NOTE

This Prospectus is only valid for 2018 as regulations and syllabi may be amended for 2019. The general regulations and further information appear in the General Information and Regulation Prospectus.

Although the information contained in this Prospectus has been compiled as accurately as possible, it is possible that errors and omissions have inadvertently occurred, for which we apologise in advance. The University reserves the right to amend any regulation or stipulation without notice. The information is correct up to 30 November 2017.

The fact that particulars of a specific module or programme have been included in this Prospectus does not necessarily mean that the module or programme will be offered in 2018.

This Prospectus must be read in conjunction with the General Information and Regulations Prospectus 2018.
# STRUCTURE AND PERSONNEL

## OFFICE OF THE DEAN

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
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<tbody>
<tr>
<td>Dean &amp; Founding Dean School of Medicine</td>
<td>Prof P Nyarango</td>
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<tr>
<td>Associate Dean School of Medicine</td>
<td>Prof F Aamambo</td>
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<tr>
<td>Deputy Associate Dean SOM</td>
<td>Dr M M Morkel</td>
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<tr>
<td>Assistant Pro-Vice Chancellor</td>
<td>Dr K Shangula</td>
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<tr>
<td>Deputy Director - Administration and Finance</td>
<td>Mr A Riederbascher</td>
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<tr>
<td>Campus Administrator</td>
<td>Ms D Titus</td>
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<td>Faculty Officer</td>
<td>Ms F Mario</td>
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<td>Secretary</td>
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<tr>
<td>Examination Officer</td>
<td>Mr A Ngwangwama</td>
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<td>Student Records Officer</td>
<td>Mr M Nowaseb</td>
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<td>Student Support Officer</td>
<td>Mr J Erastus</td>
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<td>Field Officer</td>
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<td>Security Officer</td>
<td>Mr E Sintwa</td>
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<td>ICT Officer</td>
<td>Mr A Shikango</td>
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<tr>
<td>ICT Officer</td>
<td>Mr S Shilongo</td>
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General enquiries regarding the school of Medicine and the qualifications offered by the School should be directed to:

Ms F Mario  
The Faculty Officer  
School of Medicine  
University of Namibia  
Private Bag 13301  
WINDHOEK  

Telephone: +264-61-2065015  
E-mail: fmario@unam.na

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

The mission of the School of Medicine is to produce health professionals whose knowledge, professional skills, and practice in medicine are in tune with the needs of society (practice patterns, and scientific advancements). The School shall provide a learning environment conducive to the pursuit of professional competence by health workers, while providing quality services to the community and undertaking relevant translational research for enhancement of health. The School will continually strive for the establishment of training programs in a wide spectrum of health disciplines and lending support to the human resource development initiatives of the country, including post-graduate education of physicians and scientists. The School is mandated to prepare graduates for the medical degree of the University of Namibia.

The key objectives of the School of Medicine are:

- To promote equity of access to health care services for all;
- To promote affordable health care service delivery by strengthening health care systems which are sustainable, cost-effective, efficient and culturally relevant and acceptable;
- To institute measures to counter major health risks including the prevailing communicable diseases;
- To develop academically and professionally qualified medical doctors in sufficient numbers for manning various health care delivery systems;
- To contribute to the development of a national health care system that is capable of providing a fully comprehensive range of preventive, curative and rehabilitative health care that is cost-effective, sustainable and acceptable to the recipients of such health care services;
- 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.

SCHOOL OF MEDICINE 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 health care 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 honor the University of Namibia, the Medical Board 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 honor 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.
DUE DATES FOR THE 2018 ACADEMIC YEAR

(i) GENERAL
Last day for appeals (Sem 2 & Double modules – Reg & Supp/Spec exams of Nov 2017) .... 19 Jan
Last day for application of retention of continuous assessment (CA) mark ......................... 09 Feb
Last day for application for exemption(s) ................................................................. 09 Feb
Last day for approval of exemption(s) ........................................................................ 09 Feb
Last day for Late Registration (Late fee payable) ....................................................... 09 Feb
Last day for Late Registration (Late fee payable) by Faculties ................................. 14 Feb
Last day for Late Registration (Late fee payable) by Examinations Office .............. 16 Feb
Promotion Exam ........................................................................................................ 02 Mar
Last day for change of offering types at Regional Centres (Semester 1 modules) ....... 27 Apr
Last day for Appeals (Semester 1 modules (Reg & Supp/Spec Exams of June 2017)) .. 03 Aug
Last day to submit outstanding documentation ......................................................... 17 Aug
Last day to change offering types at Regional Centres (Semester 2 modules) ........... 21 Sep
Last day to cancel enrolment ...................................................................................... 21 Sep
Last day to submit Theses and Dissertations for examinations ............................ 26 Sep

