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UNIVERSITY OF NAMIBIA

FACULTY OF HEALTH SCIENCES
& VETERINARY MEDICINE

School of Pharmacy

PROSPECTUS 2026

Open your mind

PROSPECTUS 2026

SCHOOL

OF

PHARMACY

SCHOOL OF PHARMACY PREAMBLE

The mission of the School of Pharmacy is to be a Regional centre of excellence in preparing graduates for a life-long professional career in the provision of pharmaceutical care that is in tune with the needs of society. The School shall provide a quality learning environment conducive to the pursuit of professional competence, while providing services to the community and undertaking relevant translational research for the enhancement of health. The School will continually strive for the establishment of training programs in the field of pharmacy, lending support to the human resource development initiatives of the country; this will include the provision of Continuing Professional Development and postgraduate education of pharmacists, and the training and education of technical cadres and scientists. Finally, the School will seek pharmaceutical solutions in medicines access and supply through pharmaceutical production with research and development of existing medicines and novel agents particularly those derived from the rich natural resources of Namibia.

The key objectives of the School of Pharmacy are:

- To promote equity of access to health care services for all;
- To promote affordable health care service delivery by strengthening health care systems that are sustainable, cost-effective, efficient, culturally relevant and acceptable;
- To institute pharmaceutical care measures to counter major health risks including the prevailing communicable diseases;
- To develop academically and professionally qualified pharmacists in sufficient numbers to support the health care infrastructure of Namibia;
- To conduct research directed to the health care needs of the Namibian society at large, and which is instrumental in ensuring quality health care service delivery;
- To utilise the natural resources available and the skills and research generated in producing commercially viable quality pharmaceutical products.

SCHOOL OF PHARMACY OATH

All (Students and Faculty):
We pledge to serve our patients, their families, our community and each other with respect, competence, compassion, and humility. We hold as our ideal to care and treat all of our patients. From them we will learn. We hold as our ideal the advancement of knowledge. Through it disease will be understood, prevented and cured. We hold as our ideal open-minded collaboration. To this we are collectively committed. We hold as our ideal critical self-evaluation. Through this we will grow.

Faculty:
We, your faculty, promise to serve as worthy role models, as our own teachers have before us.

Students:
We, your students, recognize the excellence and commitment of those from whom we learn.

Faculty:
We promise to support your personal and professional growth, in healthcare settings, in the laboratory, in the community, and through your own teaching.

Students:
We promise to pursue responsibly our calling to patient care, to service, and to research.

Faculty:
We promise to maintain an environment where scientific integrity and ethical standards sustain your trust in us.

Students:
We commit ourselves to the highest standards of academic honesty, scientific integrity and ethical practice as students and in our professional lives.

All (students and faculty members):
We honour The University of Namibia, the Health Professions Councils of Namibia and our Government's history of service to the people of this nation. We accept the challenges and opportunities of those alumni whom we follow. We vow to be professional, punctual and courteous. We vow to honour and respect life on earth, in all forms, crawling and reasoning, with intellect or with handicap, to be ambassadors of healthy living and a prosperous future. We vow to take to heart and mind that all men are created equal. We vow to uphold this pledge and our assistance to others who do the same.

UNIVERSITY OF NAMIBIA

FACULTY OF HEALTH SCIENCES AND VETERINARY MEDICINE

STRUCTURE AND PERSONNEL

OFFICE OF THE DEAN

Executive Dean	Prof C Wilders
Associate Dean: School of Pharmacy	Dr B Singu
Faculty Manager	Mr A Fledersbacher
Campus Administrator	Ms D Titus
Faculty Officer	Ms A Shipanga
Administration Officer	Mr J Lakanemo
Examination Officer	Mr M Kandukua
Student Records Officer	Mr M Nowaseb
Student Support Officer	Mr A Ngwangwama
Security Officer	Mr P Mapeu
ICT Officer	Mr A Shikongo
Network Administrator	Mr S Shilongo

General enquiries regarding the school of Pharmacy and the qualifications offered by the school should be directed to:

Ms A Shipanga
The Faculty Officer
School of Pharmacy
University of Namibia
Private Bag 13301
WINDHOEK
Telephone: +264-61-2065145
E-mail: anshipanga@unam.na

Matters regarding specific subjects and departments should be addressed to the relevant Head of Department.

ACADEMIC CALENDAR – UNAM CORE DATES 2026

UNAM 2026 CORE DATES

SEMESTER 1	
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
SEMESTER 2	
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
2026 ACADEMIC YEAR	
7 January	University opens for 2026 academic year
19 January	Academic staff resumes office duty for 2027 academic year

REGISTRATION AND ACADEMIC ADMINISTRATION DATES

DATE	ACTIVITY
05 January	**ONLINE REGISTRATION COMMENCES**: • All Senior Students (until 30 Jan 2026)
08 January	Institution opens (all administrative staff)
12 January	**REGISTRATION COMMENCES**: • First year students (freshmen) until (30 Jan 2026) • **CORE SEMESTER** (New Curriculum Professional Programmes) commences 21 January • **CORE SEMESTER** (New Curriculum Programme) commences 28 February
19 January	Professional Programmes Semesters Lectures commence for FIRST SEMESTER
26 January	**REGISTRATION COMMENCES**: • Postgraduate Students (Masters and Doctorate Degrees) (until 30 Jan 2026) **ACADEMIC ADMINISTRATION** – Application for module(s) exemptions commence • First year student (until 13 February) • Senior students (until 27 March)
30 January	**REGISTRATION ENDS**: • First year students (freshmen) and new curriculum students
02 February	**LATE REGISTRATION Commences** (until 06 February) • All first year and senior new curriculum students
06 February	**LATE REGISTRATION ends for**: • All first year and senior new curriculum students
13 February	**ACADEMIC ADMINISTRATION** • Last day for module(s) exemption applications – first year students • Last day for approval of module(s) and qualification offering types changes - First year students
02 February	**LATE REGISTRATION Commences** (until 06 February) • All first year and senior new curriculum students
06 February	**LATE REGISTRATION ends for**: • All first year and senior new curriculum students
13 February	**ACADEMIC ADMINISTRATION** • Last day for module(s) exemption applications – first year students • Last day for approval of module(s) and qualification offering types changes - First year students
27 March	**ACADEMIC ADMINISTRATION** – Application for module(s) exemption ends
09 April	**GRADUATION**: Southern Campus
14 April	**GRADUATION**: Katima Mulilo Campus
16 April	**GRADUATION**: Rundu Campus
22 April	**GRADUATION**: Northen Campuses
27 April	**ACADEMIC ADMINISTRATION** – Last day to change offering types for year modules
28-29 April	**GRADUATION**: Windhoek Campuses
20 July	**ACADEMIC ADMINISTRATION** – Addition and cancellation of SECOND SEMESTER modules commence (until 24 July)
24 July	**ACADEMIC ADMINISTRATION** – Addition and cancellation of SECOND SEMESTER modules end
08 October	**SPRING GRADUATION**

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
20 February	Last day to cancel CORE SEMESTER modules – no credit 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) 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)

SCHOOL OF PHARMACY PLANNED ACTIVITIES 2025

January	
08-Jan	University Opens
19-Jan	Lectures commence for First Semester for New curriculum Professional Programmes (BPharm 3 and BPharm 4) (16 weeks) (until 20 May)
21-Jan	Core Semester lectures commence for BPharm 2 students (New curriculum) (Until 3 March)
28-Jan	Core Semester lecture commences for BPharm 1 students (New curriculum) (Until 3 March)
March	
03 Mar	Core Semester lectures end for BPharm 1 & 2 students
05-Mar	Lectures commence for First Semester for New curriculum Professional programmes (BPharm 1 & 2 students) (13 weeks) (until 12 June)
5-6 Mar	Short semester break (BPharm 3 & 4)
April	
2 – 7 Apr	Short semester break (BPharm 3 & 4)
3 -6 Apr	FIRST SEMESTER BREAK for students commences (Until 6 April) (BPharm 1 & 2)
May	
20-May	• Lectures end for First Semester for New curriculum Professional Programmes (BPharm 3 and BPharm 4) (16 weeks) • Announcement of final CA Marks New curriculum Professional programs (BPharm 3 and BPharm 4)
26-May	First opportunity Examinations commence for New curriculum Professional Programmes (BPharm 3 and BPharm 4) (until 10 June)
June	
08 June	Pharmaceutical Industrial placements commence for BPharm 3 students (until 26 June)
10-Jun	First opportunity Examinations end for New curriculum Professional Programmes (BPharm 3 and BPharm 4)
11-Jun	Second opportunity Examinations commence for New curriculum Professional Programmes (BPharm 3 and BPharm 4) (until 19 June)
12-Jun	• Lectures end for First Semester New Curriculum Professional programmes (BPharm 1 & 2 students) • Announcement of final CA Marks for New Curriculum Professional programmes (BPharm 1 & 2 students) • Second opportunity Examinations end for New curriculum Professional Programmes (BPharm 3 and BPharm 4)
16-Jun	First opportunity Examinations commence for New Professional programmes (BPharm 1 & 2 students) (until 29 June)
26 Jun	Pharmaceutical Industrial placements end for BPharm 3 students
29-Jun	• First opportunity Examinations end for New curriculum Professional programmes (BPharm 1 & 2 students) • Rural Hospital placement commences for BPharm 2 students (until 24 July) • Lectures commence for Second Semester end for New curriculum Professional Programmes (BPharm 3 and BPharm 4) (16 weeks) (until 28 October)
July	

01-Jul	Second opportunity Examinations commence for New Professional programmes (BPharm 1 & 2 students) (until 10 July)
10-Jul	Second opportunity Examinations end for New Professional programmes (BPharm 1 & 2 students)
20 - 24 Jul	**MID-YEAR BREAK**
24-Jul	Rural Hospital placements end for BPharm 2 students
27-Jul	Lectures commence for Second Semester for New curriculum Professional programmes (BPharm 1 & 2 students) (13 weeks) (until 28 October)
August	
26-Aug	Semester Break starts (until 28 August)
28 Aug	Semester Break ends Institutional holiday
September	
01-Sept	Lectures resume after Semester break (all BPharm students)
25-Sept	World Pharmacy Day
October	
28- October	• Lectures end for Second Semester for New curriculum Professional programmes (all BPharm students) • Announcement of final CA Marks for New curriculum Professional programmes (all BPharm students)
November	
02-Nov	First opportunity Examinations commence New curriculum Professional programmes (all BPharm students) (until 16 November)
16-Nov	First opportunity Examinations end for New curriculum Professional programmes (all BPharm students)
18-Nov	Second opportunity Examinations commence for New curriculum Professional programmes (all BPharm students) (until 27 November)
23-Nov	Community Pharmacy placements commence for BPharm 2 students (until 11 December)
27-Nov	Second opportunity Examinations end for Old & New curriculum Professional programmes (all BPharm students)
December	
11-Dec	**END OF ACADEMIC YEAR** Community Pharmacy placements end for BPharm 2 students
January	**2027**
07-Jan	**University Opens**

DEPARTMENT OF PHARMACOLOGY AND THERAPEUTICS

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Head of Department:	Mr. M. Mubita, BPharm, The University of Zambia; MSc (Clinical Pharmacy), The Queen's University of Belfast, UK; Registered Pharmacist (HPCZ/HPCNA).
Professor:	Vacant
Senior Lecturer:	Dr. B S. Singu, BSc (Chemistry; Molecular& Physiological Biology); BPharm, University of Nairobi; MPharm (Clinical Pharmacology), University of Namibia; PhD (Pharmacology), University of Namibia; Registered Pharmacist (HPCNA).
Lecturer:	Mr. DF. Chuma, BPharm (University of Zimbabwe); MSc (Clinical Pharmacology), University of Zimbabwe; Registered Pharmacist (PCZ/MCAZ).
Lecturer:	Mr. M M. Thikukutu, BPharm (Hons), University of Namibia; Master of Pharmacy (Clinical Pharmacology), University of Namibia; Registered Pharmacist (HPCNA)
Senior Technologist:	Ms. NK. Ananias, BSc (Chemistry; Molecular & Physiological Biology), University of Namibia; MSc Chemistry, University of Namibia.
Part-Time Technologist:	Mr. J Eposhe, BSc Agriculture (Animal Science), University of Namibia.
Visiting Professor:	Professor E Ette, BS (Pharmacology), BS (Pharmacy), MS (Pharmacology), MBA, PhD (Clinical Pharmacology), FCP, FCCP, FAAPS, FNAPharm

DEPARTMENT OF PHARMACEUTICAL SCIENCES

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Head of Department:	Prof A. Ishola, B. Sc. (Hons.) Applied Chemistry; Post Graduate Diploma in Education; M Phil HIV/AIDS Management, University of Stellenbosch; PhD Pharmaceutical Chemistry University of Namibia
Professor:	Vacant
Associate Professor:	Prof. Edet F. Archibong, B.Sc. (Hons) Chemistry, University of Nigeria; M.Sc. - Inorganic Chemistry, University of Ibadan; Ph.D. –Physical (Theoretical/Computational) Chemistry, University of New Brunswick, Fredericton, Canada.
Associate Professor:	Prof. M Knott, B. Pharm, MSc (Pharmacy) dist., PhD (Rhodes), MPS (SA), PSN Registered Pharmacist: HPCNA (Namibia), SAPC (South Africa), PCM (Malta / EU)
Senior Lecturer:	Dr. James Yinka Oyeniyi; FPC Pharm, PhD, ABU Zaria, Nigeria; MSc, ABU Zaria; Nigeria MBA, Edo state University, Nigeria; B. Pharm, OAU, Ile Ife, Nigeria. Professor of Pharmaceutics
Senior Lecturer:	Mr. D. Mavu, BSc (Chemistry/Biology) The University of Zambia, BPharm The University of Zambia, MPharm (Pharmaceutics) University of the Western Cape, Member of Pharmacy Council Namibia, Member of health Professions Council Zambia
Senior Lecturer	Mr. S! Nowaseb, BSc (Pharmacology) University College London, MSc (Pharmaceutical Technology), Kings College London
Lecturer:	Ms. S. Ilonga, MSc (Chemistry), University of Namibia; BSc (Chemistry and Molecular & Physiological Biology), University of Namibia
Assistant Lecturer:	Vacant
Assistant Lecturer:	Ms P Aiases, BPham (University of Namibia)
Senior Technologist:	Dr K. Angula, Chemistry, University of Stellenbosch; BSc (Chemistry and Molecular and Physiological Biology) University of Namibia. MSc Pharmaceutical Chemistry. PhD Pharmaceutical Chemistry; North West University, Potchefstroom.
Senior Technologist:	Ms R Pick, BSc Biomedical Sciences, Biomedical Sciences Cape Peninsula University of Technology. MHSc Biomedical Sciences, NUST, Namibia
Technologist:	Ms. M. Lusepani, BSc (Chemistry and Molecular and Physiological Biology) University of Namibia.

DEPARTMENT OF PHARMACY PRACTICE AND POLICY

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Head of Department:	Ms. Jennie Lates, BPharm (Hons), University of Bradford, UK; PGDip Clinical Pharmacy, University of Keele, UK; Member of Royal College of Pharmacy, UK; PGDip Higher Education, University of Namibia, MPharm (Pharmacy Practice), University of Namibia
Professor:	Prof. Legese Chelkeba Kumsa, PhD Clinical Pharmacy, Tehran University of Medical Sciences, Iran; MPharm (Clinical), Jimma University, Ethiopia; BSc Pharmacy, Addis Ababa University, Ethiopia. Member of Ethiopian public Health Association, International Pharmaceutical Federation (FIP) and Ethiopian Pharmaceutical Association.
Associate Professor:	Prof. Lauren Jonkman, PharmD, University of Pittsburgh (USA); Master of Public Health; University of Pittsburgh (USA); ASHP-Accredited 2-Year Post-Graduate Pharmacy Practice and Family Medicine Residency, UPMC St. Margaret (USA); Board-Certified Ambulatory Care Pharmacist (BC-ACP) by the Board of Pharmacy Specialties; Member of the International Pharmaceutical Federation (FIP), the American College of Clinical Pharmacy, and the American Association of Colleges of Pharmacy
Senior Lecturer:	Ms. Ester Hango, BPharm, University of Nairobi; MPH, University of Namibia; Registered Pharmacist, Pharmacy Council of Namibia; Member of Pharmaceutical Society of Namibia
Lecturer:	Ms Vulika Nangombe, BPharm (Hons), University of Namibia, MPharm (Clinical), University of Namibia; Registered Pharmacist, Pharmacy Council of Namibia; Member of International Pharmaceutical Federation; Member of Pharmaceutical Society of Namibia
Lecturer:	Ms Martha Kampanza, BPharm (Hons), University of Namibia; MPharm (Clinical), University of Namibia; Registered Pharmacist, Pharmacy Council of Namibia; Member of Pharmaceutical Society of Namibia
Clinical Lecturer:	Ms. Pia Simeon, BPharm (Hons), University of Namibia, MPharm (Clinical), University of Namibia; Registered Pharmacist, Pharmacy Council of Namibia; Member of Pharmaceutical Society of Namibia
Assistant Lecturer:	Ms Irene Brinkmann, BPharm (Hons), University of Namibia; Registered Pharmacist, Pharmacy Council of Namibia; Member of Pharmaceutical Society of Namibia
Pharmaceutical Technologist:	Ms. Selma Moongo, Diploma in Pharmacy, University of Namibia
Visiting Professor:	Professor D. Hachey, PharmD, AAHIVP, Idaho State University, United States of America

REGULATIONS

The regulations should be read in conjunction with the General Information and Regulations prospectus.

