initial risk identification, and development of the initial project plan; **project implementation & management:** forming the project team, managing people, resources allocation, responsibilities allocation, quality assurance, leadership style and project liaison; **project monitoring and control:** progress reporting and communication, quality control, time management, budget and cost management, risk management and mitigation; **project closure and evaluation:** project evaluation, project auditing process and the closure process, and final project report). **The second component** is a four week **field-based practical** where students participate in a real-life project in their immediate environment. Students are strictly required to apply the project management approach during the field-based practical.

### Assessment

Student assessment will be 100% continuous assessment based on weekly project progress reports (50%) and the final project report (50%). A minimum pass mark for the module is 50%.

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**V2520EH HUMAN FIRST AID**

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**Proposed NQF Level:** 5      **Credits:** 2      **Contact Hours:** 1x 2 hours Integrated Lectures and practicals for 6 weeks

**Module Content**

**Principles of First Aid Responsibilities of a First Aider Safety and scene management.**

**First aid management:** Removing clothing and head gear, CPR, management of bleeding, wounds, stings, poisons, fractures, dislocations, soft tissue injuries including burns, heat or cold exposure, near drowning incidents, choking, foreign material in the eye, snake bite, monitoring vital signs.

**Assessment**

Continuous Assessment: 100% (Minimum 1 x theory assessment (50%) and 2 x practical assessments (50%))

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**V2560EB ANIMAL BREEDS**

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**Proposed NQF Level:** 5      **Credits:** 4      **Contact Hours:** Integrated lectures and tutorial 1x3 hour per week for 6 weeks

**Module Content**

**History of domestication of animals.**

**Common Breeds;** dogs, cats, cattle, horses, pigs, goats, sheep, chicken

**Normal Animal Behaviour;** Small animals, ruminants, non-ruminants

**Assessment**

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x assignment assessment (40%)).

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**V2540EG PRINCIPLES OF GENETICS**

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**Proposed NQF Level:** 5      **Credits:** 4      **Contact Hours:** Integrated lectures and tutorial 1x3 hour per week for 6 weeks

**Module Content**

**Animal domestication;** reasons for breeding animals, basic Mendelian genetics, polymorphism estimates, natural and artificial selection

**Principles in population genetics;** allele and genotype frequency, allele frequency, basic mechanisms of inheritance, quantitative traits, genetic variation, inheritance in populations, heritability and mass selection, crossbreeding, inbreeding, correlated response to selection, DNA markers, estimating genetic gain, maternal effects

**Breeding programmes;** conservation of farm animal genetic resources, challenges and opportunities, sustainable animal breeding, disease susceptibility, resistance and resilience

**Assessment**

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x assignment assessment (40%)).

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**V2680ER RADIOGRAPHY**

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**Proposed NQF Level:** 5      **Credits:** 14      **Contact Hours:** Lectures: 3 x 1hr L/week for 6 weeks  
Tutorials: 1 x 3hr/ week every for 6 weeks

**Module Content**

**Application of radiography. Radiographic equipment:** machinery and tools and their uses. **Health and safety precautions** and procedures during radiography. **Generation and properties of x-rays:** production of a radiographic image. **Positioning of patients** (different species) for radiography of different parts of the body

**Manipulation of exposure factors** for good quality radiographs. **Manual and automatic film developing techniques. Identifying and correcting image faults. Application of contrast radiography with examples.**

**Assessment**

Continuous Assessment: 40% (Minimum 2 x theory assessments (60%) and 3 x Tutorial assignments/ quiz assessments (40%))

Examination: 60% (1 x 2 hour theory paper)

## V2531EC BASIC PHARMACOLOGY

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Proposed NQF Level: 5

Credits: 14

Contact Hours: Lectures: 4 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr /alternate week for 12 weeks

### Module Content

**Classes of pharmaceutical products:** nomenclature; antibiotics, antifungals, anaesthetics, hormones, anti-inflammatories, analgesics, antihistamines, vitamins, vaccines, antisera, ectoparasiticides, endoparasiticides (anthelmintics), disinfectants, antiseptics, and antidotes.

**Drug dosage forms:** solid, liquid, semisolid, aerosols.

**Legislation** regulating the use of veterinary medicines in Namibia: Medicines and related substances control act (Act 13 of 2003); Prevention of undesirable Residues Act (Act 21 of 1991).