(ii) CANCELLATIONS
Semester 1 modules
Last day to cancel Semester 1 modules ........................................................................ 27 April
Semester 2 modules
Last day to cancel Semester 2 modules ....................................................................... 21 Sep
Double modules (A double module normally extends over one academic year)
Last day to cancel Double modules ........................................................................... 21 Sep

(iii) FINANCE
Semester 1 modules
Last day to cancel with 100 % credit ........................................................................... 02 Mar
Last day to cancel with 50 % credit ............................................................................ 20 April
Semester 2 modules
Last day to cancel with 100 % credit ........................................................................... 03 Aug
Last day to cancel with 50 % credit ............................................................................ 31 Aug
Double modules (A double module normally extends over one academic year)
Last day to cancel with 100 % credit ........................................................................... 03 Mar
Last day to cancel with 50 % credit ............................................................................
ACADEMIC DEPARTMENTS OF SCHOOL OF MEDICINE

DEPARTMENT OF ANATOMY
☎ (+264 61) 2065010 ☎ (+264 61) 2065090 ✉ Private bag 13301, Windhoek, Namibia

Head of Department: Prof J H T Smit
Associate Professor: Prof J H T Smit BMedSc University of Orange Free State; BMedSc Hons UOFs; MMedSc UOFs; PGCheT Queens University Belfast; FHEA (UK); MIAS London.
Lecturer: Prof Azu O O. BSc (Hons) Human Anatomy. College of Medical Sciences, University of Calabar; MSc, Anatomy, College of Medicine. (University of Lagos), Ibadan, Lagos, Nigeria; PhD, Anatomy, College of Medicine, (University of Lagos), Ibadan, Lagos, Nigeria; Certificate of Program Completion, (Harvard Medical School, Boston).
Senior lecturer: Dr Q Wissel BSc (Hons); MSc; PhD (University of Pretoria); PGDip University of Edinburgh.
Lecturer: Dr M M Morkel BSc (Hons) University of Western Cape; MBChB University of Stellenbosch; DOH University of Stellenbosch
Lecturer: Dr A Du Plessis MBChB University of Stellenbosch; DCH College of Medicine, South Africa.
Technologist: Mrs A M N Ikasha BSc (Hons); MSc University of Namibia.
Technician: Mr T Broekman; Mrs M Broekman

DEPARTMENT OF BIOCHEMISTRY AND MICROBIOLOGY
☎ (+264 61) 2065042 ☎ (+264 61) 20645090 ✉ Private bag 13301, Windhoek, Namibia

Head of Department: Dr E. Nepolo
Professor: Prof I. Quaye, PhD, Medical Science (Medical Biochemistry/Cell & Molecular Biology), Kyungshik School of Medicine, Japan; MPhil Biochemistry, University of Ghana; BSc (Hons) Biochemistry, University of Ghana.
Senior Lecturer: Dr. J A Sheehama, PhD Biology (Medical Microbiology and Medical Biochemistry) Kazan State University; Masters in Biology (Microbiology and Molecular Biology) Kazan State University
Senior Lecturer: Dr. J M Sheehama, PhD Biology (Medical Microbiology and Medical Biochemistry) University of Zimbabwe; BSc (Hons) Biology University of Zimbabwe
Senior Lecturer: Dr E Nepolo, PhD (Biochemistry) University of Namibia, MSc (Applied Molecular Biology): University of Namibia; BSc (Molecular & Physiological Biology): University of Namibia
Senior Lecturer: Mr M Medini, BSc (Biology and Chemistry), UNAM; MSc (Applied Microbiology), UNAM
Lecturer: Mr Haindongo EHH, BSc Microbiology & Biochemistry; Master of Science (Biology), University of Namibia
Lecturer: Mrs Nkhalo, MSc in Applied Field Epidemiology (UNAM)
Technician: Vacant

DEPARTMENT OF COMMUNITY MEDICINE
☎ (+264 61) 2065012 ☎ (+264 61) 2065090 ✉ Private bag 13301, Windhoek, Namibia