PROGRAMMES

BACHELOR OF PHARMACY (HONOURS)	**27BPHA**
MASTER OF PHARMACY IN CLINICAL PHARMACY	**27MPCL**
MASTER OF PHILOSOPHY IN PHARMACY PRACTICE	**27MPPP**
MASTER OF PHILOSOPHY IN CLINICAL PHARMACOLOGY	**27MPCP**
MASTER OF PHILOSOPHY IN PHARMACOLOGY	**27MPPY**
MASTER OF PHILOSOPHY IN PHARMACEUTICAL SCIENCES	**27MPPS**
DOCTOR OF PHILOSOPHY IN PHARMACY PRACTICE	**27DPPP**
DOCTOR OF PHILOSOPHY IN PHARMACOLOGY	**27DPPY**
DOCTOR OF PHILOSOPHY IN CLINICAL PHARMACOLOGY	**27DPCP**
DOCTOR OF PHILOSOPHY IN PHARMACEUTICAL	**27DPPS**

THE 7 STAR PHARMACIST

The School of Pharmacy aspires to produce a pharmacy graduate with the following qualities and characteristics herein referred to as the 7 Star Pharmacist.

- Care Provider
- Decision-maker
- Communicator
- Community Leader
- Manager
- Researcher
- Life-long Learner

CURRICULUM FOR THE BACHELOR OF PHARMACY HONOURS

BPHARM (HONOURS)

COURSE CODE: 27BPHA

INTRODUCTION

The purpose of the transformed Bachelor of Pharmacy Honours curriculum is to enhance students with competences and skills relevant to the practice of pharmacy in fourth industrial revolution (4IR). Undertake roles to meet the national and global pharmaceutical development goals specified by the International Federation of Pharmacy and Pharmaceutical Sciences (FIP, goal 1-24), the SDGs (goal 3 and 9), and Namibia's Fifth National Development Plan, that call for industrialisation, digitalized pharmacy and innovation, leadership, among others. Thus, new components pertaining to 4IR skills have been integrated in the curriculum e.g. such as digital pharmacy, research and innovation design, management and leadership as well as emphasis on work integrated learning. The curriculum focusses more on approaches to assess for competences rather than knowledge, through work-based assessments, research and innovation projects and case-based discussions. Also, a blended mode of learning, teaching and assessments is emphasized throughout the curriculum, with student-centred learning and internationalisation.

MAJOR LEARNING OUTCOMES AND CONTENT OF THE COURSE

1. Practice pharmacy within legal requirements in a professional and ethical manner
2. Promote and support primary health care pharmaceutical services at health facilities and in the community
3. Provide up to date and relevant information to healthcare workers and community members on medicines used in the prevention, control and treatment of human and veterinary diseases
4. Analyse, interpret and dispense prescriptions and medication orders pertaining to human and veterinary medicines
5. Provide high quality patient-centred pharmaceutical care to optimise patient care and inter-professional relationships in the human and veterinary healthcare settings in public and private healthcare settings
6. Manage the manufacture of pharmaceuticals and related substances in a industry
7. Manage pharmaceutical supply chain systems, physical facilities, budget and human resources to advance pharmaceutical operations in various sectors of the pharmaceutical sector
8. Apply information and communication technology to manage pharmaceutical information systems in provision pharmaceutical services in all sectors
9. Innovate pharmaceutical solutions to resolve problems in the workplace and community
10. Conduct pharmaceutical and related research and audits to inform best practices

ADMISSION REQUIREMENTS

In order to be admitted to the Bachelor of Pharmacy Honours programme, applicants must satisfy at least one of the following requirements:

1. A candidate must be in possession of a School Leaving Certificate with at least:
   i) Thirty-four (34) points in five subjects on the UNAM Evaluation scale,
   Subject to the above;
   - The five subjects should include; Mathematics, Biology, Chemistry, Physics and English
   - With three (3) subjects on NSSCAS level, two of which must be Chemistry and Biology,
   - Chemistry with a minimum "b" or better at NSSCAS Level
   - Biology with a "c" or better at NSSCAS Level
   - Two (2) subjects on NSSCO level, must include Mathematics, if the candidate does not have Mathematics at NSSCAS level, each with a Grade B or better, AND
   - A grade B or better in NSSCO level English, OR a grade C in NSSCO level English with 36 points

   OR

   ii) Thirty-four (34) points in five subjects on the UNAM Evaluation scale,
   subject to the above:
   - With two (2) subjects, Chemistry and Biology, on NSSCAS level, with a Grade b,
   - Three (3) subjects on NSSCO level, with a B or better, (must include Mathematics, Physics and English) AND
   - A grade B or better in NSSCO level English, OR a grade C in NSSCO level English with 36 points

   OR

2. Admission criteria based on School Leaving Certificates prior to 2021
   A minimum of 34 points in five subjects on the UNAM Evaluation Scale.
   Subject to the above;
   - English with a minimum B symbol or better at NSSC Ordinary Level (or C symbol with a minimum of 36 points) or a score of grade 3 or better at NSSC Higher Level
   - Biology (or Life Science) with a minimum B symbol at NSSC Ordinary Level, or a grade 2 or better at NSSC Higher Level
   - Mathematics with a minimum B symbol or better at NSSC Ordinary Level, or a grade 2 or better at NSSC Higher Level
   - Physical Science or Chemistry with a minimum B symbol or better at NSSC Ordinary Level, or a grade 2 or better at NSSC Higher Level

   OR

3. To be admitted to the Bachelor of Pharmacy Honours programme, a candidate must have successfully completed a Science or Health Science degree (minimum NQF level 7) from a recognized University with passes in Science subjects including at least chemistry and biology OR biochemistry (if no chemistry and biology) AND mathematics, at least first year level.

   OR

4. To be admitted to the Bachelor of Pharmacy Honours programme, a candidate must have successfully completed at least one year of a science or health science university Bachelor's degree or higher, with an average mark of at least 65% across all subjects in the first year, which must include a minimum of 60% in chemistry, biology AND mathematics

OR

5. To be admitted to the Bachelor of Pharmacy Honours programme, a candidate must be in possession of a Diploma in Pharmacy (NQF level 6) qualification with at least a lower second grade and have a score of 60% or more in each of the following topics: pharmaceutical sciences, pharmacology and pharmacy practice. In addition, the candidate should be registered with the HPCNA and have practiced for at least two (2) years as a Pharmacist's Assistant or Pharmaceutical Technologist.

Meeting the above student admission criteria DOES NOT necessarily ensure admission. Admission is awarded on merit and inclusivity based on places available on the programme and any other conditions that may be determined from time to time. The Faculty/School reserves the right to administer special written entry tests and interviews before admission.
The selection of applicants is done by the School of Pharmacy admissions committee that is inclusive of academics and other members from the public and registrar's office.

This programme will not take candidates from the Mature Age Entry or Recognition of Prior Learning (RPL) pathways.

5. Additional Selection Criteria
The selection for the Bachelor of Pharmacy Honours programme will constitute the following criteria.

a) First choice applicants: applicants who have applied for admission into the Bachelor Pharmacy Honours as a first choice will be prioritised during the selection for admission into the School of Pharmacy
b) Admissions will be based on a quota system; regional selection (based on the census) of high school leavers, international students, holders of Diploma in Pharmacy, Science or Health Science degree holders, and marginalized populations. Regional selection will use the region of the last school the applicant attended, to allocate an applicant to a specific region.
c) Highest points: all admissions into the Bachelor of Pharmacy Honours will be done on MERIT, that is among applicants that meet the minimum admission requirements, those with the highest points will be admitted, subject to the quota allocations and UNAM policies.
d) Admissions to the Bachelor of Pharmacy Honours is subject to the annual maximum intake determined by the University of Namibia and the Health Professions Councils of Namibia, as well as the number of students repeating year one of the programme.
e) Transfer of students from other programmes in other Schools in the UNAM Faculty of Health Sciences and Veterinary Medicine, including Medicine, Dentistry, Nursing and public health, Allied health and veterinary medicine, will be subjected to the approval by both Associate Deans of the concerned schools, as well as approval by the School and if they have obtained the minimum UNAM points as outlined above.

Transfer of students from other degree Pharmacy programmes from other institutions or universities, may be considered by the School based on availability of space and meeting the requirements.

6. Articulation Options
Graduates of the Bachelor of Pharmacy Honours programme may articulate into relevant postgraduate diploma and master's programmes.

7. Assessment Criteria
The assessment criteria for the Bachelor of Pharmacy Honours programme will constitute the following:
For modules assessed with Continuous Assessment (CA) and Examination:

a) a minimum CA mark of 50% is required to gain entrance into the relevant module examination.
b) In addition, the candidate should have regularly and satisfactorily participated in the module of study, by
    - attending not less than 80% of classes (both online and/or face-to-face classes).
    - full attendance of all clinical and practical classes is COMPULSORY.
c) the final mark for each module shall be calculated as 50% CA mark and 50% Exam mark unless stated otherwise in the module descriptor and,
d) a student shall be declared to have passed a module if they attain a final mark of at least 50% in the module, subject to getting a sub-minimum of 50% in the examination.

For modules assessed by 100% Continuous Assessment, a final aggregate mark of 50% shall be required to pass the module.

8. Quality Assurance Arrangements
The School of Pharmacy implements the university's policies and procedures regarding monitoring student progression and monitoring impact of the programme. Student progress at the school is monitored through various structures including:

a) Monitoring of student progress is undertaken by the individual lecturers, Heads of Department, the School of Pharmacy management, School of Pharmacy Board, School of Pharmacy Examinations Board, a student-lecturer forum, and a quality assurance committee.
b) The school has a functional student mentorship programme to support students' academic pursuits.
c) There is a university wide peer and student evaluation system to assess the effectiveness of teaching and learning administration for every module and lecturer.
d) All examinations papers and scripts are moderated internally and externally based on a standardised moderation criterion as outlined in the UNAM policy on assessments.
e) The impact of the programme is regularly evaluated through stakeholder's consultative meetings and needs assessments or tracer surveys.
f) The accreditation of the professional programme will be sought from the Health Professions Councils of Namibia (HPCNA), National Council of Higher Education (NCHE), and registration from the National Qualification Authority (NQA). The School will pursue international accreditation of the Bachelor of Pharmacy Honours programme through the Accreditation Council for Pharmacy Education (ACPE).

9. Minimum requirements for re-admission into the School / Programme
A student will not be re-admitted into the Bachelor Pharmacy Honours degree they have not earned:

a) At least 60 credits (of which 54 must be non-core) by the end of the First year of registration
b) At least 148 credits (of which 124 must be non-core) by the end of the Second year of registration
c) At least 274 credits (of which 239 must be non-core) by the end of the Third year of registration
d) At least 395 credits (of which 347 must be non-core) by the end of the Fourth Year of registration
e) At least 555 credits (of which 507 must be non-core) by the end of the Fifth Year of registration

The programme must be completed after a maximum of 6 years of registration

10. Advancement and progression rules

First year to second year of pharmacy

1. To advance to the second year a student must have obtained at least 138 credits of the 160 credits prescribed for first year modules.
2. If any of the failed modules is a pre-requisite for a second year module, the student cannot register for the affected second year module until the pre-requisite is passed.
3. Furthermore, a student who is repeating one or more modules in the first year cannot register for any second year module that has a timetable clash with the repeated module/s.

Second year to third year of pharmacy

1. To advance to the third year a student must have passed ALL the prescribed first year modules.
2. In addition, the student must have obtained at least 187 credits of the 219 credits prescribed for second year modules.
3. If any of the failed modules is a pre-requisite for a third year module, the student cannot register for the affected third year module until the pre-requisite is passed.
4. Furthermore, a student who is repeating one or more modules in the second year cannot register for any third year module that has a timetable clash with the repeated module/s.

Third year to fourth year of pharmacy

1. To advance to the fourth year a student must have passed ALL the prescribed first year and second year modules.
2. In addition, the student must have passed and obtained at least 142 credits of the 178 credits prescribed for third year modules.
3. If any of the failed modules is a pre-requisite for a fourth year module, the student cannot register for the affected fourth year module until the pre-requisite is passed.
4. Furthermore, a student who is repeating one or more modules in the third year cannot register for any fourth-year module that has a timetable clash with the repeated module/s.

11. Requirements for Qualification Award

Award of the Degree of Bachelor of Pharmacy Honours

A student can ONLY graduate with a Bachelor Pharmacy Honours degree if she/he has passed the entire prescribed modules and attained credits (712 credits) of the programme.

A student must meet all relevant UNAM requirements of this programme to be awarded the Bachelor of Pharmacy Honours Degree, including up-to-date financial and academic records.

12. Career Opportunities

Upon completion of the Bachelor of Pharmacy Honours Degree and registration with the Health Professional Council, the graduates of the programme may be able to:

a) Practice industrial pharmacy: manufacture medicines and comply to good manufacturing practices in a pharmaceutical industry.
b) Practice hospital and clinical pharmacy; advance pharmaceutical care and clinical trial research, manage pharmaceutical supplies in the hospital setting and promote rational use of medicines as a medicine expert.
c) Practice regulatory pharmacy: apply the provisions of acts and regulations relevant to pharmaceuticals and pharmacy practice, including registration, inspection, post-market surveillance of pharmaceuticals and provide medicines information.
d) Practice community and public health pharmacy: provide comprehensive primary healthcare services including diagnosis, health education and promotion, give medicine related information to other health professionals.
e) Pharmaceutical administration/management; as a leader to manage pharmaceutical services, supply chains, human resources, and finances, and medical aid schemes
f) Pharmaceutical sales and marketing; to promote the rational marketing and use medicines on behalf of the pharmaceutical manufacturers and distributor companies.
g) Manage pharmaceutical management information systems to enhance service delivery in all sectors of the industry
h) Establish self-employment and entrepreneurship opportunities in various sectors of the pharmaceutical industry including community pharmacy, small scale manufacture and quality control, veterinary pharmacy, medicine logistics, pharmaceutical sales and marketing, product research and development.

13. Implementation strategy

The old and transformed Bachelor of Pharmacy Honours curriculum will be administered in parallel, until the old curriculum is phased out, as below;

Implementation of the transformed and old Bachelor of Pharmacy Honours curriculum

Activity	Year of implementation				
	2023	2024	2025	2026	2027
New: Students on the transformed curriculum repeating modules					
Year I (1st year)					
Year II (2nd year)					
Year III (3rd year)					
Year IV (4th year)					
Old: Students repeating modules in the old curriculum					
Repeating Year I modules					
Repeating Year I & II modules					
Repeating Year II & III modules					
Repeating Year II, III & IV modules					
Repeating Year III & IV modules					

Students repeating modules in old Bachelor or Pharmacy Honours curriculum will repeat the equivalent modules (credits, content) in the new-transformed curriculum as below. Where there is no equivalent, the old module will be repeated for students who require it.