**Calculations in pharmacology:** conversion units; drug concentrations; drug dosage rates; drug dosage calculations.

**Routes of drug administration:** oral and parenteral (subcutaneous, intravenous, intramuscular, intrauterine); advantages and disadvantages; selection of the route of administration.

**Pharmacokinetics:** drug absorption, distribution, metabolism/biotransformation and excretion, 'first pass effect'.

**Pharmacodynamics:** receptors; drug-receptor interactions; agonists, partial agonists, antagonists; affinity, efficacy and potency; non-receptor interactions, individual variation in responses to drugs; drug interactions.

**Adverse reactions to drugs:** side effects, untoward effects, allergic reactions, idiosyncratic reactions, teratogenic effects. Drug withdrawal periods.

Antimicrobial resistance

**Indications for pharmaceutical products:** antibiotics, antifungals, anesthetics, anti-inflammatories, analgesics, antihistamines, vitamins, vaccines, antisera, ectoparasiticides, endoparasiticides (anthelmintics), disinfectants, antiseptics, and antidotes.

**The cold chain for veterinary medicines:** from point of purchase to point of use; storage of vaccines to be used in the field; storage practices of medicines in refrigerators or on the shelf.

**Prohibited veterinary medicines** such as phenylbutazone, chloramphenicol, hormones.

### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 2 x practical assessments: 90% theory, and 10% Assignments and quizzes)

Examination: 60% (1 x 3 hour paper)

## V2521EA ANAESTHESIA

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Proposed NQF Level: 5

Credits: 7

Contact Hours: Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr P/ alternate week for 12 weeks

### Module Content

**Definitions:** anaesthesia. **Physiological principles** pertaining to anaesthesia (respiratory, cardiovascular, blood brain barrier, renal, liver, nervous system). **Types of anaesthesia** (local, regional and generalised). **Anaesthetic drugs** (local, general, sedatives, tranquilisers) their **use and schedules** (Act 13 of 2003). **Signs of anaesthesia. Anaesthetic equipment and machines:** use and care. **Assessment and preparation of the patient** (including IV catheterisation), **administration** (premedication, induction, IV, gaseous), **endotracheal intubation, maintenance and monitoring** of anaesthesia in different species (monitoring instruments, phases of anaesthesia). **Post-operative anaesthetic care.** Types of **anaesthetic emergencies** and their management (including drugs and equipment).

### Assessment

Continuous Assessment: 40% (Minimum 2 x theory assessments (60%) and 3 x practical/ assignments/ quiz assessments (40%))

Examination: 60% (1 x 3-hour theory paper (60%), 1x3 hour practical examination (40%))

## V2511EI INFECTIOUS ANIMAL DISEASES II

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Proposed NQF Level: 5

Credits: 14

Contact Hours: Lectures: 1x 4hr L/week for 12 weeks

Practicals: 1 x 3hr / alternating week for 12 weeks

### Module content

**Viral diseases of veterinary importance:** viral diseases in different animal species; aetiology, transmission, epidemiology, pathogenesis, clinical signs, diagnosis, differential diagnosis, Management, prevention, and control of viral and prion diseases.

**Diagnosis of specific viral and prion diseases (including zoonoses) based on appropriate sample collection, handling and packaging**

Vaccination of common viral diseases in Namibia

### Assessment

Continuous Assessment: 40% (Minimum 2 x theory tests assessments, 4 x practical assessments and 1 x assignment/ quiz). CA calculation: Tests 60%; Practical 30%; Assignment/ quiz 10%.

Examination: 60% (1 x 3 hour theory paper)

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### V2551EN LIVESTOCK AND PET NUTRITION

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr lectures/week

Practicals: 1x 3hr practicals every third (3rd) week for 12 weeks

#### Module Content

**Introduction to animal nutrition:** key concepts and terminologies, the role of animal nutrition in animal production, feed intake and factors influencing intake.

**Sources and classification of animal feeds:** plants, animal.

**Feed digestion:** monogastric, ruminants and hind gut fermenters.

**Nutritional value/components of animal feeds:** chemical composition of feeds, laboratory analysis for various components.

Nutritional requirements of farm animals in different physiological states and seasons including neonates: livestock and companion animals.