Head of Department: Dr. F. Christians
Associate Professor: Prof L Barongo, MD, M.Med University of Dar es Salaam; Advanced Diploma in Epidemiology London School of Hygiene and Tropical Medicine; MSc University of London
Lecturer: Dr. F. Christians, MBChB (UCT), M Fam.Med (UCT), MPh (Umea University, Sweden, FCPSA), Dip HIV Man(SA)
Lecturer: Dr. M Goraseb, MPH Oklahoma Univ. USA; MD Silvan Medical School, Poland
Lecturer: Dr L N Lukolo, PhD Nursing Science (Community Health) UNAM; Masters in Nursing Science (Community Health) University of Stellenbosch SA;
Lecturer: Ms H Zaire (Absence), MSc Epidemiology Wageningen University, USA (in progress); BSc. Animal Science UNAM
DEPARTMENT OF DENTISTRY
☎ (+264 61) 2065023 ☎ (+264 61) 2065090 ☑ Private bag 13301, Windhoek, Namibia

Coordinator: Prof RJ Tuominen
Professor: Prof Tuominen RJ, Professor of Health Care (University of Turku); Licentiate of Odontology (Doctor of Dental Surgery DDS, University of Helsinki, Finland; Master of Public Health (MPH, Health Administration and Health Economics) University of California Los Angeles, USA; Doctor of Odontology (Doctor of Philosophy PhD equivalent) University of Helsinki, Finland.

DEPARTMENT OF INTERNAL MEDICINE
☎ (+264 61) 2065023 ☎ (+264 61) 2065090 ☑ Private bag 13301, Windhoek, Namibia

Head of Department: Prof CJ Hunter
Professor: Prof H Hodgson, Doctor of Medicine (MD) Oxford University
Associate Professor: Prof CJ Hunter, Doctor of Medicine (MD) Loma Linda University School of Medicine; PhD (Physiology) Loma Linda University, United States of America
Lecturer: Vacant

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY
☎ (+264 61) 2065080 ☎ (+264 61) 2065090 ☑ Private bag 13301, Windhoek, Namibia

Head of Department: Dr L C Kimera
Lecturer: Specialized obstetrician/Gynaecologist: MBChB Mbarara University of Science and Technology, Uganda; MMed (Obstetrics & Gynaecology) Makerere University, Uganda;

DEPARTMENT OF PAEDIATRICS
☎ (+264 61) 2065026 ☎ (+264 61) 2065090 ☑ Private bag 13301, Windhoek, Namibia

Head of Department: Dr F Sinyinza
Professor: Prof S V Hodgson (Visiting Professor), F. Soc. Biol, FRCP, MRCP, DCH. D (Obst)RCOG, DM (Oxon), University of Oxford; The genetics of Duchenne Muscular Dystrophy, BM BCH (Oxon), Somerville College, University of Oxford. Bsc Hons(Lond) Physiology ( II.1 ). University College London.
Senior Lecturer Dr Kiboneka A N. MBChB (M.U.K). FAAP (Fellow of the American Academy of Pediatrics (Columbia University, New York, New York, U.S.A)
Lecturer: Dr F Sinyinza, BSc(Human Biology), University of Zambia, School of Medicine; MBCHB, University of Zambia. School of Medicine; Masters of Medicine (Paediatrics & Child Health),University of Zambia, School of Medicine
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<td>Private bag 13301, Windhoek, Namibia</td>
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<tr>
<td>Head of Department:</td>
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<td>Dr R. J. Kandando</td>
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<td>Lecturer:</td>
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<tr>
<td>Dr RJ Kandando, HND (Manchester Polytechnic, UK), DipHE (Wolverhampton Polytechnic, UK), Postgraduate Diploma (Clinical Laboratory Sciences) (University of Leeds, UK), M.Sc (Clinical Biochemistry) (University of Leeds, UK), Ph.D (University of Surrey, UK); Registered Specialist Clinical Biochemist (Medical and Dental Council of Namibia)</td>
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<tr>
<td>Lecturer:</td>
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<tr>
<td>CD Izaaks, ND (Medical Technology) Cape Technicon, South Africa; B Tech (Biomedical Technology), Cape Peninsula University of Technology, South Africa; M Tech (Cape Peninsula University of Technology, South Africa: Registered Medical Technologist (Allied Health Professions Council of Namibia)</td>
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<th>DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION</th>
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<td>Coordinator:</td>
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<td>Prof CJ Hunter</td>
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<td>Lecturer:</td>
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<tr>
<td>Mr M van der Merwe, BSc (Hons) North-West University, South Africa</td>
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<td>Professor:</td>
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<td>Prof P O Odonkor BSc (Hons) University of Ghana; MBChB University of Ghana; PhD McGill University Canada</td>
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<td>Lecturer:</td>
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<tr>
<td>Ms J Nelonga, BSc (Hons) University of Namibia; BTech (Biomedical Technology), Cape Peninsula University of Technology</td>
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<td>Lecturer:</td>
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<td>Mr M van der Merwe, BSc (Hons) North-West University, South Africa</td>
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<td>Technologist:</td>
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<td>Ms. Tuna Nashianga, BSc, UNAM</td>
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<th>DEPARTMENT OF PSYCHIATRY AND BEHAVIOURAL SCIENCES</th>
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<td>Lecturer:</td>
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<tr>
<td>Ms. M. Persling (MA -Clinical Psychology) University of Namibia</td>
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<td>Lecturer:</td>
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<td>Dr H. King</td>
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<th>DEPARTMENT OF RESEARCH AND INSTITUTIONAL DEVELOPMENT</th>
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UNDERGRADUATE PROGRAMME OBJECTIVES