14. Course equivalents

Old Bachelor of Pharmacy Honours curriculum				Transformed Bachelor of Pharmacy Honours curriculum			
Name	Code	NQF	**Credits**	**Name**	**Code**	**NQF**	**Credits**
Year I							
Organic Chemistry	PCMO3511	5	16	Organic Chemistry	P3511SO	5	14
Mathematics	PCTM3511	5	16	Pharmaceutical Mathematics	P3511SM	5	12
Anatomy I	PPHA3511	5	16	Embryology & Introduction to Anatomy	M3511BA	5	14
Physiology I	PPHP3511	5	16	Integrated Physiology & Pathophysiology I	M3511BP	5	14
Sociology of Health & Disease	PCSS3511	5	16	Sociology of Health & Disease	M3511HS	5	14
English for Academic Purposes	ULEA3519	5	16	Academic literacy I	U3583AL	5	8
Computer Literacy	UCLC3509	5	16	Digital Literacy	U3583DD	5	8
Physical Chemistry	PCMO3512	5	16	Physical Chemistry	P3512SC	5	14
Anatomy II	PPHA3512	5	16	Human Anatomy	M3512HP	5	14
Physiology II	PPHP3512	5	16	Integrated Physiology & Pathophysiology II	M3512BP	5	14
Biochemistry I	PPHB3512	5	16	Medical biochemistry I	M3512BB	5	14
Biostatistics	PCSB3512	5	16	Statistics for Health Sciences	M3512BS	5	12
Introduction to Pharmacology	PPHH3632	6	16	Pharmacology I	P3632CO	6	16
Primary Health Care: Health Promotion	PCSP3512	5	16	No equivalent			
			8	No equivalent			
Contemporary Social Issues	UCSI3580	5					
Year 2			16	Pharmacy Practice I	P3683PP	6	16
Introduction to Pharmacy & Dispensing	PCTI3631	6	16	Integrated Physiology & Pathophysiology III	M3611BP	6	16
Physiology III	PPHP3631	6	16	Medical Biochemistry II	M3611BB	6	16
Biochemistry II	PPHB3631	6	16	No equivalent			
Inorganic Chemistry	PCMI3611	6	16	General Pharmaceutics & Biopharmaceutics	P3631SG	6	16
General Pharmaceutics	PCTG3631	6	16	COBES 1	M3613FC	6	14
Introduction to Clinical and Nursing Skills	PCSN3632	6	16	Physical Pharmacy & Pharmaceutical Analysis	P3632SP	6	16
Pharmaceutical Analysis	PCTA3632	6	16	Pharmaceutical Organic Chemistry	P3632ST	6	16
Pharmaceutical Organic Chemistry	PCMO3632	6	8	Pharmacy Practice I	P3683PP	6	16
Pharmacy Practice I	PCSP3622	6	16	Physical Pharmacy & Pharmaceutical Analysis	P3632SP	6	16
Physical Pharmacy	PCTP3632	6	16	Research Methods and Proposal Writing	M3713TR	6	16
Research Methods	PCSR3632	6	16	No equivalent			

Old Bachelor of Pharmacy Honours curriculum				Transformed Bachelor of Pharmacy Honours curriculum			
Name	Code	NQF	**Credits**	**Name**	**Code**	**NQF**	**Credits**
and Proposal Writing	M3713TR	6	16	No equivalent			
Community Pharmacy							
Rural Attachment	PCSU3739	7	16	Pharmacognosy & Complementary Medicines	P3751SY	7	18
Year 3			16	No equivalent			
Pharmacognosy and Phytochemistry	PCMH3751	7	16	Pharmacology II	P3751CO	7	18
Pharmaceutical Microbiology	PCTM3751	7	8	No equivalent			
Systems Pharmacology I	PPHS3732	7	8	No equivalent			
Biopharmaceutics & Pharmacokinetics	PCTK3721	7	8	No Equivalent			
Pharmacy Law & Ethics	PCSL3721	7	16	Pharmacology III	P3752CO	7	18
Veterinary Pharmacy & Agrochemicals	PPHV3721	7	16	Medicinal Chemistry I	P3751MM	7	18
Chemotherapy	PPHC3751	7	16	Applied Pharmaceutical Microbiology	P3752SA	7	18
Medicinal Chemistry I	PCMM3752	7	8	No equivalent			
Applied Pharmaceutical Microbiology	PCTA3752	7	16	Clinical Pharmacy & Pharmacotherapeutics I	P3751CS	7	18
Environmental & Occupational Health	PCSO3722	7	16	Pharmaceutical Technology I	P3751ST	7	18
Pathophysiology & Pharmacotherapeutics I	PCST3752	7	16	Pharmacology IV	P3871CO	8	18
Pharmaceutical Technology I	PCTT3752	7		Medical Microbiology II	M3612TM	6	16
Systems Pharmacology II	PPHS3751	7	8	No equivalent			
No equivalent			16	No equivalent			
Pharmacy Practice II	PCSP3742	7	16	No equivalent			
Hospital Pharmacy							
Industrial/Manufacturing Facility	PCSF3859	8	16	No equivalent			
Year 4			16	Clinical Pharmacy & Pharmacotherapeutics II	P3872CT	8	20
Medicinal Chemistry II	PCMM3871	8	16	Pharmaceutical Technology II	P3871ST	8	20
Pathophysiology & Pharmacotherapeutics II	PCST3871	8	8	No equivalent			
Pharmaceutical Technology II	PCTT3871	8	32	Research & Innovation Project	P3893PI	8	32
Complementary and Alternative Medicine	PCSA3861	8	16	Pharmacy Practice III	P3872PP	8	18
Research Project	PCSR3870	8	16	Clinical Pharmacokinetics	P3871CD	8	18
Pharmacy Management	PCSM3872	8	16	No equivalent			
Clinical Pharmacokinetics and Therapeutic Drug Monitoring	PCSD3872	8	8	No equivalent			

15. Curriculum Framework: Summary table for all Modules in the Bachelor of Pharmacy Honours Programme

Module code	Module name	NQF level	NQF credits	Contact hours per week (L / P / T)	Pre-requisites / (Co-requisites)	Compulsory (C) / Elective (E)
Year 1: Core Semester						
U3583AL	Academic Literacy I	5	8	4L	None	C
U3583DD	Digital Literacy	5	8	2L+1T	None	C
U3403FS	Skills Portfolio	N/A	N/A	N/A	None	C
U3420SE	Sustainability and Environmental Awareness	4	2	2L	None	C
U3420CN	National and Global Citizenship	4	2	1L	None	C
U3420EM	Ethics and morality	4	2	2L	None	C
U3520LP	Leadership skills	5	2	2L	None	C
Total credits Core Semester						**24**
Year 1: Semester 1						
U3583AL	Academic Literacy I	5	0	2L	None	C
U3583DD	Digital Literacy	5	0	2L	None	C
P3511SM	Pharmaceutical Mathematics	5	12	3L+1T	None	C
P3511SO	Organic Chemistry	5	14	4L+3P	None	C
M3511BA	Embryology & Introduction to Anatomy	5	14	3L+4P	None	C
M3511HS	Sociology of Health and Disease	5	14	3L+4P	None	C
M3511BP	Integrated Physiology & Pathophysiology I	5	14	3L+4P	None	C
Total credits Semester 1						**68**
Year 1: Semester 2						
U3583AL	Academic Literacy I	5	0	2L	None	C
P3512SC	Physical Chemistry	5	14	4L+3P	(P3511SM)	C
M3512BS	Statistics for Health Sciences	5	12	4L	(P3511SM)	C
M3512HP	Human Anatomy	5	14	3L+4P	(M3511BA)	C
M3512BP	Integrated Physiology & Pathophysiology II	5	14	3L+4P	(M3511BP)	C
M3512BB	Medical Biochemistry I	5	14	3L+4P	(P3511SO)	C
Total credits Semester 2						**68**
Total Credits YEAR 1						**160**
Year 2: Core Semester						
H3513NM	Medical Anthropology	5	12	4L	None	C
U3683AL	Academic Literacy II	6	8	4L	U3583AL	C
U3420RT	Entrepreneurial skills	4	2	2L	None	C
U3420PJ	Project management skills	5	2	2L	None	C
Total credits Core Semester						**24**
Year 2: Semester 1						
U3683AL	Academic Literacy II	6	0	2L	U3583AL	C
P3631SB	Pharmaceutics I	6	16	4L+3P	P3512SC, P3511SM	C
M3611BP	Integrated Physiology & Pathophysiology III	6	16	3L+4P	M3511BP and M3512BP	C
M3611BB	Medical Biochemistry II	6	16	3L+4P	M3512BB	C
M3631TM	Medical Microbiology I	6	16	3L+4P	None	C

Module code	Module name	NQF level	NQF credits	Contact hours per week (L / P / T)	Pre-requisites / (Co-requisites)	Compulsory (C) / Elective (E)
P3671PU	Rural Hospital Placement	6	16	40 hours per week x 4 weeks =160 hrs	(P3683PP)	C
Total credits Semester 1						**80**
Year 2: Semester 2						
U3683AL	Academic Literacy II	6	0	2L	U3583AL	C
P3632SB	Pharmaceutics II	6	16	4L+3P	P3512SC, P3511SM, P3511SO (P3631SG)	C
P3622PL	Pharmacy Law & Ethics	6	7	2L	(P3683PP)	C
P3632ST	Pharmaceutical Organic Chemistry	6	16	4L+3P	P3511SO	C
P3632CO	Pharmacology I	6	16	4L+3P+1T	(M3611BP)	C
M3612TM	Medical Microbiology II	6	16	3L+4P	(M3631TM)	C
P3682RC	Community Pharmacy Placement	6	12	40 hours per week x 3 weeks =120 hours	(P3683PP) and (P3632PL)	C
Total credits Semester 2						**83**
Year 2: Year module						
P3683PP	Pharmacy Practice I	6	18	5hrs/week integrated learning	P3511SM	C
M3683FC	COBES 1	6	14	5 hrs /week integrated learning	None	C
Total credits YEAR 2						**219**
Year 3: Semester 1						
P3751SY	Pharmacognosy & Complementary Medicines	7	18	3L+3P	P3632ST	C
P3751MM	Medicinal Chemistry I	7	18	4L+3P	P3632SP	C
P3751CO	Pharmacology II	7	18	3L+3P+ 2T	P3632CO	C
P3761SI	Pharmaceutical Industrial Placement	7	9	40hrs x 2wks (80hrs)	(P3751ST)	C
Total credits Semester 1	**63**					
Year 3: Semester 2						
P3752SB						
P3752SA	Applied Pharmaceutical Microbiology	7	18	3L+3P	P3631SG	C
P3762MM	Medicinal Chemistry II	7	9	2L+2P	(P3751MM)	C
P3752CO	Pharmacology III	7	16	4L	(P3751CO)	C
P3752CS	Clinical Pharmacy & Pharmacotherapy I	7	18	3L+4P	M3613FC and (P3751CO)	C
Total credits Semester 2						**79**
Year 3: Year module						
P3783PP	Pharmacy Practice II	7	20	5hrs/week integrated learning	P3683PP	C
M3713TR	Research Methods and Proposal Writing	7	16	4L	M3512BS and U3583DD	C
Total credits YEAR 3						**178**
Year 4: Semester 1						

Module code	Module name	NQF level	NQF credits	Contact hours per week (L / P / T)	Pre-requisites / (Co-requisites)	Compulsory (C) / Elective (E)
P3871ST	Pharmaceutical Technology II	8	20	3L+3P	P3751ST	C
P3871CT	Clinical Pharmacy & Pharmacotherapy II	8	20	3L+3P	P3752CS	C
P3871CO	Pharmacology IV	8	18	3L	P3752CO	C
P3861RR	Clinical Pharmacy Rotations I	8	10	5 hours per wk x 8 wks (minimum 40hrs)	P3752CS (P3871CT)	C
Total credits Semester 1						**68**
Year 4: Semester 2						
P3872CD	Clinical Pharmacokinetics	8	18	3L+2T	(P3871CO)	C
P3862PV	Veterinary Pharmacy Practice	8	10	2L+1T	P3753PP	C
P3872PP	Pharmacy Practice III	8	18	4L	P3753PP	C
P3862RR	Clinical Pharmacy Rotations II	8	10	5hrs/wk x 8 weeks (minimum 40hrs)	(P3871RR) and (P3871CT)	C
Total credits Semester 2						**55**
Year 4: Year module						
P3893PI	Research/ Innovation Project	8	32	Supervision by appointment	M3713TR	C
Total credits YEAR 4						**155**
Total credits in Transformed curriculum (Bachelor of Pharmacy Honours Programme)						**712**

BPHARM MODULES

APPLIED PHARMACEUTICAL MICROBIOLOGY **P3752SA**

NQF level : 7
Contact Hours : 2L+2P
Credits: : 18
Pre-requisites : **P3631SG** – General Pharmaceutics and Biopharmaceutics
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of assignments, Assignments = 20 %, Laboratory practical = 30 %, Tests = 50 %. The exam will be for a maximum of three (3) hours written paper.
Module Content:
Disinfectants, antiseptics, sanitisers, preservatives: classification, preparation of WHO formular I & II and others, evaluation of disinfectant activity, sterilization: Dry heat, moist heat, filtration, Pasteurisation, Tyndallisation, Radiation, chemical sterilization, kinetics of microbial inactivation. Aseptic manufacture of medicines: aseptic hand washing, grabbing according to USP 797 standards, pharmaceutical clean rooms, lamina flow hoods and biological safety cabinets, purified water vs distilled water. Pharmaceutical water treatment plant: multimedia filtration, degassing, ion exchange, reverse osmosis, UV light treatment .Pyrogens and depyrogenation: production water for injections, methods of depyrogenation, Pharmacopeial tests for pyrogens, Vaccines development: Variolation, types of vaccines, conventional propagation by egg embryo, cell cultured propagation, rDNA technology in vaccine development, downstream processing and formulation development, Cryopreservation and cell Banking: cryogenic temperatures, challenges of crystal formation, strategies to prevent crystal formation, Master cell bank, working cell Bank, Sterile pharmaceutical preparations: crystalloids, colloids, parenteral nutrition; Fermentation Technology: microbial sources of carbon, energy and electrons, types of nutrition of microbes, Batch mode, fedbatch mode and continuous fermentation, microbial growth curves, generation time.

CLINICAL PHARMACOKINETICS **P3872CD**

NQF level : 8
Contact Hours : 3L+2T x 16 weeks
Credits : 18
Co-requisites : **(P3871CO) -** Pharmacology IV
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% and 50% to the final mark, respectively. The continuous assessments will consist of Assignments (20%) and Tests (80%). The exam will be one three (3) hours written paper.
Module Content:
Clinical Pharmacokinetics: Introduction to Clinical pharmacokinetics, Design of dosage regimens, Pharmacokinetics of Drug Interaction, Therapeutic Drug monitoring: Dosage adjustment in Renal and hepatic Disease, and Pharmacogenetics.

CLINICAL PHARMACY & PHARMACOTHERAPY I **P3752CS**

NQF level : 7
Contact Hours : 3L+4P x 16 weeks
Credits : 18
Pre-requisites : **M3613FC –** COBES 1
Co-requisites : **(P3751CO) –** Pharmacology II
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of Tests: 80%, Practicals (including case presentations and quizzes): 20% The exam will be one written paper for a maximum of three (3) hours.
Module Content:
Cardiology: essential hypertension, hypertensive emergencies, resistant hypertension, atherosclerosis and atherosclerotic diseases, acute coronary syndromes, heart failure, acute rheumatic fever and rheumatic heart disease, arrythmias, stroke and transient ischemic attack, venous thromboembolism, and anticoagulation principles. Nephrology: electrolyte disorders, acid-base disorders, acute kidney injury, chronic kidney disease and its complications, anaemia. Endocrinology I: thyroid disorders, type 1 and type 2 diabetes, diabetic emergencies. Pulmonology: asthma, chronic obstructive pulmonary disease, smoking cessation. Gastroenterology: gastro-oesophageal reflux disease, peptic ulcer disease and H. pylori, pancreatitis, infectious hepatitis (A,B,C,E), cirrhosis, and end stage liver disease and its complications. Infectious disease I: lower respiratory tract infections, upper respiratory tract infections, sexually transmitted infections, genitourinary tract infections, skin and bone infections, endocarditis, meningitis, and sepsis.
For each condition covered, students will learn signs/symptoms, diagnostic criteria and appropriate laboratory criteria, first line pharmacotherapy management, patient education/self-care, and monitoring.

CLINICAL PHARMACY & PHARMACOTHERAPY II **P3871CT**

NQF level : 8
Contact Hours : 3L+3P x 16 weeks
Credits : 20
Pre-requisites : **P3752CS – Clinical Pharmacy & Pharmacotherapy I**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of Tests: 80%, Practicals (including quizzes): 20%. The exam will be one written paper for a maximum of three (3) hours.
Module Content:

Infectious disease II: sepsis and shock, HIV, tuberculosis, opportunistic infections, invasive fungal infections, gastrointestinal infections, common viral infections, malaria, parasitic infections. Psychiatry/neurology: anxiety disorders, unipolar and bipolar depression, schizophrenia and psychosis, substance use disorder, withdrawal, ADHD, dementia and delirium, Parkinson's disease, epilepsy and status epilepticus, headache, and pain. Men and women's health: contraception, menopause, infertility, benign prostatic hyperplasia, urinary incontinence, sexual dysfunction. Oncology: oncologic supportive care, oncologic emergencies, leukaemias, lymphomas, hormone-related cancers, solid organ tumours, Kaposi sarcoma, melanoma. Rheumatology: arthritis, gout, lupus, osteoporosis, drug-induced hypersensitivity reactions, inflammatory bowel disease, sickle cell disease, glaucoma. For each condition covered, students will learn signs/symptoms, diagnostic criteria and appropriate laboratory criteria, first line pharmacotherapy management, patient education/self-care, and monitoring.

CLINICAL PHARMACY ROTATIONS I **P3861RR**

NQF level : 8
Contact Hours : 5 practical hours/week x 8 weeks (min 40 hours)
Credits : 10
Pre-requisites : **P3752CS – Clinical Pharmacy & Pharmacotherapy I**
Co-requisites : **(P3871CT) Clinical Pharmacy & Pharmacotherapy II**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of Case presentations – 50% SOAP notes – 20%, Quizzes – 10%, Active participation and engagement – 20%. The exam will be an OSCE for a maximum of three (3) hours.
Module Content:
Clinical rotations: introduction to clinical pharmacy, pharmaceutical care, pharmaceutical care planning; cardiology; nephrology; gastroenterology; endocrinology; pulmonology; and infectious diseases.

CLINICAL PHARMACY ROTATIONS II **P3862RR**

NQF level : 8
Contact Hours : 5 practical hours/week x 8 weeks (min 40 hours)
Credits : 10
Co-requisites : **(P3861RR) – Clinical Pharmacy Rotations I, and (P3871CT) – Clinical Pharmacy & Pharmacotherapy II**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of Case presentations – 50% SOAP notes – 20%, Quizzes – 10%, Active participation and engagement – 20%. The exam will be an OSCE for a maximum of three (3) hours.
Module Content:
Clinical rotations including HIV, opportunistic infections, and tuberculosis; haematological malignancies and solid organ tumours; and psychiatry.