**Ruminant nutrition during the dry season/drought compared to the rainy season. Feed formulation:** chickens, pigs, cattle, sheep/goats

**Nutritional disorders:** acidosis, ketosis, bloat, mineral deficiencies including white muscle disease, milk fever. **Rangeland management:** veld types of Namibia and their characteristics, grasses and other forages of Namibia, natural and cultivated forages, principles of rangeland management including carrying capacity, resting of veld, rotation, management of bush encroachment.

**Preparation and storage of feedstuff:** hay, silage, feed storage, feed additives, contaminants and toxins.

### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments and 3 x practical assessments: 60% theory, 30% Practical and 10% Assignments and quizzes)

Examination: 60% (1 x 2 hour paper: 50% and 1x 2hr practical exam: 50%)

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### V2502EV BASIC VETERINARY EPIDEMIOLOGY

**Proposed NQF Level:** 5

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Tutorials: 1 x 2hr tutorial / every alternate week for 12 weeks

#### Module Content

**Basic epidemiological concepts,** fields of epidemiology, population and its characteristics, emerging and course of a disease in populations; questionnaire administration, basics of disease survey. The importance of appropriate sampling methods and sample size will be discussed

Evaluation of disease risk factors and mode of disease transmission;

**Methods of disease control schemes, disease outbreak contingency and response plans, Basics of disease control and investigation;** monitoring, surveillance and early warning systems.

### Assessment

Continuous Assessment: 40% (Minimum 3 theory assessments) Examination: 60% (1 x 2 hour paper)

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### V2532EP ANIMAL PATHOLOGY

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr /alternate week for 12 weeks

#### Module Content

**Introduction to pathology,** common post mortem changes such as rigor mortis, putrefaction and bile imbibition.

**General pathology,** including lesions due to various disease processes, circulatory disturbances, inflammation and neoplasia;

**Basic pathology of the major systems** (cutaneous, muscular, respiratory, endocrine, skeletal, nervous, reproductive, cardiovascular, gastrointestinal, lymphatic); 85

Identification of lesions suggestive of a pathological process Techniques used in post mortem examination

**Appropriate sampling methods:** collection, packaging, labelling, storage, transport and basic processing.

Laboratory content will focus on biosafety and biosecurity, appropriate sample handling. Learning and Teaching Strategies/Activities

Through integrated lectures, presentations, illustrations, post mortem demonstrations, class discussions, written assignments and group work.

#### Assessment

Continuous Assessment: 40% (Minimum 2x theory assessments (50%) and 4 x practical assessments (50%))

Examination: 60% (1 x 3 hour paper (50%) and Practical examination 1 x 2 hours (50%))

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### V2542EO OBSTETRICS AND PAEDIATRIC NURSING

**Proposed NQF Level:** 5

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr P/T alternate week for 12 weeks

#### Module Content

##### Definitions

**Oestrous cycle in a queen and bitch:** age at puberty, cycle frequency, factors influencing it, hormones involved, complications of normal and abnormal oestrous cycle

Controlling oestrous: surgical and medical methods, advantages and disadvantages

Define misalliance, state advantages and disadvantages of drugs used to prevent conception after misalliance

**Normal pregnancy:** age for first pregnancy, clinical signs of pregnancy, pregnancy diagnosis (radiography, auscultation, ultrasound, abdominal palpation, blood tests). care and the feeding throughout pregnancy, abnormalities during pregnancy e.g. abortion, resorption.

**False Pregnancy:** signs and reasons, treatment, hormonal changes

**Parturition:** signs of imminent parturition, preparations for parturition, stages of normal parturition and expected behaviour of parturient animals.

**Lactation:** physiology, care during lactation including nutritional needs, care and management of a neonate until weaning and common complications in the neonatal period.

#### Assessment

Continuous Assessment: 60% (Minimum 2x theory assessments and 3x practical/tutorial assessments)

Examination: 40% (1 x 2 hour paper)

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### V2572ES SURGICAL NURSING

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks

Practicals 1 x 3hr practical / alternate week for 12 weeks

#### Module Content

##### Local inflammation and healing

##### Surgical instruments, suture materials and needles

**Surgical procedures:** general cutaneous surgery, alimentary, urogenital, orthopaedic, thoracic/respiratory, obstetric, ophthalmic, dental and circulatory. Other procedures: hernia and rupture (reducible, irreducible, strangulated) (specific types of hernia and rupture: umbilical, inguinal, perineal, diaphragmatic).