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

PROGRAMMES

Bachelor of Medicine and Bachelor of Surgery 15BMCH
PURPOSE AND RATIONALE OF THE QUALIFICATION

The purpose of the UNAM MBChB Degree Program is to produce health professionals whose knowledge, professional skills, and practice in medicine are in tune with the needs of society (practice patterns, and scientific advancements). The training shall accommodate the learning environment conducive to the pursuit of professional competence by health workers, while providing quality services to the community and undertaking relevant translational research for enhancement of health. The School will continually strive for the establishment of training programs in a wide spectrum of health disciplines and lending support to the human resource development initiatives of the country, including postgraduate education of physicians and scientists. The School is mandated to prepare graduates for the medical degree of the University of Namibia.

EXIT PROGRAMME OUTCOMES

Graduates of the MBChB degree will have satisfied the requirements to enter into a medical internship immediately after graduation. Upon completion of Medical Internship they will be registrable as a medical practitioner.

The registered medical practitioner will be able to provide evidence-based general medical care at a district hospital or similar setting and also manage the district health system. The graduate will be competent and be able to manage a private practice. In addition, graduate should be able seek further training in research or specialization. In their practice, the graduates will be expected to remain competent throughout their professional life and be able to initiate and participate in change.

Upon successful completion of the program, the graduate will be able to inter alia

Patient Care Competences

1. Independently obtain clinical information from a patient in a logical and organized manner and utilize such information to formulate a clinical diagnosis and develop a prioritized list of differential diagnosis.

2. Apply basic, clinical and social science knowledge to identify key clinical and social problems, formulate and initiate treatment of common medical and surgical conditions;

3. Request appropriate diagnostic investigations, interpret findings and utilize the findings to make evidence based clinical decisions;

4. Evaluate the validity of laboratory/diagnostic tests;

5. Prescribe appropriate medications and other instructions safely

6. Involve patients and their caregivers in all aspects of their care and at all times preserve and promote patient dignity and wellbeing;

7. Refer or make effective medical consultation including safe hand-over or takeover of patients:

Competences in emergency care

8. Identify promptly a patient with an acute medical and/or surgical problem;

9. Initiate treatment of medical and surgical emergencies and carry out basic life support;

10. Perform minor diagnostic and surgical procedures:

Competences for communication

11. Record accurately medical information and present clinical cases accurately including concise summaries;

12. Explain tests and other procedures to patients or caregivers and obtain consent;

13. Communicate effectively with colleagues, patients and relations.
14. Exhibit communication skills and ethical behaviour with patients and caregivers from diverse backgrounds and population groups.

**Competences for Inter-professional activities**

15. Identify the role of other healthcare professionals and function as an effective member of a multidisciplinary healthcare team;

**Competences for research and evidence based public health practice**

16. Apply the technical procedures, goals, and results of medical research including laboratory and population or community based research and integrate the findings into clinical /healthcare delivery decision making;

17. Apply the knowledge on biological and non-biological determinants of illnesses and health and determine the economic, social cultural and psychological factors that contribute to development /continuation of diseases and formulate, sustainable disease prevention, health promotion and health maintenance strategies for a community or population group;

**Competences for leadership and health systems management**

18. Assess relevancy, efficacy, quality, cost-effectiveness and sustainability of healthcare service delivery and formulate a feasible plan;

19. Apply the technical procedures, concepts and principles of management and medical jurisprudence to administer a health facility, unit or district;

**Competences of Self-directed learning activities and professionalism**

20. Identify own limitations, seek, retrieve and utilize scientific information from a variety of resources and use this to improve patient care and personal competences;

21. Practice medicine with sound ethical behavior taking into account local social and cultural considerations and respect for human dignity and social justice