COMMUNITY BASED EDUCATION & SERVICE (COBES) I **M3683FC**

NQF level : 6
Contact Hours : 5 hours of integrated learning and household attachment per week
Credits : 14
Assessment : Assessment Strategies Continuous assessment 100% made of Logbook 20%, · Theory test 20%, Observed Structured Clinical Examination (OSCE) 20% , Family visit project 20%, Basic Life Support test (BLS) 20%.
Pre-requisites : **NONE**
Module Content : Teaching of basic clinical skills will facilitate the immersion of the student into the clinic setting. Following principles of patient safety, original teaching and performance of skills will occur in the skills laboratory setting under supervision. Eventually with exposure to the clinics and health centre at the primary care level, the student will participate in aspects of basic service delivery to patients. The learning will be re-enforced by assessment through observation of skills and assignments related to the patient's illness in the context of the family and community.

COMMUNITY PHARMACY PLACEMENT **P3682RC**

NQF level : 6
Contact Hours : 40 placement hours per week for 3 weeks
Credits : 12
Co-requisites : **(P3683PP) – Pharmacy Practice I & (P3622PL) – Pharmacy Law & Ethic**
Assessment:
The assessment of this module will include continuous assessments (CA) which will contribute 100% to the final mark. The continuous assessments will consist of; The placement workbook 30%, Placement report 30%, End of placement quiz 16%, Viva voce 24%.
Module Content:
Interprofessional interactions, Patient counselling and medicines information, Prescription screening and pharmacy law, Responding to symptoms of minor ailments and selection of over the counter (OTC) medicines, Compounding and calculations, Community pharmacy management, Inventory control in community pharmacy and information technology.

EMBRYOLOGY AND INTRODUCTION TO ANATOMY **M3511BA**

NQF level : 5
Contact Hours : 40 placement hours per week for 3 weeks
Credits : 14
Pre-requisites : **NONE**
Assessment:
Continuous assessment: Written assessment Class Test 1 25%, Written assessment Class Test 2 25%, Written assessment Class Test 3 25% and Assignments and Professionalism 25%. Examination: One 3-hour written examination paper. Final mark: 40% Exam mark and 60% of Continuous assessment mark.
Module Content:
Man's place in the organismic kingdom. Bioethics: history of Anatomy and the Anatomy and Human Tissue Acts. Basic embryological concepts. Histological structure: function of the primary tissues in relation to the primary organ systems. Terminology: definitions in anatomy. Introduction to systems and microscopy: methods in microscopy.

GENERAL PHARMACEUTICS & BIOPHARMACEUTICS **P3631SG**

NQF level : 6
Contact Hours : 4L + 3P
Credits : 16
Pre-requisites : **P3512SC -** Physical Chemistry
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessment marks will consist of, tests 50 %, assignments 20 %, practicals 30%. The exam will be one written paper of three (3) hours.
Module Content:
Scientific principles of dosage form design: Dissolution and solubility, properties of solutions, pharmaceutical calculation, surfaces and interfaces, disperse systems and rheology. Biopharmaceutical principles of drug delivery: Gastrointestinal tract physiology and drug absorption, bioavailability, physicochemical and dosage form factors and assessment of biopharmaceutical properties.

HUMAN ANATOMY **M3512HP**

NQF level : 5
Contact Hours : 3L + 4P
Credits : 14
Pre-requisites : **NONE**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessment marks will consist of Four Theory (60%) and Practical (40%) test which will, contribute (24% each) to the final CA mark; Class attendance and quizzes will contribute 4% to the final CA mark. The exam will be one written paper of three (3) hours.
Module Content:
Cardiovascular: Heart, Lungs, Osteology of the thoracic cage, Muscles for the thoracic cage and breathing, Histology and Embryology. Gastrointestinal system: Osteology, Histology and embryology, Alimentary canal, Accessory organs, Blood supply and venous drainage, Abdominal wall muscles, Inguinal canal. Urogenital: Posterior abdominal wall, Urinary system, Female reproductive system, Male reproductive system, Perineum Blood supply/venous drainage, Osteology, Embryology and Histology. Neuroanatomy: Osteology and paranasal sinuses, Anatomy of the brain, Ventricles and CSF, Blood supply venous drainage, Cranial nerves, Eye, orbit and ears

INTEGRATED PHYSIOLOGY AND PATHOPHYSIOLOGY I **M3511BP**

NQF level : 5
Contact Hours : 3L + 4P
Credits : 14
Pre-requisites : **NONE**
Assessment:
The continuous assessment (CA): 50 % and Examination: 50 % (one written, 3-hour paper) The continuous assessment mark will consist of Tests (75%) Lecture quizzes (5%) Practical assignments/quizzes (20%)
Module Content:
The module covers content on General physiology and pathophysiology: molecular interactions as integral to the generation; signalling and cellular dynamics and cellular adaptation and injury. Cellular and tissue compartmentation, and how information flows within a cellular and mass context. Genetics: gene expression; DNA structure and function. Homeostasis: internal environment; steady state; feedback mechanisms; disruptions of homeostasis. Body fluid compartments: extracellular, intracellular compartments; water distribution in the body; blood volume; tonicity; osmotic equilibrium; regulation of thirst; fluid movement between compartments; alterations in fluids and electrolytes. Energy and cellular metabolism: energy utilisation; laws of thermodynamics; metabolic reactions and enzymatic reactions. Endocrine physiology and disorders: the endocrine system and its collaboration with the nervous system; hormone regulation; hormone structure and function; disorders of endocrine function. Neurophysiology: general principles of neurophysiology; principles of excitable tissues (neurons, skeletal & smooth muscles); action potentials; contraction and excitation coupling; Guillain Barré syndrome; myasthenia gravis and rigor mortis.

INTEGRATED PHYSIOLOGY AND PATHOPHYSIOLOGY II **M3512BP**

NQF level : 5
Contact Hours : 3L + 4P
Credits : 14
Co-requisites : **(M3511BP) - Integrated Physiology and Pathophysiology I**
Assessment:
The continuous assessment (CA): 50 % and Examination: 50 % (one written, 3-hour paper). The continuous assessment mark will consist of: Tests (75%) Lecture quizzes (5%) Practical assignments/quizzes (20%)
Module Content:
The module covers content on autonomic nervous system: sympathetic and parasympathetic systems; autonomic and synaptic transmission; autonomic reflex centers, adrenal medulla; gastroparesis and pure autonomic failure. Sensory physiology: sensory coding; sensory receptors; somatic sensations; sensory perception, ascending neural pathways; referred pain; mechanisms of pain relief and pathophysiology of headaches. Special senses: vision; hearing; balance; smell and taste. Higher brain function: limbic system; reward and punishment centers; biological rhythms; consciousness; learning and memory; hippocampus; language and speech; cerebral hemispheres; electroencephalography; Alzheimers; amnesia; Wernicke's aphasia; Broca's aphasia; stroke and seizure disorders. Motor system: reflexes and voluntary movements; motor functions of the spinal cord; proprioceptors; control of skeletal muscles; alpha-gamma coactivation; muscle tone and fatigue; reciprocal innovation; upper and lower motor neurons; pyramidal and extrapyramidal tracts; brainstem; cerebellum, thalamus and basal ganglia; decerebrate and decorticate rigidity; Parkinsons disease; spinal shock. Blood and immunity: composition and function of blood; anaemia and polycythaemia; haemostasis; haemophilia; ABO blood group system; Erythroblastosis faetalis; immune system; leukaemia; alloimmune disease.

INTEGRATED PHYSIOLOGY AND PATHOPHYSIOLOGY III **M3611BP**

NQF level : 6
Contact Hours : 3L + 4P
Credits : 16
Pre-requisites : **M3511BP AND M3512BP - Integrated Physiology and Pathophysiology I & II**
Assessment : The continuous assessment (CA): 50 % and Examination: 50 % (one written, 3-hour paper) The continuous assessment mark will consist of: Tests (75%) Lecture quizzes (5%) Practical assignments/quizzes (20%)

Module Content:
The body systems to be covered in this module will include Respiratory system: conducting and respiratory zones; gas laws; lung mechanics; muscles of breathing; pleural membrane; pulmonary ventilation; alveolar ventilation; alveolar dead space; lung compliance; pulmonary function tests; gaseous exchange; gas transport; control of respiration; pulmonary embolism; pneumonia; restrictive and obstructive lung diseases. Cardiovascular system: principles of haemodynamics; neural control of circulation; atherosclerosis; hypertension; structure and function of the heart; cardiomyopathy; endocarditis and heart failure. Gastrointestinal system: general principles of gastrointestinal function; innervation and blood supply of gastrointestinal system; secretory function; motility; metabolic functions of the liver and gall bladder; gastro-oesophageal reflux; gastritis; peptic ulcer disease; inflammatory bowel syndrome; diarrhea; vomiting; hepatitis; jaundice; cirrhosis; liver failure; hepatic encephalopathy. Renal system: renal structure and function; renal circulation; glomerular filtration; tubular reabsorption and secretion; clearance; fluid and acid-base balance; micturition; renal function tests; dialysis. along with their associated pathophysiology. Reproductive system: principles of human reproduction; hypothalamic-pituitary-gonadal axis; puberty; male sexual development; female sexual development; pregnancy; menopause and andropause.

MEDICAL BIOCHEMISTRY I **M3512BB**

NQF level : 5
Contact Hours : 3L + 4P
Credits : 14
Co-requisites : **(P3511SO) - Organic Chemistry**
Assessment : Continuous assessment (CA): 60%, 60% tests, 30% laboratory reports/assignments and 10% assignments/quizzes. Examination: 40% (1 x 3 hours written paper).)

Module Content:
The module will cover the following topics: Cell biology - Introduction to Medical Biochemistry and its relationship to cell biology, Cellular diversity, function and compartmentalisation. Protein structure and function - Structure and properties of amino acids, peptides and proteins, Peptides and Protein function (glutathione, globular proteins and fibrous proteins), Protein purification and separation methods/techniques. Enzymes - Enzyme properties and mechanism of action, Enzyme kinetics, inhibition and regulation Diagnostic and therapeutic uses of enzymes. Lipid chemistry and lipoproteins - Definition, Structure and biomedical importance of various lipids and complex lipids, Steroids and Prostaglandins, Structure and function of lipoproteins; Chemistry of vitamins and minerals - Chemistry of vitamins, minerals and dietary sources, Role of vitamins in metabolism, growth and development (implication of vitamin deficiency), Role of minerals in metabolism, growth and development (implication of minerals deficiency). Carbohydrate chemistry - Structure and function of carbohydrates, Carbohydrates in living systems, Glycoconjugates. Signalling Pathways - Signalling molecules and modes of cell signalling, G-protein coupled receptors and G-protein signalling, Second messengers, signal transduction and disease. Nucleic acid chemistry and genetic information transfer - Nucleic acid structure and properties, DNA organisation, synthesis and repair, RNA synthesis –Transcription Protein synthesis - Protein synthesis – Translation, Post-translational processes: Folding and modification, Regulation of gene expression. Introductory medical genetics - Mechanisms of genetic variation, Mendelian inheritance, Introductory cytogenetics, genetics and disease. Recombinant DNA technology - Principles of DNA isolation and cloning, Principles of DNA amplification and sequencing, Principles of hybridization and microarrays. Introduction to bioinformatics - Principles of bioinformatics and biologic databases, Assessing pairwise sequence similarity, Introduction to phylogenetics.

MEDICAL BIOCHEMISTRY II **M3611BB**

NQF level : 6
Contact Hours : 3L + 4P
Credits : 16
Pre-requisites : **M3512BB – Medical Biochemistry I**
Assessment : Continuous assessment (CA): 60%, consisting of 60% tests, 30% laboratory reports/assignments and 10% assignments/quizzes. Examination: 40% (1 x 3 hours written paper).

Module Content:
This module covers the following topics: Principles of bioenergetics - Principles of bioenergetics. Oxidative metabolism - Cellular redox systems, Mitochondrial electron transport system, Inhibitors and regulation of oxidative metabolism, Mitochondrial dysfunction and disease. Carbohydrate metabolism and the TCA cycle – Glycolysis, Gluconeogenesis, Tricarboxylic Acid cycle, Metabolism of non-glucose sugars, Pentose phosphate pathway, Metabolism of glycogen. Lipid metabolism - Oxidation of fatty acids in the liver and extrahepatic tissues, Ketogenesis and impaired oxidation of fatty acids, Biosynthesis and storage of fatty acids, Eicosanoids and health, Disorders of lipoprotein metabolism. Steroid and bile metabolism - Cholesterol synthesis and transport, Bile acid biosynthesis, Steroid hormones and CYP enzymes. Metabolism of proteins and amino acid nitrogen - Amino acid degradation and the urea cycle, Inborn errors of metabolism.
Principles of metabolic regulation and biochemical basis of cancer - Principles of metabolic regulation, Integration of metabolism, Biochemical basis of cancer. Control of food intake and regulation of energy balance - Food intake control mechanisms, Energy balance regulation, Kwashiorkor and marasmus. Nutrition in health and disease - Overview of nutrition in health and disease, Nutrigenetics and nutrigenomics, Nutrition in metabolic and cardiovascular disease and their prevention, Steroid and bile metabolism; Nutrition in health and disease. Xenobiotic metabolism - Xenobiotics, sites of metabolism and the process of biotransformation, Cytochrome P450 (CYP) enzymes in biotransformation, Clinical correlations in xenobiotic metabolism.

MEDICAL MICROBIOLOGY I **M3631TM**

NQF level : 6
Contact Hours : 3L + 4P
Credits : 16
Pre-requisites : **NONE**
Assessment:
The module mark will be made up of continuous assessments (CA) 40% and summative assessments 60%. Continuous assessment will consist of: Tests 60%, Practical 30% Assignment 10%, The final exam will consist of: 1 x written exam for three hours (50%) and 1 x practical exam for two hours (50%)

Module Content:
This module covers content on: Bacterial Morphology and Physiology: Bacterial cell; Bacterial cell Processes; Bacterial virulence Bacterial Genetics, Culture media and methods Microbial flora, Sterilization and Disinfection: Physical and chemical prevention, Spread and Control of microorganisms, sterilizing agents; disinfectants. Immunology: Humoral and cell-mediated immunity; Cytokines, Immunological tolerance; Autoimmunity, Hypersensitivity reactions, Transplantation and malignancies. Systemic Bacteriology: Staphylococcus, Streptococcus, Pneumococcus, Neisseria, Enterobactericiae, Clostridium, Mycobacterium, Acinetobacter etc. Mechanisms of action of major classes of antimicrobial agents; drug resistance; multidrug resistant organisms.

MEDICAL MICROBIOLOGY II **M3612TM**

NQF level : 6
Contact Hours : 3L + 4P
Credits : 16
Co-requisites : **(M3631TM) - Medical Microbiology I**
Assessment:
The module mark will be made up of continuous assessments (CA) 40% and summative assessments 60%. Continuous assessment will consist of: Tests 60%, Practical 30%, Assignment 10%. The final exam will consist of 1 x written exam for three hours (50%) and 1 x practical exam for two hours (50%)
Module Content :
The module will cover content on Medical Parasitology, Mycology, Virology and Entomology. Parasitology: major branches of protozoology and helminthology; classification by site (intestinal, systemic- tissue and blood). Parasitic diseases: Entamoebiasis, Giardioses, Cryptosporidioses, Soil transmitted helminths, Trypanasomiasis, Taeniosis, Schistosomiasis. Medical Mycology: General properties of important fungi, Growth and isolation of fungi. Mycoses: Superficial-, cutaneous-, deep or systemic-, opportunistic-mycoses, fungal toxin, allergies, diagnostic laboratory test, antifungals. Medical entomology (insects and arachnids) Virology: principles of virology; Taxonomy and replication strategies of various viruses and Bacteriophages; Oncogenic virus; prions; Antiviral drugs; Technique of Diagnostic virology.

MEDICINAL CHEMISTRY I **P3751MM**

NQF level : 7
Contact Hours : 4L + 3P x 16 weeks
Credits : 18
Pre-requisites : **P3632ST – Pharmaceutical Organic Chemistry**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of assignments (20%), tests (50%), practical assessments (30%). The exam will be three (3) hours written paper.
Module Content:
The five themes are; Introduction to medicinal chemistry and drug discovery, Physicochemical principles of drug action, Drug metabolism and bio-transformation: mechanisms, therapeutics significance and mechanism of drug actions and drug metabolisms, Optimisation and drug design techniques, and SARs, QSARs, CADD and Combinatorial Chemistry.

MEDICINAL CHEMISTRY II **P3751MM**

NQF level : 7
Contact Hours : 2L+ 2P x 16 weeks
Credits : 9
Co-requisites : **(P3751MM) - Medicinal Chemistry I**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of assignments (20%), tests (50%) and practical assessments (30%). The exam will be a two (2) hour written paper.
Module Content:
Drug discovery or design process, nomenclature, the synthesis of the drug, it's structure activity relationships (SAR's), physico-chemical properties, methods of administration, mode of action, chemical reactions and side effects of various drug molecules. Themes include antibiotics, analgesics, hormones and CNS compounds as relevant examples. In addition, this module also has a focus on pharmaceutical biotechnology and radiopharmaceuticals.