##### Asepsis and sterilization

**Patient care:** pre-operative, intra-operative and post-operative, pre-anaesthetic care and evaluation (premedication, analgesia), client education/communication

##### Theatre practise

**Care and maintenance of apparatus and anaesthetic machine:** anaesthetic circuits and care

**Anaesthesia:** pre-anaesthetic care and evaluation (premedication, analgesia), intravenous and gaseous anaesthesia, signs of anaesthesia, monitoring of anaesthesia, anaesthetic emergencies, general and local anaesthesia

#### Assessment

Continuous Assessment: 60% (Minimum 2x theory assessments (50%) and 4 x practical assessments (50%))

Examination: 40% (1 x 2 hour paper (50%) and Practical examination 1 x 2 hours)

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### V2512EM MEDICAL NURSING

**Proposed NQF Level:** 5

**Credits:** 14

**Contact Hours:** Lectures: 4 x 1hr L/week for 12 weeks

Practicals 1 x 3hr practical / alternate week for 12 weeks

#### Module Content

**Immunity:** concept, terms, and antibody-antigen reactions, explain the development of immunity

**Vaccination:** principles, types of vaccines, handling, stock control, administering vaccines, and correct certification

**Common small animal infectious diseases and medical nursing procedures:** review disease pathogenesis, clinical signs and zoonosis, principles of nursing, principles of isolation and quarantine.

**Common non-infectious diseases and nursing procedures:** physical, metabolic, allergic, degenerative, congenital, poison or drug induced, medical conditions of the eye and ear, principles behind clinical examination: general body condition & specific examination of the body system, relevant diagnostic procedures used in the monitoring of medical conditions, basic principles of treatment and nursing of medical conditions.

**Prevention of the spread of diseases:** define infectious, non-infectious and contagious diseases, and routes of transmission, mode of entry to and shedding (direct contact, indirect contact, fomite, vector, non-biological vector, transport host, paratenic host), various methods used in the prevention of transmission of disease: disinfectants, isolation, quarantine and treatment.

**Nutrition and nutritionally induced diseases:** diseases resulting from deficiency or excesses of dietary components, dietary requirements of animals in disease, different preparations available for feeding companion animals in disease.

#### Assessment

Continuous Assessment: 60% (Minimum 2x theory assessments (50%) and 4 x practical assessments (50%))

Examination: 40% (1 x 2 hour paper (50%) and Practical examination 1 x 2 hours (50%))

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#### V2522EF VETERINARY FIRST AID

**Proposed NQF Level:** 5

**Credits:** 7

**Contact Hours:** Lectures: 2 x 1hr L/week for 12 weeks

Practicals: 1 x 3hr practical / alternate week for 12 weeks

#### Module Content

**Basic equipment and first aid kit** needed for emergency management of farm animals and 91

their use; gloves, nasogastric tube, trocar & cannula bandaging material, catheters, surgical kit, stethoscope, thermometer, veterinary drugs (antibiotics, analgesics, sedatives), blades/ clippers, cotton wool, needles, syringes, etc.

**Aseptic preparations for field surgical procedure;** patient and surgeon preparation, including patient and surgeon scrubbing, gloving, draping, and Halsted principles.

**Basic principles of anaesthesia;** the anaesthetist's role for safe anaesthetic management of patients, patient evaluation; knowledge of premedication, induction and maintenance, anaesthetic drugs; monitoring depth of anaesthesia

**Basic emergency procedures** such as resuscitation, splinting and stabilisation of broken bones and dislocated joints, bandaging, management of allergic reactions, poisoning, burns, bleeding and bloat, colic, diarrhoea, constipation, dehydration, choke, hyperthermia, near drowning, snake bite, management of a downer cow.

**Wound management;** stages of wound healing and associated complications; wound evaluation, lavage, debridement, drainage, and closure Pre and post-operative patient care.

#### Assessment

Continuous Assessment: 40% (Minimum 2 theory assessments and 2 practical assessments), CA calculation: Tests 60% practical assessments 40%.

Examination: 60% (1 x 2hour paper: 60% and 1x 2hr practical exam: 40%)

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#### V2620EQ VETERINARY PARA-PROFESSIONAL SKILLS II

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours:** 6 hours blended lectures and tutorials per week for 6 weeks

#### Module Content

**Client communication:** Listening skills; verbal and non-verbal communication

Veterinary ethics

**Effective conflict management strategies Environmental awareness and sustainability Record keeping**

#### Assessment

Continuous Assessment: 100 %, minimum 2 marked assignments for final CA mark (written assignment, group assignment, role-play and / or presentation).

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#### V2640EG LEGISLATION AND JURISPRUDENCE

**Proposed NQF Level:** 6

**Credits:** 8

**Contact Hours:** 6 hours blended lectures and tutorials per week for 6 weeks

#### Module Content

Relevant aspects of Namibian legislation pertaining to the activities of veterinary paraprofessionals: Animal Health Act, Act 1 of 2011; Animal Protection Act, Act 12 of 1962; Veterinary and Veterinary Paraprofessionals Act, Act 1 of 2013; Meat Industry Act (Act 12 of 1981) as amended, Prevention of Undesirable Residues in Meat Act, Act 21 of 1991; Medicines and Related Substances Control Act, Act 13

of 2003; Stock Brands Act, Act 24 of 1995; Environmental Management Act (Act 7 of 2007); UNAM code of conduct for veterinary paraprofessionals.

### Assessment

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x assignment assessment (40%))

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### V2680EP VETERINARY PRACTICE MANAGEMENT

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**Proposed NQF Level:** 6      **Credits:** 8      **Contact Hours:** L: 3  
P: 3

#### Module Content

Structure and organization of a veterinary practice operations (types of veterinary practices, roles and responsibility of staff, workflow in veterinary practice); Client care and communication (Principles of professional communication, client interaction, appointment scheduling and booking systems); Administrative duties (patient record management, filing system and documentation, introduction to practice management software, basic report writing and communication logs); Financial procedures in Veterinary practice (basic financial concepts, receipts and record keeping, introduction to budgeting concepts); Stock control and 95

inventory management (importance of stock control in veterinary practice, types of stock, stock handling procedures, stock rotation and expiry date monitoring); Legal, ethical and health and safety considerations (Professional conduct and ethics in veterinary practice, confidentiality and client data protections, basic health and safety).

### Assessment

Continuous Assessment 100%: (Minimum 2 x theory (60%) and 1 x practical assessment (40%))

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### V2683VN PARAPROFESSIONAL ROTATIONS

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**Proposed NQF Level:** 6      **Credits:** 140      **Contact Hours:** 35 hours work integrated learning per week for 28 weeks.

#### Module Content

**Paraprofessional rotations:** each student will be exposed to various rotations under supervision of experts in their fields to develop their skills and attain "Day One Competencies" as recommended by the OIE and NVC. Each student will be required to successfully complete a number of rotations including core or compulsory rotations and elective rotations, as per the individual schedule prepared for each student.

### Assessment

Continuous assessment: Compulsory submission of completed and signed logbook. Marking rubrics designed for each rotation (subminimum for each rotation 40% to allow admission into the final examination).

Examination: 100%

Two theory papers: 1 x 3hr theory examination 50% (each contributing 25%);

Two practical sessions:

- i. Laboratory practical, 1x3 hours 100%, 25% contribution to final mark, with 50% subminimum.
- ii. Field practical, 1x3 hours 100%, 25% contribution to final mark with 50% subminimum).

A candidate has to score 50% or more in both the theory and practical sections to pass the examination.

(Subminimum: Theory 40%, Practical 50%, Candidates with a final mark of 45-49% will qualify for an oral examination)

## POSTGRADUATE PROGRAMMES

- 24MPVM Master of Philosophy Veterinary Medicine
- 24DPVM Doctor of Philosophy Veterinary Medicine

### MASTER OF PHILOSOPHY VETERINARY MEDICINE

24MPVM

#### Aims and Objectives

The purpose of this qualification is to provide students with specialized training in Veterinary Medicine, in different fields. The proposed Master of Philosophy in Veterinary Medicine (MPhil Vet Med) aims to equip students with comprehensive field specific knowledge in their chosen speciality of Veterinary Medicine as well as research and analytical skills which will allow them to be champions in their field of choice.