ORGANIC CHEMISTRY **P3511SO**

NQF level : 5
Contact Hours : 4L + 3P
Credits : 14
Pre-requisites : **NONE**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of tests 50%, assignments 20% and practical assessments 30%. The exam will be for a maximum of three (3) hours written paper.
Module Content:
Review of valences, atomic and Molecular orbital theories. Introduction to Organic Chemistry: Functional groups, physical properties, intermolecular forces, acids and bases. Molecular representation: Shapes, resonance structures, alkanes, alkenes, alkynes, arenes, alcohols & phenols, carboxylic acids and derivatives. Major organic molecules: Proteins & nucleic acids, lipids carbohydrates, heterocyclic compounds and nomenclature. Stereochemistry: Classification, stereoisomers, enantiomers, diastereomers, optical activity R/S nomenclature. Introduction to Organic reactions: Reaction mechanism, electrophiles, nucleophile electrophilic addition reactions and nucleophilic substitution & eliminations of halo-alkanes.

PHARMACEUTICAL INDUSTRIAL PLACEMENT **P3761SI**

NQF level : 7
Contact Hours : 40 placement hours per week for 2 weeks
Credits : 9
Co-requisites : **(P3751ST) - Pharmaceutical Technology I**
Assessment:

The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of: Placement workbook 25 %, Placement report 25 %, Quiz/Test 25 % and Viva voce 25 %.

Module Content:
Design of pharmaceutical manufacturing plants: site selection, aims of plant design, clean room technology, layout, product/personal movement, materials used in fabrication, corrosion; Pharmaceutical manufacturing plant organogram: the various departments and their roles; Unit operations in Pharmaceutical Manufacturing and equipment: drying, evaporation, particle size reduction, particle size separation, granulation, coating, heat transfer, mixing, tabletting, capsule making, and Packaging and labelling; Documentation: Batch Manufacturing Record (BMR), Dosiers, Pharmaceutical Quality Control: hardness, friability, assays, dissolution, disintegration; Pharmaceutical Quality Assurance: Development of a quality management system (QMS), developments of standard operating procedures (SOPs), ensuring compliance with cGMPs, Training, conducting audits and continuous improvement; pharmaceutical water treatment plant: multimedia filtration, degassing, ion exchange, reverse osmosis, UV light treatment; Pharmaceutical stability and shelf life: importance of storage conditions, cold chain, WHO zones; Pharmaceutical waste disposal: 3Rs of Reduce, Reuse and Recycle.

PHARMACEUTICAL MATHEMATICS **P3511SM**

NQF level : 5
Contact Hours : 3L + 1T
Credits : 12
Pre-requisites : **NONE**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of tests 50%, and quizzes and assignments 50%. The exam will be one written paper of two (2) hours.
Module Content:
Rounding: rounding to several decimal places, rounding to significant figures; Simple proportions and ratios: basic fractions, ratios and percentages; Metric system: metric conversions lengths, weights, volumes (kilo to milli), drug calculations. Introduction to Pharmaceutical Calculations: drug calculations, w/w (weight per weight), v/v (volume per volume), w/v (weight per volume), simple dilution problems. Functions: one-to-one and onto functions, horizontal line test, composition of functions, inverse of a function. Piece wise defined functions, Introduction to exponential and logarithmic functions. Limit of a function: definition of limit, left and right limits, infinite limits and improper limits. Differentiation: rules of differentiation, chain rule, increasing and decreasing functions and graph sketching. Trigonometry: further trigonometric identities, derivatives and integrals of trigonometric functions.

PHARMACEUTICAL ORGANIC CHEMISTRY **P3632ST**

NQF level : 6
Contact Hours : 4L+3P
Credits : 16
Pre-requisites : **P3511SO - Organic Chemistry**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of: 20% assignments,50% tests and quizzes and 30% practical assessments. The final examination will be one 3-hour written paper.
Module Content:
Basics of organic reactions and reaction mechanisms: Lewis acid/ base, octet rule, formal charge, electronegativity, inductive effect, resonance, bond polarity, use of arrows to show bond cleavage and formation Conformations of alkanes: conformations of acyclic alkane: eclipsed, gauche and anti staggered conformer, conformations of cyclic alkanes, stability of conformers of unsubstituted and substituted cyclohexane Stereochemistry: Cahn-Ingold-Prelog system; R/ S isomers, Z/E isomers, stereocenters, chirality, optical activity, enantiomeric access Nucleophilic reactions: unimolecular and bimolecular nucleophilic substitutions and eliminations (SN1, SN2, E1,E2) Alcohols and ethers: synthesis and reactions Electrophilic reactions: synthesis and reactions of aromatic compounds Carboxylic acid: synthesis and reaction of carboxylic acid and carboxylic acid derivatives, Amines: synthesis and reaction heterocyclic compound of medicinal importance: synthesis and reactions of heterocyclic compounds.

PHARMACEUTICAL TECHNOLOGY I **P3751ST**

NQF level : 7
Contact Hours : 3L + 3P x 16 weeks
Credits : 18
Pre-requisites : **P3631SG – General Pharmaceutics & Biopharmaceutics**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: 2 Assignments = 20%, 2 Tests and quizzes = 50%, 8 Laboratory practical = 30%. The final examination will be 1 x 3 hours written paper.
Module Content:
Design of pharmaceutical manufacturing plants: site selection, aims of plant design, layout, product/personal movement, materials used in fabrication, corrosion; Unit operations in pharmaceutical manufacturing and equipment: drying, evaporation, particle size reduction, particle size separation, granulation, coating, heat transfer, mixing, tabletting, capsule making, and Packaging and labelling; Technology to generate pharmaceutical powders from liquids: Precipitation and crystallization, spray drying, spray freeze drying, supercritical fluid method. Powder technology: particle size analysis, bulk density vs true density, particle properties and bulk flow, characterisation of powder flow – Angle of Repose, hopper design, Hausner's ratio, Carr's index. Documentation: Batch Manufacturing Record (BMR), Dossiers, certificate of analysis. Manufacture of pharmaceutical products: Good laboratory practices (GLP), Laboratory scale, pilot and large scale; good manufacturing practices (cGMP). Pharmaceutical quality control: raw materials, in-process quality test of assays, tablet hardness, friability, dissolution, disintegration. Pharmaceutical quality assurance: development of a quality management system (QMS), developments of standard operating procedures (SOPs), ensuring compliance with cGMPs, Training, conducting audits and continuous improvement. Drug and product stability: importance of storage conditions, cold chain, WHO zones.

PHARMACEUTICAL TECHNOLOGY II **P3871ST**

NQF level : 8
Contact Hours : 3L + 3P x 16 weeks
Credits : 20

Pre-requisites : P3751ST – Pharmaceutical Technology I
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following Assignments = 20%, tests and quizzes = 50%, laboratory practical = 30%. The final examination will be 1 x 3 hours written paper.
Module Content:
Pharmaceutical compounding of medicines: official and magistral preparations, liquid, semi-solid and solid dosage forms; compounding and reconstitution of sterile hospital unit dose systems: parenteral preparations, cancer chemotherapy, parenteral nutrition, and radiopharmacy; Advanced drug delivery systems: foams, nano particle technology, modified release dosage formulations; Pharmaceutical manufacturing: detailed exposition of tableting (dry, wet and direct compression), capsule making, semi-solid and liquid dosage form production, Quality control: assays, tablet hardness, friability, dissolution, disintegration; Pharmaceutical business models: Big Pharma, Biotech. Companies, drug delivery companies, contract manufacturing companies; The drug development process: drug discovery, preclinical studies, and clinical studies.

PHARMACOGNOSY & COMPLEMENTARY MEDICINES **P3751SY**

NQF level : 7
Contact Hours : 3L + 3P x 16 weeks
Credits : 18
Pre-requisites : P3632ST - Pharmaceutical Organic Chemistry
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: 20% assignments, 50% tests and quizzes and 30% practical assessments. The final examination will be 3 hours written paper.
Module Content:
Medicinal plant taxonomy, morphology and families, forms of crude drugs: organised and unorganised drugs, synthesis of plant phytochemicals, regulation and quality control of medicinal plant materials, application of phytotherapy medicines in clinical practice, indigenous knowledge systems of Namibia and around the globe, Phytonutrients, nutraceuticals & supplements.

PHARMACOLOGY I **P3632CO**

NQF level : 6
Contact Hours : 4L + 3P + 1T
Credits : 16
Co-requisites : (M3611BP) - Integrated Physiology & Pathophysiology III
Assessment :
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: practicals (20%) and tests (80%). The exam will be one three (3) hours written paper.
Module Content:
Pharmacodynamics: Mechanisms and equations of drug receptor interactions; nature and types of drug dose response curves; pharmacodynamic terms describing drug dose effectiveness and safety; agonist and antagonist drug dose response curves and spare receptor theory; drug receptor families, cellular signal transduction pathways and second messengers; drug formulations and routes of drug administration; drug transport process, drug absorption, distribution and elimination; drug extraction ratio and clearance; effects of organ perfusion, protein binding and enzymatic activity on rates of drug elimination; pharmacokinetic compartment models. Pharmacokinetics: pharmacokinetic parameters – their definitions and implications in drug therapy; drug plasma concentration time curves; pharmacokinetic models and equations and the use of semi-logarithmic graphs for determining pharmacokinetic parameters; drug metabolism and drug metabolising enzymes; enzyme induction and inhibition; Fundamental principles of drug interactions.

PHARMACOLOGY II **P3751CO**

NQF level : 7
Contact Hours : 3L + 3P + 2T x 16 weeks
Credits : 18
Pre-requisites : P3632CO – Pharmacology I
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: practicals (20%) and tests (80%). The exam will be one three (3) hours written paper.
Module Content:
This module covers the theoretical and practical contents on the principles of pharmacology as applicable to the physiological systems under six themes: Pharmacology of the cardiovascular system, Respiratory system pharmacology, Gastrointestinal system pharmacology, Renal system pharmacology, Endocrine system pharmacology, and Musculoskeletal system pharmacology.

PHARMACOLOGY III **P3752CO**

NQF level : 7
Contact Hours : 4L x 16 weeks
Credits : 16
Co-requisites : (P3751CO) - Pharmacology II
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: assignments (20%) and tests (80%). The exam will be one three (3) hours written paper.
Module Content:
The module content will cover principles of antimicrobial therapy; cell wall inhibitors; protein synthesis inhibitors; quinolones, folic acid antagonists, and urinary tract antiseptics; antimycobacterial drugs; antifungal drugs; antiviral drugs; antiprotozoal drugs; anthelmintic drugs & anticancer drugs.

PHARMACOLOGY IV **P3871CO**

NQF level : 8
Contact Hours : 3L x 16 weeks
Credits : 18
Pre-requisites : **P3752CO – Pharmacology III**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: assignments (20%) and tests (80%). The exam will be one three (3) hours written paper.
Module Content:
Central nervous system pharmacology: antidepressants, antipsychotics, mood-stabilising agents, antiepileptics, sedative/hypnotic drugs, drugs used to treat neurodegenerative disorders, opioid analgesics, drugs to treat migraine, drugs of abuse and dependence. Clinical toxicology: general principles, treatment of specific poisoning, environmental poisoning, poisoning relating to drugs of abuse, poisoning relating to flora and fauna.

PHARMACY LAW & ETHICS **P3622PL**

NQF level : 6
Contact Hours : 2L
Credits : 7
Co-requisites : **(P3683PP) – Pharmacy Practice I**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: assignments 30%, tests 50% and quizzes 20%. The exam will be one written paper for a maximum of two (2) hours.
Module Content:
Pharmacy profession: characteristics and core features of a profession, pharmacists as professionals. Ethics in pharmacy practice: principles of ethics, ethical dilemmas, unprofessional conduct, professional negligence. Pharmacy law: Namibian legal framework, laws governing healthcare delivery, laws governing pharmaceuticals, patent and intellectual laws.

PHARMACY PRACTICE I **P3683PP**

NQF level : 6
Contact Hours : 5 hours / week of integrated learning
Credits : 18
Pre-requisites : **P3511SM – Pharmaceutical Mathematics**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: tests 40%, MyDispense activities 20%, OSCE 40%. The exam will be for a maximum of three (3) hours written paper.
Module Content:
Primary Healthcare & Pharmacy Practice: Introduction to primary health care, Namibian healthcare systems, primary healthcare services, Community oriented primary health care, rational medicine use. Medicines information: reference materials, responding to medication information queries, routes of administration, dosage forms, medication storage. Pharmaceutical care planning: patient care process, SOAP notes, collecting patient information. Dispensing: dispensing and patient compounding, pharmaceutical calculations, prescription validation. Patient communication: cultural competence, social determinants of health, patient counselling, adherence. Responding to symptoms: over the counter consultation, fever, headaches, migraines, insomnia, eye conditions, ear conditions, constipation, dyspepsia, skin conditions, respiratory infections, women health conditions, family planning, drugs in pregnancy and dispensing.

PHARMACY PRACTICE II **P3783PP**

NQF level : 7
Contact Hours : 4 hours per week (x 16 weeks) of integrated learning
Credits : 20
Pre-requisites : **P3683PP – Pharmacy Practice I**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: Problem-based learning assessments 10%, Tests 80%, Assignments 10%. The exam will be one written paper for a maximum of three (3) hours.
Module Content:
Rational use of medicines: Medicine Use Process, WHO Medicine use indicators, Strategies for RUM, Medicine use surveys and evaluations, Consequences of medicine use surveys. Pharmacoepidemiology and pharmacovigilance: Introduction to pharmacoepidemiology and pharmacovigilance, Pharmacovigilance risk identification, causality assessment and methods used in pharmacovigilance, patient safety, risk management and risk communication, pharmacovigilance and public health programs. Pharmacoeconomics: Introduction to health economics and pharmacoeconomics, The numerator in cost-effectiveness analysis, The denominator-measuring health outcomes, quantitative synthesis of clinical evidence Good clinical practices in research: Role of Pharmacist in clinical trials, Rationale of clinical trials, pharmacokinetics.

PHARMACY PRACTICE III **P3872PP**

NQF level : 8
Contact Hours : 3L+1T
Credits : 18
Pre-requisites : **P3783PP – Pharmacy Practice II**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: Team project 30%, Tests 40%, Completion of variety of tasks on the Learning Management System 20%, Attendance in class (both face-to-face and virtual) 10%. The exam will be one three (3) hours written paper.
Module Content:
Pharmaceutical supply chain management: supply management cycle, selection of medicines, forecasting/quantification, procurement of medicines, distribution of medicines, pharmaceutical waste management, tools used in management of medicine supplies. Medicines regulation and policies: Medicine registration, Medicine imports and exports, Inspection and surveillance, quality assurance tests, and dossier

application. Leadership and human resources management for success: leadership, teamwork, time management, motivation, recruitment. Entrepreneurship and marketing: idea generation and development of a value proposition, competitiveness, social responsibility, funding sources, analysis of target market, principles of marketing.

PHYSICAL CHEMISTRY **P3512SC**

NQF level : 5
Contact Hours : 4L + 3P
Credits : 14
Co-requisites : **(P3511SM) - Pharmaceutical Mathematics**
Assessment:
The module mark consists of 50% continuous assessment (CA) and 50% Examination mark. The CA mark is made up of: A minimum of three tests - 50% towards CA, A minimum of eight (8) graded quizzes - 20% towards the CA, A minimum of ten (10) graded laboratory work - 30% towards the CA, One three (3) hour examination at the end of the semester. To pass this course the student must obtain a minimum final mark of 50%.
Module Content:
Solution chemistry: Types of solutions; Solvation process, Concentration Units (Molarity, Molality, Normality, Percent by mass, Percent by volume, Parts per thousand, Parts per million, Parts per billion); Colligative Properties (Lowering of vapour pressure; Raoult's law; Boiling point elevation, Freezing point depression, Osmotic pressure), Solubility and Henry's law. Colloids. Classification of colloids. Acids, bases and salts: Classification (Arrhenius, Bronsted-Lowry, Lewis concepts); Acid dissociation constants, Base ionization constants, pKa, pKb, pKw, pH, pOH, pKw; Henderson-Hassalbalch equation; Molecular structure and strength of acids; Acidic, Basic, and Neutral salts and the determination of the pH of their aqueous solutions. Elementary chemical thermodynamics: Distinguishing between a system and its surrounding; Classification of systems and walls; 0th Law and temperature scale; 1st Law, heat, work, isothermal systems, enthalpy of reactions; 2nd Law, spontaneity, entropy, Gibbs energy, Helmholtz energy; 3rd Law, Nernst equation, third law entropy). Elementary chemical kinetics: The rate of chemical reactions, differential rate laws, integrated rate laws, Arrhenius equation, Collision theory, Transition state theory, Mechanism of chemical reactions (reaction intermediates, steady state approximation), Biological catalysts (Michaelis-Menten equation) and inhibitors.

PHYSICAL PHARMACY & PHARMACEUTICAL ANALYSIS **P3632SP**

NQF level : 6
Contact Hours : 4L + 3P
Credits : 16
Pre-requisites : **P3512SC - Physical Chemistry, P3511SM - Pharmaceutical Mathematics & P3511SO - Organic Chemistry**
Co-requisites : **(P3631SG) - General Pharmaceutics & Biopharmaceutics**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessment marks will consist of: tests 50 %, assignments 20 %, and practicals 30%. The exam will be one written paper of three (3) hours.
Module Content :
Physical Pharmacy: intermolecular forces and states of matter, physical properties of solutions, isotonic solutions, solubility phenomena, complexation and protein binding and mass transport. Pharmaceutical Analysis: an in-depth understanding of the fundamental principles of chemical analysis such as various titration methods, pKa, partition coefficient), as well as different instrumentation methods such as HPLC, UV-VIS, IR, atomic emission/absorption, NMR, and various extraction methods are studied.

RESEARCH AND INNOVATION PROJECT **P3893PI**

NQF level : 8
Contact Hours : Supervision by appointment
Credits : 32
Pre-requisites : **M3713TR – Research Methods and Proposal Writing**
Assessment:
The assessment of this module will include continuous assessments (CA) which will contribute 100% to the final mark. The continuous assessment mark will consist of: Manuscript / Innovation report 50%, Supervisor evaluation 30%, Presentation 20%.
Module Content:
Develop a research or innovation proposal; navigate the approval process; collect and manage data as applicable; analyse data using appropriate analytic techniques and software; develop a manuscript, present a poster or a pitch.

RESEARCH METHODS AND PROPOSAL WRITING **M3713TR**

NQF level : 7
Contact Hours : 4L x 16 weeks
Credits : 16
Pre-requisites : **M3512BS – Statistics for Health Sciences; U3583DD – Digital Literacy**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessment mark will consist of: tests 40%, assignment 20%, research proposal 40%. The exam will be one written paper of three (3) hours.
Module Content:
Introduction to quantitative research and qualitative research: abstract writing, literature review, identification, selection, analysis and formulation of the research problem; Identification and formulation of the research question; Hypotheses formulation. Formulate a problem statement and justification of the study, formulation of the study objectives. Classification of study types: Descriptive studies - Exploratory Studies, Cross-sectional studies, Case report, case series, correlational studies. Analytical studies - Cohort studies, Case control studies, Comparative Cross-sectional studies. Intervention studies: Clinical trials, Experimental studies, Quasi-experimental studies, fields interventional studies. The advantages and disadvantages of the difference of study designs. Introduction to statistics and data analysis. Sampling Methods: Non-probability sampling, Probabilistic or random sampling; sample size determination. Study population, Specification study variables, and types of variables. Data collection methods – Data collection techniques, development of data collection tools and/or questionnaires. Report writing: Citation of references and referencing styles - The Harvard system, Vancouver style, APA. Ethical Considerations in health research, Research project administration. Research proposal development.

RURAL HOSPITAL PLACEMENT **P3671PU**

NQF level : 6
Contact Hours : 40 hours per week x 4 weeks
Credits : 16
Co-requisites : **(P3683PP) – Pharmacy Practice I**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessment mark will consist of: placement workbook 20%, report 30%, quiz 10% and viva voce 40%.
Module Content:
This experiential learning module is structured around a 4-week placement at a Public Sector District Hospital. Inventory and Pharmacy Management: ordering, supply, storage, ward supplies, medicine expiry. Good Dispensing Practices: dispensing process, prescription screening, patient counselling. Primary Health Care: PHC services, medicines management in PHC, cold chain, immunisations. Rational Medicine Use: survey of patients leaving pharmacy Anti-retroviral & TB services: patient monitoring, treatment regimens, adherence and counselling. Pharmacy Management & Professionalism: therapeutics committees, budget control, management information systems.

SOCIOLOGY OF HEALTH AND DISEASE **M3511HS**

NQF level : 5
Contact Hours : 3L + 4P
Credits : 14
Pre-requisites : **NONE**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessment mark will consist of: Student-directed seminars 20%, Class test (1)20%, Assignment (1), 20% and Group projects (2) 40%. One three hour written examination.
Module Content:
Describe the sociological definition of health, illness and disease by considering the structural and social factors of health and disease. The structural emphasis entails the political, economic and social cultural elements that foster ill/ health, as well as the forces that allows/ constrain individuals' responses to illness and the healthcare system. Examine the indirect pathway between sociology and health/disease. Explore key theoretical perspectives in health, health behaviour and sociology. Examine how social determinants of health/disease (such as class, gender, addiction, gender-based violence, cultural beliefs and practices) contribute to the distribution and spread of diseases within different population groups. Assess the role and objectives of health promotion, community/public health services and alternative medicine in the prevention, spread and treatment of diseases. Explain how societal attitudes and individual health-seeking behaviour influence health. Explore medicine as an institution of social control to ensure adherence to social norms, specifically, by using medical means to minimise, eliminate, or normalise unhealthy behaviour. Analyse and describe the patient-healthcare provider relationship in relation to illness behaviour. Evaluate the effectiveness of placebos in the context of managing chronic diseases (i.e., HIV/AIDS, cancer, obesity and coronary heart disease). Identify the challenges with measuring health status and quality of the life of patients.

STATISTICS FOR HEALTH SCIENCES **M3512BS**

NQF level : 5
Contact Hours : 4L
Credits : 12
Pre-requisites : **NONE**
Assessment:
The module will be assessed through continuous assessment (CA) 40% and examination 60%. The CA mark will be made up of: Two tests and one make-up test - two highest test scores contribute 35% each = 70%; three assignments contributing 8% each = 24% and one practical contributing 6%. Examination will be one x 3 hours written paper.
Module Content:
Describing Univariate Data: Central Tendency, Spread, shape and graphs. Describing Bivariate Data: Scatterplots and Correlation. Introduction to Probability (elementary): Simple probability, Conditional probability, Probability of A and B, Probability of A or B. Normal Distribution: Standard normal distribution, Converting to percentiles and back, and area under portions of the curve. Sampling Distributions: Sampling distribution of the mean, Standard error, Central limit theorem, Difference between means, Proportion, Difference between proportions. Confidence Intervals: Overview, Mean, σ known, Mean, σ estimated, General formula. Difference between means of independent groups, σ known, Difference between means of independent groups, σ estimated, Pearson's correlation, Difference between correlations. The Logic of Hypothesis Testing: Ruling out chance as an explanation, The null hypothesis, Steps in hypothesis testing and conclusion, The precise meaning of the p value, Statistical and practical significance, Type I and II errors, One- and two-tailed tests, Confidence intervals and hypothesis testing following a non-significant finding. Testing Hypotheses with Standard Errors: General formula Tests of μ, σ known, Tests of μ σ estimated, μ1 - μ2, independent groups, σ estimated, μ1 - μ2, dependent means, σ estimated. Chi square: Test for independence and goodness-of-fit and equality of proportion. Power: Factors affecting power, Size of difference between means, Significance level, Sample size, Variance.

VETERINARY PHARMACY PRACTICE **P3862PV**

NQF level : 8
Contact Hours : 2L+1T x 16 weeks
Credits : 9
Pre-requisites : **P3783PP – Pharmacy Practice II**
Assessment:
The assessments will include continuous assessments (CA) and summative assessments, which will each contribute 50% to the final mark. The continuous assessments will consist of the following: Assignments 20%, tests 70% and practical excursions 10%. The exam will be one two (2) hour written paper.
Module Content:
Good veterinary pharmacy practice handling veterinary prescription orders, admixtures and dosage calculations, compounding and labelling, prescriptions for multiple or singe animals, veterinary management information systems, storage, dosage, reconstitution and admixtures in veterinary care, inventory, registration of veterinary drugs, measurements used in veterinary medicine, veterinary dosage regimes. medications labels and controlled substance labelling, drug interactions and incompatibilities. Veterinary Logistics Management: Selection, procurement, storage, distribution quality control and rational use, Veterinary Essential medicine list, treatment guidelines. Legislation

veterinary pharmaceutical in Namibia: Registration, licensing, use, distribution, selling, common malpractices, Schedules and classes of veterinary medicines, Medicines and related substances act. Veterinary nutrition topics including vitamins, water and micronutrients in veterinary care, calcium, phosphorus; macro elements; trace elements, fat – soluble vitamins; water – soluble vitamins. Growth promoters and husbandry; basic comparative veterinary physiology topics including classification of animals for veterinary purposes, anatomy and physiology differences from humans; classes of animal diseases, aetiology and pathophysiology of diseases, clinical signs in diseased animals; Veterinary medicines and agrochemicals prescription only medicines in veterinary care; OTC medicines in general veterinary care. Veterinary anti-infectives: antibiotics, anticoccidials, antifungals, antivirals; anthelminthics, endoparasitics ectoparasitics & endectocides; fungicides, insecticides, disinfectants. Veterinary biologics: vaccines, hormones and antisera, toxoids; analgesics and anti-inflammatory drugs corticosteroids, NSAIDs, immobilizations, anaesthetics, antidotes. Antihistamines, counterirritants, emollients, dermatology preparations and antiseptics. Mastitis remedies, tear supplements. One health concept, public health; and pharmacotherapy of common animal diseases cattle; east coast fever, contagious bovine pleuropneumonia, hemorrhagic septicaemia and trypanosomiasis; goats and sheep: peste des petits ruminants, contagious caprine pleuropneumonia, sheep & goat pox; swine: porcine cysticercosis, African swine fever, classical swine fever and poultry: Newcastle disease and highly pathogenic avian influenza. the following sub-themes will be covered: poultry diseases; veterinary therapeutics: ruminants; veterinary therapeutics: non-ruminants; and (pet diseases.

CURRICULUM FOR THE BACHELOR OF PHARMACY DEGREE

BPHARM (HONOURS)

PHASED OUT AS OF 2023

COURSE CODE: 18BPHA

INTRODUCTION

The education and training of pharmacists for award of the Bachelor of Pharmacy of the University of Namibia is conducted over a 4-year period. During the course a variety of instructional methodologies are used. Instructional strategies at the school combine didactic methods (lectures and seminars), practical work (laboratory, pre-clinical practice, and fieldwork), clinical apprentice, independent study and student scientific work. The overall goal of the degree program is to produce a graduate who has sound understanding of the scientific foundations for the practice of pharmacy, possesses a high standard of pharmacy practice and can provide leadership in the community. The graduates are also adequately prepared for future specialization in own area of interest and have the desire for lifelong learning

MAJOR LEARNING OUTCOMES AND CONTENT OF THE COURSE

At the end of the BPharm degree programme, the graduates will be able to demonstrate the following major learning outcomes:

1. Practise pharmacy within legal requirements in a professional and ethical manner
2. Provide high quality patient-centred pharmaceutical care
3. Interpret and dispense prescriptions and medication orders
4. Provide information on medicines
5. Promote and support Primary Health care
6. Manage the manufacture of pharmaceuticals and related substances
7. Manage the pharmaceutical supply chain system
8. Manage pharmaceutical human resources
9. Manage pharmacy budget and financial operations
10. Manage physical facilities for pharmaceutical operations
11. Manage pharmaceutical information systems
12. Conduct pharmaceutical and related research
13. Optimize patient care and inter-professional relationships
14. Apply information and communication technology

The content of the curriculum comprises but is not limited to the following:

- *Biomedical sciences:* anatomy, physiology, pathophysiology, microbiology, immunology, biochemistry, molecular biology, and biostatistics.
- *Pharmaceutical sciences*: medicinal and pharmaceutical chemistry, pharmacognosy and phytochemistry, pharmacology, toxicology, and pharmaceutics which encompasses physical and chemical characteristics of drugs and excipients, principles of dosage forms and drug delivery systems, biopharmaceutics, and pharmacokinetics.
- *Behavioral, social, and administrative pharmacy sciences*: pharmacoeconomics, communications applicable to pharmacy, the history of pharmacy, legal and ethical foundations to practice, management of pharmaceutical systems.
- *Pharmacy practice*: prescription processing, compounding and preparation of dosage forms, including parenteral products, drug distribution and drug administration, epidemiology, health promotion and disease prevention, clinical laboratory medicine, clinical pharmacokinetics, patient evaluation and ordering medications, pharmacotherapeutics, and drug information and literature evaluation.
- *Professional experience*: field attachments including rural, community, hospital and industrial practice attachments.

INTERNSHIP AND REGISTRATION

After graduating, candidates will have to complete a one year internship programme under the supervision of the Pharmacy Council of Namibia, the statutory body responsible for the registration of pharmacists. The internship is supervised by mentors registered with the Pharmacy Council of Namibia. Successful completion of the internship is a condition for registration to practise as a pharmacist in Namibia.

1.

CRITERIA FOR PASSING EXAMINATIONS

1. The examination in each module for any academic year shall constitute of:
   a. 60% Continuous assessment (CA, practicals, term papers)
   b. 40% Semester examination (Written theory papers, Practical and oral examinations where applicable)
2. A student shall be declared to have passed examination if he / she attain at least 50% mark in each of the modules. Where a module has a theory, practical and oral examination, the student must pass each examination with a minimum mark of 50%

ACADEMIC ADVANCEMENT RULES

FIRST YEAR TO SECOND YEAR OF PHARMACY

A student must have passed at least 12 of the prescribed First Year modules (192 credits) to register for Second Year modules. If any of the failed modules is a pre-requisite for a Second Year module, the student cannot register for the affected Second Year module until the pre-requisite is passed.

SECOND YEAR TO THIRD YEAR OF PHARMACY

A student must have passed **ALL** the prescribed First Year modules. In addition, the student must have passed at least 11 of the prescribed Second Year modules (408 credits). If any of the failed modules is a pre-requisite for a Third Year module, the student cannot register for the affected Third Year module until the pre-requisite is passed.

THIRD YEAR TO FOURTH YEAR OF PHARMACY

A student must have passed **ALL** the prescribed First Year and Second Year modules. In addition, the student must have passed at least 13 of the prescribed Third Year modules (648 credits). If any of the failed modules is a pre-requisite for a Fourth Year module, the student cannot register for the affected Fourth Year module until the pre-requisite is passed.

MINIMUM REQUIREMENTS FOR RE-ADMISSION
A student will not be re-admitted into the Bachelor Pharmacy (Honours) Degree if she/he has not earned:

- At least 96 credits by the end of the first year (at least 6 modules of Year 1)
- At least 272 credits by the end of the Second year (12 modules of year 1 plus 5 modules of Year 2)
- At least 488 credits by the end of the Third Year (All modules of Year 1, plus 11 modules of Year 2 and 5 modules of Year 3)
- At least 608 credits by the end of the Fourth Year (All modules of Year 1 and 2, plus 10 modules of Year 3)
- At least 680 credits by the end of the Fifth Year (All modules of Year 1,2,3, plus 2 modules of Year 4)

GRADUATION
A student can ONLY graduate with a Bachelor Pharmacy (Honours) Degree if she/he has passed the entire prescribed modules (1104 credits) of the program.

GRADING OF EXAMINATIONS

The UNAM grading system shall apply to all modules in the course including the Project.

AWARD OF THE DEGREE OF BACHELOR OF PHARMACY

A student must meet all requirements of this programme and the General University Information and Regulations in order to be awarded the Bachelor of Pharmacy Degree (BPharm).

DELIVERY MODE OF COURSES

Learning outcomes relate to the three domains: cognitive (knowledge), affective (attitudes), and psychomotor (skills). All modules include practical components. The delivery modes and techniques include, but are not limited to, case studies that will require students to use higher cognitive skills, role plays and real life experiences.

CURRICULUM STRUCTURE

The curriculum for the degree of Bachelor of Pharmacy (BPharm) consists of four years of learning spread over 8 semesters each of 16 weeks of lectures and 2 weeks of examinations, resulting in an 18-week semester. A full module carries 16 credits and is offered at three (3) contact hours plus two (2) hours of tutorial (or 3 hours of practical) per week for 16 weeks while a half-module carries 8 credits and is offered at two (2) contact hours plus one (1) hour of tutorial (or 2 hours of practical) per week for 16 weeks unless specified otherwise in the module. In addition, the curriculum includes 8 weeks of experiential learning in the form of field attachment at the end of years 2 and 3. The total number of credits for the degree is 792.