In general, the training should allow the students to become competent researchers who will contribute to the growth of the veterinary field in the country, ultimately leading to improved animal welfare, animal productivity, disease control and food safety. The students will learn how to collect relevant data, analyse it and come up with evidence-based decisions in the veterinary field. The proposed MPhil Vet Med qualification will provide guidance, training and mentorship for students from various health fields, with the aim of preparing them to become veterinary and one health research experts in the area of disease prevention and control, diagnostic and surveillance as well as the academic domain using evidence-based practices.

The proposed qualification will assist the University of Namibia to achieve its strategic goal of becoming international hub of excellence in higher education by training well skilled public health practitioners and contribute to the achievement of global health agenda. It will also accelerate the achievements of Namibia health and developmental objectives as stipulated in the National Development Plan 5 (NDP 5), Harambee Prosperity Plan II. Well trained and skilled veterinary specialists will contribute to the achievement of international development and health goals as stipulated in Sustainable Development Goal (SDG) 3.

To be eligible for this MPhil qualification, the candidate must have completed a bachelor honours degree at NQF level 8 or equivalent in a relevant discipline from a recognised higher education institution. Applicants with foreign qualifications must submit a certificate of evaluation from the Namibia Qualifications Authority (NQA).

Along with the application, candidates need to submit a detailed research proposal highlighting their proposed area of research, objectives, methodology and a review of existing literature. The research proposal will be evaluated for relevance, novelty, feasibility and availability of a supervisor. As per Section B. 3.3. of the Higher Degrees Policy Procedures, Rules and

Regulations, the Department reviews the submitted concept note and identifies potential supervisor(s) and recommends the applicant for admission through the Admission and Examination Board, considering the applicant's fulfilment of the minimum admission requirements, availability of supervisors and space. As such, Departments shall not recommend students for higher degrees' admission if they do not have the capacity to supervise. The University encourages co-supervision with academic staff members from within the University or other universities as well as industry where specialised knowledge is required, but the main supervisor should be based at UNAM.

Holders of this qualification can be employed in public sectors, private sectors and non-governmental organizations (NGOs) as, amongst others; Veterinary Medicine Specialists, Veterinary Researchers, One Health Researchers, Academia and Veterinary Consultants/Advisors. Further, this qualification may articulate to a Doctorate of Philosophy degree (DPhil/PhD) in a related field of study

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**Programme Coordinator:** Prof. Simbarashe Chitanga, E-mail: [schitanga@unam.na](mailto:schitanga@unam.na)

#### Holders of this qualification should be able to:

Holders of this qualification are able to:

- Exhibit comprehensive knowledge and application of current and evolving scientific research within the selected field.
- Conceptualize relevant research, plan, execute, analyze and effectively disseminate findings.
- Utilize scientific reasoning, critical thinking, and evidence-based approaches in decision making and practice in veterinary medicine.
- Apply ethical principles and make professional decisions in accordance with established standards.
- Engage in reflective practice, evaluating their professional values, ethics and competencies as part of their commitment to life-long learning
- Employ effective communication and organizational skills in collaboration with diverse experts in veterinary medicine

### Criteria for admission

Candidates are eligible for admission to this program if they meet the following criteria:

Compulsory

- All the outcomes of learning listed below are required.
- FIELD: Health Sciences and Social Sciences.
- Subfield: Veterinary Medicine

### Requirements for qualification award

This qualification will be awarded to candidates credited with a minimum of 240 credits, and who have met all other relevant UNAM requirements.

### First Year Level

| Subject                   | Modules  | Credits    |
|---------------------------|----------|------------|
| MPhil at first year level | 1        | 240        |
| Unam Core                 | 1        | 16         |
| <b>Total</b>              | <b>2</b> | <b>256</b> |

| Students take all modules below relevant to their discipline |             |   |                             |
|--|-------------|---|-----------------------------|
| Disciplines  | Module Code | Course Title                                | Compulsory (C)/Elective (E) |
| All discipline   | U6989LA     | Academic Literacy For Postgraduate Students | C                           |
| MPhil Veterinary Medicine                                    | V6983MP     | MPhil Thesis (Veterinary Medicine)          | C                           |

## DOCTOR OF PHILOSOPHY IN VETERINARY MEDICINE

24DVPM

### Aims and Objectives

The purpose of this qualification is to provide students with knowledge in research, analytical skills and competencies that will make them specialists in their chosen fields of specialization. This training will provide them with guidance, training and mentorship to allow them to become specialists/experts in various fields of veterinary medicine. It is expected that the students' studies will yield data or findings that will impact practice of veterinary medicine in the country and influence policy in their specialty.