YEAR 1 SEMESTER 1 (16 WEEKS)					
Module Title	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Organic Chemistry	PCMO3511	5	16	3+3P	
Mathematics	PCTM3511	5	16	3+1P	
Anatomy I	PPHA3511	5	16	3+2P	
Physiology I	PPHP3511	5	16	3+2P	
Sociology of Health & Disease	PCSS3511	5	16	3	
English for Academic Purposes	ULEA3519	5	16	4	
Computer Literacy	UCLC3509	5	16	2+1P	

YEAR 1 SEMESTER 2 (16 WEEKS)					
Module Title	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Physical Chemistry	PCMO3512	5	16	3+3P	PCTM3511
Anatomy II	PPHA3512	5	16	3	PPHA3511
Physiology II	PPHP3512	5	16	3+2P	PPHP3511
Biochemistry I	PPHB3512	5	16	3+2P	PCMO3511
Biostatistics	PCSB3512	5	16	3+1P	
Primary Health Care: Health Promotion	PCSP3512	5	16	3+2P	
Introduction to Pharmacy & Dispensing	PCTI3632	6	16	3+3P	
Contemporary Social Issues	UCSI3580	5	8	2	
TOTAL CREDITS			**232**		

YEAR 2 SEMESTER 1 (16 WEEKS)					
Module Title	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Pharmacy Practice I	PCSP3621	6	8	2+2P	PCTI3632
Physiology III	PPHP3631	6	16	3+2P	PPHP3512
Biochemistry II	PPHB3631	6	16	3+2P	PPHB3512
Inorganic Chemistry	PCMI3611	6	16	3+3P	
General Pharmaceutics	PCTG3631	6	16	3+3P	PCMP3512
Introduction to Pharmacology	PPHH3631	6	16	3+3P	

YEAR 2 SEMESTER 2 (16 WEEKS)					
Module	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Introduction to Clinical and Nursing Skills	PCSN3632	6	16	3+4P	PPHA3512 PPHP3631
Pharmaceutical Analysis	PCTA3632	6	16	3+3P	PCMI3611 PCMO3512
Pharmaceutical Organic Chemistry	PCMO3632	6	16	3+3P	PCMO3511
Systems Pharmacology I	PPHS3732	7	16	3+3P	PPHH3631
Physical Pharmacy	PCTP3632	6	16	3+3P	PCMO3512 PCTG3631
Research Methods	PCSR3632	6	16	3+1P	PCSB3512

FIELD ATTACHMENT -YEAR 2 (2 X 4 WEEKS)					
Module	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Community Pharmacy	PCSC3739	7	16	35P	PCSP3622
Rural Attachment	PCSU3739	7	16	35P	PCSP3622
TOTAL CREDITS			**216**		

YEAR 3 SEMESTER 1 (16 WEEKS)					
Module Title	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Pharmacognosy and Phytochemistry	PCMH3751	7	16	3+3P	PCMO3511
Pharmaceutical Microbiology	PCTM3751	7	16	3+3P	
Systems Pharmacology II	PPHS3751	7	16	3+3P	PPHS3731
Biopharmaceutics & Pharmacokinetics	PCTK3721	7	8	2+1P	PCTM3511 PCTG3631
Pharmacy Law & Ethics	PCSL3721	7	8	2	
Veterinary Pharmacy & Agrochemicals	PPHV3721	7	8	2+1P	PPHH3632
Chemotherapy	PPHC3751	7	16	3	PCTM3751

YEAR 3 SEMESTER 2 (16 WEEKS)				
Module	**Code**	**Credits**	**Hrs**	**Pre /Co-requisites**
Medicinal Chemistry I	PCMM3752	716	3+3P	PCMO3511
Applied Pharmaceutical Microbiology	PCTA3752	716	3+3P	PCTM3751
Environmental & Occupational Health	PCSO3722	78	2+2P	
Pathophysiology & Pharmacotherapeutics I	PCST3752	716	3+4P	PPHS3751
Pharmaceutical Technology I	PCTT3752	716	3+3P	PCTP3632
Pharmacy Practice II	PCSP3742	78	2+2P	PCSP3622

FIELD ATTACHMENT -YEAR 3 (2 X 4 WEEKS)					
Module	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Hospital Pharmacy	PCSY3859	8	16	35P	PCSP3742
Industrial/Manufacturing Facility	PCSF3859	8	16	35P	PCTT3752
TOTAL CREDITS			**200**		

YEAR 4 SEMESTER 1 (16 WEEKS)					
Module Title	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Medicinal Chemistry II	PCMM3871	8	16	3+3P	PCMM3752
Pathophysiology & Pharmacotherapeutics II	PCST3871	8	16	3+4P	PCST3752
Pharmaceutical Technology II	PCTT3871	8	16	3+3P	PCTT3752
Complementary and Alternative Medicines	PCSA3861	8	8	2	PCMH3751
Research Project	PCSR3870	8	16	6P	PCSR3632

YEAR 4 SEMESTER 2 (16 WEEKS)					
Module	**Code**	**NQF Level**	**Credits**	**Hrs**	**Pre /Co-requisites**
Pharmacy Management	PCSM3872	8	16	3	
Clinical Pharmacokinetics and Therapeutic Drug Monitoring	PCSD3872	8	16	3+2P	PCTK3721
Pharmacoepidemiology & Pharmacoeconomics	PCSE3872	8	16	3+1P	PCSB3512
Clinical Toxicology	PPHT3862	8	8	2+1P	PPHS3731PPHS3751
Research Project	PCSR3870	8	16	6P	PCSR3632
TOTAL CREDITS			**144**		

COURSE EQUIVALENTS

BACHELOR OF PHARMACY (BPharm)		**BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBChB)**	
Module Title	**Code**	**Module Title**	**Code**
Organic Chemistry	PCMO3511	Biochemistry I	MBSB3511
Anatomy I	PPHA3511	Anatomy I	MBSA3511
Physiology I	PPHP3511	Physiology I	MBSP3511
Sociology of Health & Disease	PCSS3511	Behavioural Sciences I	MBSC3511
Primary Health Care –Health Promotion	PCSP3511	Family Medicine I	MBSF3514
Anatomy II	PPHA3512	Anatomy II	MBSA3512
Physiology II	PPHP3512	Physiology II	MBSP3512
Biochemistry I	PPHB3512	Biochemistry II	MBSB3512
Biostatistics	PCSB3512	Community Medicine I	MCMC3612
Physiology III	PPHP3631	Physiology III	MBSP3631
Biochemistry II	PPHB3631	Biochemistry III	MBSB3531
Introduction to Clinical and Nursing Skills	PCSN3632	Internal Medicine I	MCMM3732
Research Methods	PCSR3632	Community Medicine III	MCMC3632
Environmental & Occupational Health	PCSO3721	Family Medicine III	MBSF3652

16 APPLICATION PROCEDURES FOR POSTGRADUATE STUDIES

APPLICATION FORMS

Applications for postgraduate studies should be made on a University **postgraduate application form** which is available on request from the Office of the Registrar, Student Records Section, and can also be downloaded from the UNAM Webpage: http://www.unam.edu.na

Before completing the application form, applicants must familiarise themselves with all aspects pertaining to postgraduate studies as set out in this prospectus. Applicants must also acquaint themselves with the different modes of the programmes offered (e.g. taught programmes or by thesis/dissertation only, full time or part time). Applicants must ensure that all relevant documentation is submitted with the application form, together with a **non-refundable application fee**. Receipt of the application will be acknowledged by mail.

Prospective students with qualifications obtained from an institution outside Namibia (or non-accredited institutions in Namibia) must submit a Namibia Qualifications Authority (NQA) evaluation for such qualification together with their application forms compulsory. Please Note: this process takes at least 30 days and proof of submission to NQA will NOT be accepted.

All Master of Philosophy and Doctorate by Dissertation must submit a research topic concept note (maximum two pages) together with the application form. No consideration will be given to applications without the concept note.

Incomplete applications will not be considered.

The closing date for taught Master's and taught Doctoral applications is end of July of each year or as advertised (No late applications will be accepted).

B.3.2 Processing of applications

The completed application forms will be processed and forwarded by the Student Records Section to the Centre for Postgraduate Studies which will in turn forward the applications to the relevant Faculty/School/Department Admission Committees.

CURRICULUM FOR THE MASTER OF PHARMACY IN CLINICAL PHARMACY

MPHARM (CLINICAL)

COURSE CODE: 27MPCL

INTRODUCTION:

MAJOR LEARNING OUTCOMES AND CONTENT OF THE COURSE

Holders of the Master of Pharmacy (Clinical) qualification will be able to:

- Consult effectively with patients, carers and the multidisciplinary healthcare team, respecting diversity and confidentiality;
- Independently develop clinical pharmacy knowledge and skills in order to identify, prioritise and resolve complex pharmaceutical problems in a range of common conditions;
- Critically review the overall management and monitoring of patients with a range of common disease states;
- Recognise the evidence-based approach to management of a range of common conditions and apply evidence-based medicine to individualised patient care;
- Identify, prioritise and resolve the medicines management needs of patients, carers and other social and health care professionals;
- Demonstrate a systematic approach to medicines management for patients with a range of common conditions;
- Apply pharmacokinetic and pharmacodynamic principles to the design of appropriate medicine regimens;
- Conceptual understanding of the initiative required when taking responsibility for clinical decision making;
- Ability to make decisions in complex situations where patients present with co-morbidities and/or poly-pharmacy;
- Comprehensive understanding of the role of independent learning when engaging in personal continuing professional development;
- In-depth understanding of the pharmacist's role and responsibilities with respect to contributing actively to the planning and delivery of pharmaceutical care in the workplace setting;
- Advance knowledge and understanding through continuing professional development and lifelong learning;
- To critically evaluate the drug treatment of general medical and surgical patients, in order to provide competent advice on the safe and effective use of medicines;
- To demonstrate systematic and critical understanding of the knowledge and skills required to work independently within a specific area of pharmacy practice.

STUDENT ADMISSION

Committee on Admissions

Admission to the Master of Pharmacy (Clinical) shall be administered by a Committee on Admissions, which shall be composed of members of the School of Pharmacy and the Administrative Officer in charge of admissions to the School. All committee members shall be appointed by the Dean of the Faculty of Health Sciences for a term of three years and may be reappointed for additional terms. The Committee shall have the authority to select students entering the School on condition that they fulfil the minimum admission requirements as set out below. The School shall exercise the responsibility of reviewing the requirements for admissions and recommending any revisions to Senate for approval.

ADMISSION CRITERIA

Candidates may be admitted to this programme if they meet the General Admission Requirements of the University of Namibia and comply with the additional requirements below:

- A candidate must have a good Bachelor of Pharmacy (Honours) degree with at least a C-grade average, from the University of Namibia or equivalent
- A candidate must be a qualified pharmacist, and if practicing/studying in Namibia, registered with the Health Professions Councils of Namibia, specifically the Pharmacy Council of Namibia.
- A prospective student may be interviewed and assessed by the School of Pharmacy prior to admission.

Meeting the above student admission criteria DOES NOT necessarily ensure admission.

Admission is awarded on merit and inclusivity based on places available on the programme and any other conditions that may be determined from time to time.

The selection of applicants is done by the School of Pharmacy Admission Assessment Graduation Committee that is inclusive of academics and other members from the public and registrar's office.

28. Additional Selection Criteria

Additional selection criteria for the Master of Pharmacy in Clinical Pharmacy programme will be based on regional representation and the applicants' ability to undertake the two-year full-time programme.

29. Articulation Options

This qualification serves as an entry point to the following related qualifications: PhD in Pharmacy Practice or PhD in Clinical Pharmacology.

30. Assessment Criteria

A combination of continuous assessment (50%) and final examinations (50%) will be used to assess the taught modules of the programme. To qualify for admission to the final examinations, a student must have obtained a minimum continuous assessment mark of 50%.
Clinical Rotation modules will be assessed by 100% continuous assessment. This will include work-based assessments, case presentations, portfolios, in addition to a theoretical test and Observed Structured Clinical Examination (OSCE).

31. Quality Assurance Arrangements

The School of Pharmacy implements the university's policies and procedures regarding monitoring student progression and monitoring impact of the programme. Student progress at the school is monitored by the individual lecturers, Heads of Department, the School of Pharmacy management, School of Pharmacy Board, School of Pharmacy Examinations Board, a student-lecturer forum, and a quality assurance committee. Furthermore, peer assessments will be conducted in all clinical rotation modules. The university wide peer and student evaluation system to assess the effectiveness of teaching and learning administration for every module and lecturer.
Further quality assurance arrangements implemented in this programme include.
All examinations papers and scripts are moderated internally and externally based on standardised moderation criteria as outlined in the UNAM policy on assessments.
The impact of the programme will be regularly evaluated through stakeholder's consultative meetings and needs assessments or tracer surveys. There is a taskforce to undertake review and transformation of the curriculum.
The accreditation of the professional programme will be sought from the Health Professions Councils of Namibia (HPCNA), National Council of Higher Education (NCHE), and registration from the National Qualification Authority (NQA).

32. Minimum requirements for re-admission into the School / Programme

A student will not be re-admitted into the Master of Pharmacy in Clinical Pharmacy programme if she/he has not earned:
At least 60 credits by the end of the First year of registration
At least 124 credits by the end of the Second year of registration
At least 172 credits by the end of the Third year of registration
The programme must be completed after a maximum of four years of registration

33. Advancement and progression rules

First year to second year of pharmacy
A student must have passed at least five of the seven programme-specific prescribed first year modules and obtained a minimum of 92 credits, to register for second year modules of study. If any of the failed modules is a pre-requisite for a second-year module, the student cannot register for the affected second-year module until the pre-requisite is passed.

34. Requirements for Qualification Award

Award of the Master of Pharmacy in Clinical Pharmacy Degree

A student can ONLY graduate with a Master of Pharmacy in Clinical Pharmacy Degree if they have passed all of the prescribed modules and one elective module and attained all 244 credits of the programme.
A student must meet all relevant UNAM requirements of this programme to be awarded the Master of Pharmacy in Clinical Pharmacy Degree, including up-to-date financial and academic records.

35. Career Opportunities

Upon completion of the Master of Pharmacy in Clinical Pharmacy Degree the graduates of the programme will be able to provide a high level of pharmaceutical care in both the public and the private sector. Graduates from this programme will be ideal candidates to fill the posts of specialist pharmacists currently being created in the MoHSS. Such posts will be included in all public health facilities from District Hospitals

up to National Referral Hospital. Graduates will also be perfect to provide pharmaceutical care in the growing number of specialised health service units in Namibia, such as transplant care, oncology and dialysis centres.

36. Implementation strategy

The old and transformed Master of Pharmacy in Clinical Pharmacy curriculum will be administered in parallel, until the old curriculum is phased out, as below;

CURRICULUM STRUCTURE

Implementation of the new, transformed Master of Pharmacy in Clinical Pharmacy and old Master of Pharmacy (Clinical) curriculum

	Year of Implementation		
	2025	2026	2027
New: Students on the transformed curriculum			
Year I (1st year)			
Year II (2nd year)			
Old: Students repeating modules in the old curriculum			
Repeating Year I modules			
Repeating Year II modules			
Repeating Year III modules			

Transitional arrangements

Students repeating modules in the old Master of Pharmacy (Clinical) curriculum will have to repeat the modules according to the old curriculum. The mechanism of running the programme is changing from block release to full time and therefore students will not be able to take new curriculum modules to complete the old curriculum. Therefore, there is no table of equivalent modules.

Curriculum Framework: Summary Table for all Modules in the Programme

Module code	Module name	NQF Level	Credits	Contact hours per week	(Co-requisites) / Prerequisites	Compulsory (C) / Elective (E)
Year 1						
U6989LA	Academic Literacy for Postgraduate Students	8	16	4 hours x 14 weeks	None	C
P6923RB	Research Methods & Biostatistics	9	12	1 hour x 28 weeks	None	C
P6923PD	Professional Development for Clinical Pharmacists	9	12	1 hour x 28 weeks	None	C
P6919PI	Internal Medicine Therapeutics I	9	20	25 hours x 8 weeks	None	C
P6919PM	Ambulatory Care Therapeutics I	9	20	25 hours x 8 weeks	None	C
P6919PA	Acute Care Therapeutics I	9	20	25 hours x 8 weeks	None	C
P6919PT	Tuberculosis & HIV Therapeutics	9	20	25 hours x 8 weeks	None	C
P6939PI	Internal Medicine Therapeutics II	9	20	25 hours x 8 weeks	(P6919PI)	C
TOTAL CREDITS YEAR 1						**124**
Year 2						
P6973PT	Thesis	9	60	For the year	P6923RB	C
P6939PM	Ambulatory Care Therapeutics II	9	20	25 hours x 8 weeks	P6919PM	C
P6959PI	Internal Medicine Therapeutics III	9	20	25 hours x 8 weeks	P6939PI	C

Module code	Module name	NQF Level	Credits	Contact hours per week	(Co-requisites) / Prerequisites	Compulsory (C) / Elective (E)
Elective Options – ONE Elective module to be taken						
P6919RC	Acute Care Therapeutics II	9	20	25 hours x 8 weeks	P6939PI, P6919PA, P6919PM	E
P6919RA	Ambulatory Care Therapeutics III	9	20	25 hours x 8 weeks	P6939PI, P6919PA, (P6939PM)	E
P6919RT	Infectious Diseases Therapeutics	9	20	25 hours x 8 weeks	P6939PI, P6919PA, P6919PM P6919PT	E
P6919RI	Internal Medicine Therapeutics IV	9	20	25 hours x 8 weeks	(P6959PI), P6919PA, P6919PM	E
P6919RO	Oncology Therapeutics	9	20	25 hours x 8 weeks	P6939PI, P6919PA, P6919PM	E
P6919RP	Paediatric Therapeutics	9	20	25 hours x 8 weeks	P6939PI, P6919PA, P6919PM	E
P6919RS	Psychiatric Therapeutics	9	20	25 hours x 8 weeks	P6939PI, P6919PA, P6919PM	E
P6919RT	Solid Organ Transplant Therapeutics	9	20	25 hours x 8 weeks	P6939PI, P6919PA, P6919PM	E
TOTAL CREDITS YEAR 2						**120**
TOTAL CREDITS FOR PROGRAMME						**244**

Module Title: **ACADEMIC LITERACY FOR POSTGRADUATE STUDENTS**
Module Code U6989LA
NQF Level 8
Notional Hours 160
Contact Hours 4 hours per week
NQF Credits 16 non-contributing credits
Prerequisite None
Compulsory/Elective Compulsory
Semester Offered 1 or 2
Students can take the module either in the 1st or 2nd semester, but they cannot do more than one registration in one year. Course Content
Module Purpose
The intended purpose of the proposed module, "Academic Literacy for Postgraduate Students," is specifically to cater for the academic literacy requirements specific to postgraduate students. The core objective of this module is to empower students with advanced skills in academic discourse that are indispensable for a wide array of academic endeavours.
Overarching Learning Outcomes
This module is designed to enable students to proficiently employ advanced academic writing, reading, listening, and speaking skills crucial for diverse academic endeavours.
Student assessment strategies
100% Continuous assessment (1 test and 1 assignment, 1 academic presentation, 1 text analysis)

Module Title: **ACUTE CARE THERAPEUTICS I**
Module Code P6919PA
NQF Level 9
Notional Hours 200
Contact Hours 25 hours/week x 8 weeks
NQF Credits 20
Prerequisite None
Compulsory/Elective Compulsory
Semester Offered Year 1
Module Purpose
The purpose of this module is to build clinical pharmacist's knowledge, attitudes, and skills within acute care settings.
Overarching Learning Outcome
At the end of this module, the student will be able to effectively engage with the clinical team and design and monitor therapeutic regimens for critically ill patients.
Student assessment
Continuous Assessment (CA) mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), and a Portfolio including all interventions. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title: **ACUTE CARE THERAPEUTICS II**
Module Code P6919RC
NQF Level 9
Notional Hours 200
Contact Hours 25 hours/week x 8 weeks
NQF Credits 20
Prerequisites Internal Medicine Therapeutics II, Acute Care Therapeutics I, Ambulatory Care Therapeutics I
Compulsory/Elective Elective
Semester Offered Year 2
Module Purpose
The purpose of this module is to allow the pharmacist to further develop clinical knowledge and skills in various areas within the acute care setting and to build on the experiences of prior modules.
Overarching Learning Outcome
At the end of this module, the student will be able to independently engage with the clinical team and design and monitor therapeutic regimens for critically ill patients.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and a medication use audit (or quality improvement initiative). In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title: **AMBULATORY CARE THERAPEUTICS I**
Module Code P6919PM
NQF Level 9
Notional Hours **200**
Contact Hours **25 hours/week x 8 weeks**
NQF Credits **20**
Prerequisite **None**
Compulsory/Elective **Compulsory**
Semester Offered **Year 1**
Module Purpose
The purpose of this module is to build clinical pharmacist's knowledge, attitudes, and skills within ambulatory care settings.
Overarching Learning Outcome

At the end of this module, the student will be able to effectively engage with patients and the clinical team and design and monitor therapeutic regimens for ambulatory care patients.