The proposed programme will assist the university of Namibia to achieve its strategic goal of becoming international hub of excellence in higher education by training well skilled public health practitioners and contribute to the achievement of global health agenda. It will also accelerate the achievements of Namibia health and developmental objectives as stipulated in the National Development Plan 5 (NDP 5), Harambee Prosperity Plan II. Well trained and skilled veterinary medicine practitioners will contribute to the achievement of international development and health goals as stipulated in SDG Goal 3.

To be eligible for this PhD programme, the candidate must have completed a master's degree at NQF level 9 or equivalent in a relevant discipline from a recognised higher education institution, with an average of at least 60%. Applicants with foreign qualifications must submit a certificate of evaluation from the Namibia Qualifications Authority (NQA).

Along with the application, candidates need to submit a detailed research proposal highlighting their proposed area of research, objectives, methodology and a review of existing literature. The research proposal will be evaluated for relevance, novelty, feasibility and availability of a supervisor. As per Section B. 3.3. of the Higher Degrees Policy Procedures, Rules and Regulations, the Department reviews the submitted concept note and identifies potential supervisor(s) and recommends the applicant for admission through the Admission and Examination Board, considering the applicant's fulfilment of the minimum admission requirements, availability of supervisors and space. As such, Departments shall not recommend students for higher degrees' admission if they do not have the capacity to supervise. The University encourages co-supervision with academic staff members from within the University or other universities as well as industry where specialised knowledge is required, but the main supervisor should be based at UNAM.

Holders of this qualification can be employed in public sectors, private sectors and non-governmental organizations (NGOs) as, amongst others; Veterinary Medicine Specialists, Veterinary Researchers, One Health Researchers, Academia and Veterinary consultants/Advisors. This being the highest qualification in this field of study, thus there is no articulation points.

**Programme Coordinator:** Prof. Simbarashe Chitanga, E-mail: [schitanga@unam.na](mailto:schitanga@unam.na)

### Holders of this qualification should be able to:

Holders of this qualification are able to:

1. Exhibit comprehensive knowledge and application of current and evolving scientific research within the selected field.
2. Conceptualize relevant research, plan, execute, analyze and effectively disseminate findings.
3. Utilize scientific reasoning, critical thinking, and evidence-based approaches in decision making and practice in veterinary medicine.
4. Apply ethical principles and make professional decisions in accordance with established standards.
5. Engage in reflective practice, evaluating their professional values, ethics and competencies as part of their commitment to life-long learning.
6. Employ effective communication and organizational skills in collaboration with diverse experts in veterinary medicine.

### Criteria for admission

Candidates are eligible for admission to this program if they meet the following criteria:

Compulsory

- All the outcomes of learning listed below are required.
- FIELD: Health Sciences and Social Sciences.
- Subfield: Veterinary Medicine.

### Requirements for qualification award

This qualification will be awarded to candidates credited with a minimum of 360 credits, and who have met all other relevant UNAM requirements.

### First Year Level

| Subject                   | Modules | Credits |
|---------------------------|---------|---------|
| DPhil at first year level | 1       | 360     |
| Unam Core                 | 1       | 16      |

|              |          |            |
|--------------|----------|------------|
| <b>Total</b> | <b>2</b> | <b>376</b> |
|--------------|----------|------------|

| <b>Students take all modules below relevant to their discipline</b> |                    |   |                                    |
|---|--------------------|---|------------------------------------|
| <b>Disciplines</b>  | <b>Module Code</b> | <b>Course Title</b>                         | <b>Compulsory (C)/Elective (E)</b> |
| All discipline  | U6989LA            | Academic Literacy for Postgraduate Students | C                                  |
| DPhil-Veterinary Medicine   | V7083DP            | PhD Dissertation (Veterinary Medicine)      | C                                  |