Student assessment

CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), and a Portfolio including all interventions. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title:	**AMBULATORY CARE THERAPEUTICS II**
Module Code	**P6939PM**
NQF Level	**9**
Notional Hours	**200**
Contact Hours	**25 hours/week x 8 weeks**
NQF Credits	**20**
Prerequisite	**Ambulatory Care Therapeutics I - P6919PM**
Compulsory/Elective	**Compulsory**
Semester Offered	**Year 2**

Module Purpose

The purpose of this module is to allow the clinical pharmacist to fully manage a patient care service and to build on the experiences of prior modules.

Overarching Learning Outcome

At the end of this module, the student will be able to successfully manage a patient care practice in either an ambulatory or acute care setting.

Student assessment

CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and an audit of a medication use practice. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title	**AMBULATORY CARE THERAPEUTICS III**
Module Code	**P6919RA**
NQF Level	**9**
Notional Hours	**200**
Contact Hours	**25 hours/week x 8 weeks**
NQF Credits	**20**
Pre-requisites/(Co-requisites)	**Internal Medicine Therapeutics II** **Acute Care Therapeutics I** **(Ambulatory Care Therapeutics II)**
Compulsory/Elective	**Elective**
Semester Offered	Year 2

Module Purpose

The purpose of this module is to allow the clinical pharmacist to fully manage a patient care service in the outpatient setting for a defined area of ambulatory care practice, building on the experiences of prior modules.

Overarching Learning Outcome

At the end of this module, the student will be able to independently manage a patient care practice in an ambulatory care setting.

Student Assessment

CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and an audit or quality improvement intervention. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title	**INFECTIOUS DISEASES THERAPEUTICS**
Module Code	**P6919RT**
NQF Level	**9**
Notional Hours	**200**
Contact Hours	**25 hours/week x 8 weeks**
NQF Credits	**20**
Pre-requisites	**Internal Medicine Therapeutics II** **Acute Care Therapeutics I** **Ambulatory Care Therapeutics I** **Tuberculosis & HIV Therapeutics**
Compulsory/Elective	**Elective**
Semester Offered	**Year 2**

Module Purpose

The purpose of this module is to allow the pharmacist to develop clinical knowledge and skills for patients diagnosed with infectious diseases including HIV and TB.

Overarching Learning Outcome

At the end of this module, the student will be able to effectively engage with patients and the clinical team and design and monitor therapeutic regimens for patients diagnosed with an infectious disease.

Module Title:	**INTERNAL MEDICINE THERAPEUTICS I**
Module Code	**P6919PI**
NQF Level	**9**
Notional Hours	**200**
Contact Hours	**25 hours/week x 8 weeks**
NQF Credits	**20**
Prerequisite	**None**
Compulsory/Elective	**Compulsory**
Semester Offered	**Year 1**

Module Purpose
The purpose of this module is to build clinical pharmacist knowledge, attitudes, and skills within general medicine settings.
Overarching Learning Outcome
At the end of this module, the student will be able to effectively engage with the clinical team and design and monitor therapeutic regimens for hospitalised patients.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), and a Portfolio including all interventions. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title:	**INTERNAL MEDICINE THERAPEUTICS II**
Module Code	P6939PI
NQF Level	9
Notional Hours	200
Contact Hours	25 hours/week x 8 weeks
NQF Credits	20
Prerequisite / (Co-requisite)	(Internal Medicine Therapeutics I - P6919PI)
Compulsory/Elective	**Compulsory**
Semester Offered	**Year 1**

Module Purpose
The purpose of this module is to allow the clinical pharmacist to fully manage a patient care service and to build on the experiences of prior modules.
Overarching Learning Outcome
At the end of this module, the student will be able to successfully manage a patient care practice in an internal medicine/general medicine inpatient setting.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and an audit or quality improvement initiative. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title:	**INTERNAL MEDICINE THERAPEUTICS III**
Module Code	P6959PI
NQF Level	9
Notional Hours	200
Contact Hours	25 hours/week x 8 weeks
NQF Credits	**20**
Prerequisite	**Internal Medicine Therapeutics II - P6939PI**
Compulsory/Elective	**Compulsory**
Semester Offered	**Year 2**

Module Purpose
The purpose of this module is to allow the clinical pharmacist to independently manage a patient care service and to build on the experiences of prior modules.
Overarching Learning Outcome
At the end of this module, the student will be able to successfully manage a patient care practice in an internal medicine/general medicine inpatient setting.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and a quality improvement project. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title:	**INTERNAL MEDICINE THERAPEUTICS IV**
Module Code	**P6919RI**
NQF Level	**9**
Notional Hours	**200**
Contact Hours	**25 hours/week x 8 weeks**
NQF Credits	**20**
Prerequisite/(Co-requisite)	**Acute Care Therapeutics I, Ambulatory Care Therapeutics I, (Internal Medicine Therapeutics III)**
Compulsory/Elective	**Elective**
Semester Offered	**Year 2**

Module Purpose
The purpose of this module is to allow the clinical pharmacist to independently manage a patient care service in a defined area of inpatient pharmacy practice and to build on the experiences of prior modules.
Overarching Learning Outcome
At the end of this module, the student will be able to independently manage a patient care practice in an internal medicine/general medicine inpatient setting.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and an audit or quality improvement initiative. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title:	**ONCOLOGY THERAPEUTICS**
Module Code	**P6919RO**
NQF Level	**9**
Notional Hours	**200**
Contact Hours	**25 hours/week x 8 weeks**

NQF Credits **20**
Prerequisite **Internal Medicine Therapeutics II, Acute Care Therapeutics I, Ambulatory Care Therapeutics I**
Compulsory/Elective **Elective**
Semester Offered **Year 2**
Module Purpose
The purpose of this module is to allow the pharmacist to develop clinical knowledge and skills in an oncology population.
Overarching Learning Outcome
At the end of this module, the student will be able to effectively engage with patients and the clinical team and design and monitor therapeutic regimens for patients in the specialty area of oncology.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and an audit or quality improvement initiative. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title **PAEDIATRIC THERAPEUTICS**
Module Code **P6919RP**
NQF Level **9**
Notional Hours **200**
Contact Hours **25 hours/week x 8 weeks**
NQF Credits **20**
Pre-requisites **Internal Medicine Therapeutics II**
Acute Care Therapeutics I
Ambulatory Care Therapeutics I
Compulsory/Elective **Elective**
Semester Offered **Year 2**
Module Purpose
The purpose of this module is to allow the pharmacist to develop clinical knowledge and skills for a paediatric population.
Overarching Learning Outcome
At the end of this module, the student will be able to effectively engage with patients, their caregivers, and the clinical team and design and monitor therapeutic regimens for paediatric patients.
Student Assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and an audit or quality improvement initiative. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title: **PROFESSIONAL DEVELOPMENT FOR CLINICAL PHARMACISTS**
Module Code **P6923PD**
NQF Level **9**
Notional Hours **120**
Contact Hours **1 hour per week for 28 weeks**
NQF Credits **12**
Prerequisite **None**
Compulsory/Elective **Compulsory**
Semester Offered **Year 1**
Module Purpose
The purpose of this module will be to develop knowledge, attitudes, and skills to become an effective leader and teacher in clinical settings.
Overarching Learning Outcome
By the end of this module, the student will have developed and refined their skills in teaching, leadership, and change management.
Student assessment
CA mark will include assignments, quizzes and a written test. The final grade will be 100% CA.

Module Title **PSYCHIATRIC THERAPEUTICS**
Module Code **P6919RS**
NQF Level **9**
Notional Hours **200**
Contact Hours **25 hours/week x 8 weeks**
NQF Credits **20**
Pre-requisites **Internal Medicine Therapeutics II**
Acute Care Therapeutics I
Ambulatory Care Therapeutics I
Compulsory/Elective **Elective**
Semester Offered **Year 2**
Module Purpose
The purpose of this module is to allow the pharmacist to develop clinical knowledge and skills for patients with psychiatric conditions and diseases
Overarching Learning Outcome
At the end of this module, the student will be able to effectively engage with patients, their caregivers (if applicable), and the clinical team and design and monitor therapeutic regimens for psychiatric conditions and diseases
Student Assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), a Portfolio including all interventions, and an audit or quality improvement initiative. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title: **RESEARCH METHODS & BIOSTATISTICS**
Module Code **P6923RB**
NQF Level **9**

Notional Hours **120**
Contact Hours **1 hour per week for 28 weeks**
NQF Credits **12**
Prerequisite **None**
Compulsory/Elective **Compulsory**
Semester Offered **Year 1**
Module Purpose
The purpose of this module is to build the student's skills in evidence-based medicine, research methodologies, and basic biostatistics.
Overarching Learning Outcome
By the end of this module, the student will have created a proposal for a research project to be completed during the second year of the program.
Student assessment strategies
CA mark will include assignments and quizzes.
Students must have a finished research proposal submitted to the School Higher Degree Board by the end of the module.
The final examination will be a written theory examination. The final grade will be 50% CA and 50% final examination**.**

Module Title: **SOLID ORGAN TRANSPLANT THERAPEUTICS**
Module Code **P6919RT**
NQF Level **9**
Notional Hours **200**
Contact Hours **25 hours/week x 8 weeks**
NQF Credits **20**
Prerequisite **Internal Medicine Therapeutics II, Acute Care Therapeutics I, Ambulatory Care Therapeutics I**
Compulsory/Elective **Elective**
Semester Offered **Year 2**
Module Purpose
The purpose of this module is to allow the pharmacist to develop clinical knowledge and skills in a solid organ transplant population.
Overarching Learning Outcome
At the end of this module, the student will be able to effectively engage with patients and the clinical team and design and monitor therapeutic regimens for patients in the specialty area of transplant.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), and a Portfolio including all interventions. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module. The final grade will be 100% CA.

Module Title: **THESIS**
Module Code **P6973PT**
NQF Level **9**
Notional Hours **600**
Contact Hours **Throughout the year**
NQF Credits **60**
Prerequisite **Research Methods & Biostatistics - P6923RB**
Compulsory/Elective **Compulsory**
Semester Offered **Year 2**
Module Purpose
The aim of this module is to demonstrate the student's understanding and ability to conduct research elucidating significant results and conclusions with relevant remarks in the background of succinct literature review of the subject.
Specific Learning Outcomes
On successful completion of this module, students will be able to:
1. Carry out independent research in a relevant area
2. Communicate research findings in a variety of ways
3. Exhibit advanced analytical, critical thinking and project management skills

Student assessment strategies
Thesis will be assessed in accordance with UNAM Higher Degree Policy

Module Title: **TUBERCULOSIS AND HIV THERAPEUTICS**
Module Code **P6919PT**
NQF Level **9**
Notional Hours **200**
Contact Hours **25 hours/week x 8 weeks**
NQF Credits **20**
Prerequisite **None**
Compulsory/Elective **Compulsory**
Semester Offered **Year 1**
Module Purpose
The purpose of this module is to build clinical pharmacist knowledge, attitudes, and skills for managing patients with HIV and/or tuberculosis.
Overarching Learning Outcome
At the end of this module, the student will be able to effectively engage with the clinical team and design and monitor therapeutic regimens for patients with HIV or tuberculosis.
Student assessment
CA mark will include Case presentations, Work-based assessments, Evaluations from supervisors (pharmacists, physicians), and a Portfolio including all interventions. In addition, students will complete an OSCE and a written theory test covering all the clinical topics for the module.
The final grade will be 100% CA.

MASTER OF PHILOSOPHY IN THE SCHOOL OF PHARMACY

- **MASTER OF PHILOSOPHY IN PHARMACY PRACTICE** **27MPPP**
- **MASTER OF PHILOSOPHY IN CLINICAL PHARMACOLOGY** **27MPCP**
- **MASTER OF PHILOSOPHY IN PHARMACOLOGY** **27MPPY**
- **MASTER OF PHILOSOPHY IN PHARMACEUTICAL SCIENCES** **27MPPS**

Introduction
The Master of Philosophy is research-based postgraduate programme aimed at prospective graduates who wish to develop thorough and in-depth knowledge and skills of advanced experimental pharmacology necessary for practice, research and industry. These programmes are aligned with the Vision 2030 which is aptly articulated in the sub-vision as "A healthy and food-secured nation in which all preventable, infectious and parasitic diseases are under secure control; people enjoy a high standard of living, good quality life and have access to quality education, health and other vital services

Admission Requirements
To be eligible for this MPhil programme, the candidate must have completed a bachelor honours degree at NQF level 8 or equivalent in a relevant discipline (Pharmacy, Medicine, and relevant Biomedical Sciences) 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 concept note highlighting their proposed area of research, objectives, methodology and a review of existing literature. The concept note 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.

Career Opportunities
The graduates are employable in both public and private healthcare sectors, academia, research institutes/institutions and pharmaceutical industry. Furthermore, the postgraduate students graduating from this programme should be able to create employment for themselves through starting enterprises and consultancies based on the knowledge acquired from the programme.

Implementation Strategy
This programme will be implemented in the phased in approach. Students currently registered in the existing programme will be allowed to continue and complete their studies in the old curriculum. New students will be enrolled in the new programme.

Curriculum Framework: Summary Table for all Modules in the Programme

Module code	Module name	NQF level	Credits	Total hours	Pre-requisites
U6989LA	Academic Literacy for Postgraduate Students	8	16 (non-contributing)	4h/week	None
	Thesis	9	240	N/A	None
TOTAL			**240**		

DOCTOR OF PHILOSOPHY IN THE SCHOOL OF PHARMACY

- **DOCTOR OF PHILOSOPHY IN PHARMACY PRACTICE** **27DPPP**
- **DOCTOR OF PHILOSOPHY IN PHARMACOLOGY** **27DPPY**
- **DOCTOR OF PHILOSOPHY IN CLINICAL PHARMACOLOGY** **27DPCP**
- **DOCTOR OF PHILOSOPHY IN PHARMACEUTICAL** **27DPPS**

Introduction
The Doctor of Philosophy are research-based postgraduate programmes in various discipline aimed at prospective candidates with a relevant master's degree who wish to develop thorough and in-depth knowledge and high-level research skills necessary for research, academia and industry. The programme is aligned with the Vision 2030 which is aptly articulated in the sub-vision as "A healthy and food-secured nation in which all preventable, infectious and parasitic diseases are under secure control; people enjoy a high standard of living, good quality life and have access to quality education, health and other vital services. All of these translate into long life expectancy and sustainable population growth". One of the core strategies in the attainment of this vision is the provision of treatment and care for those infected and limiting the further spread of the disease. This programme directly relates to this vision as graduates of this programme will be expected to contribute to the healthcare system by promoting the safe, efficacious and cost-effective use of medicines

Career Opportunities
The graduates are employable in both public and private healthcare sectors, academia, research institutes/institutions and pharmaceutical industry. Furthermore, the postgraduate students graduating from this programme should be able to create employment for themselves through starting enterprises and consultancies based on the knowledge acquired from the programme.

Implementation Strategy
This programme will be implemented in the phased in approach. Students currently registered in the existing programme will be allowed to continue and complete their studies in the old curriculum. New students will be enrolled in the new programme.

Curriculum Framework: Summary Table

Module code	Module name	NQF level	Credits	Total hours	Pre-requisites
U6989LA	Academic Literacy for Postgraduate Students	8	16 (non-contributing)	4h/week	None
	Dissertation	10	360	N/A	None
TOTAL			**360**		