22. Exhibit sensitivity to the important role cultural backgrounds influence on health and wellbeing.

These core competences are designed to produce a medical graduate who is not only a physician, but is also a scientist and scholar exhibiting the qualities of the Seven Star Doctor, namely a Care Provider, Decision-maker, Communicator, Community Leader, Manager, Researcher and Life-long Learner.
REGULATIONS

Criteria for Admission
Admission to the School of Medicine is based on the applicant’s academic standing, essay writing skills, and a successful interview. All provisional selections are made by the Committee on Admissions. To be considered for admission into MBChB programme, a candidate:

1. Must hold a valid NSSC (Namibian Senior Secondary Certificate) or any other equivalent qualification with at least 35 points in five subjects (including English, Mathematics, Physical Sciences/Physics/Chemistry and Biology/Life Sciences) on the UNAM scale with a grade 2 or better on higher level OR a grade B or better on ordinary level for Physical Sciences/Physics/Chemistry, and a grade B or better on ordinary level for Biology/Life Sciences and English. Candidates with a C in English, meeting all the other subject requirements, may be considered provided that they have at least 37 points in five subjects.
   OR

2. Must have successfully completed the entire first year BSc curriculum with at least 60% in each of the Mathematics, Biology, Chemistry and Physics modules.
   OR

3. Must have successfully completed a relevant degree program such as Pharmacy, Nursing, Dentistry or other health related degree programmes.
   OR

4. Mature Entry: Candidates aspiring for admission to the MBChB programme through the Mature Age Entry Scheme must satisfy the following conditions:
   4.1. They should be at least 25 years old on the first day of the academic year in which admission is sought
   4.2. They should have successfully completed senior secondary education
   4.3. They should have proof of at least five years related work experience
   4.4. They should pass each of the papers in the prescribed Mature Age Entry Test with at least 60% in the Faculty specific papers, and 50% in the other papers.
   4.5. Candidates, who, in the opinion of the Faculty, merit further consideration, may be called for an oral interview before the final selection is made.

Essay Writing
An applicant shall be required to write an essay on a topic or topics so determined by the Committee on Admissions. The essay exercise is designed to elicit communication skills and forms the basis of the interview. Topics are selected in order to provide candidates an opportunity to display understanding of health and medical practice in the Namibian context.

Letters of Recommendation
An applicant seeking admission to the School of Medicine shall submit a letter of recommendation from a previous supervisor or appropriate mentor. These letters should reflect the candidate’s ability, understanding, and desire to become a successful health care provider.

Interviews
Eligible applicants shall be invited for personal interview. Video conferencing may be considered for students with special circumstances. Interviews are conducted in order to determine the candidate’s ability to express themselves and give them opportunity to share formative experiences relevant to health care. Candidates will have opportunity to provide personal information, general awareness, aspirations, and values. Special care is taken to ensure equality among candidates.

Selection
The candidate’s overall physical and mental status will be assessed without conducting a formal medical examination. The final recommendation for admission is based on a weighted score composed of 80% academic achievement, 10% interview, 10% essay.
UNAM EVALUATION SCALE:

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<th>POINTS</th>
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DURATION OF STUDY
The minimum period for completing the programme is 6 years and the maximum is 8 years.

EXEMPTIONS
UNAM will give exemptions for equivalent modules taken at other tertiary institutions but the exemptions shall not exceed 50% of the modules in the MBChB degree program. An application for exemption from a module(s) must be accompanied by documentary proof issued by the examining body concerned that the student has passed the relevant module (not older than 5 years).

EXAMINATION REGULATIONS

Assessment Criteria
A student will be eligible to write the examination if they have obtained a Continuous Assessment Mark of at least 50%. The regular UNAM requirement (40%) will apply to the UNAM core modules.

Unless otherwise indicated in the module descriptor, the Continuous Assessment Mark (CA mark) will count 40% towards the final mark while the examination mark will contribute 60%.

A student will pass a module when he/she has obtained a final mark of at least 50%, subject to a subminimum of 45% examination mark for all modules without a clinical/practical paper. For modules with a clinical/practical paper, a subminimum of 50% will apply for both the written and practical/clinical examination.

A student may qualify for a supplementary examination in a module if he/she obtained a final mark of 45%-49%, subject to a subminimum of 45% in each of the papers (written, clinical/practical). As a student can only do one supplementary examination in a clinical module/year those who qualify for a supplementary in more than one clinical model are not allowed to proceed.

A student who qualifies for a supplementary examination in a clinical module, should undergo a remedial clinical training period of four weeks per module before the supplementary examination.

For detailed examination and promotion rules see the General Information and Regulations Prospectus.
ACADEMIC ADVANCEMENT RULES

FIRST YEAR TO SECOND YEAR OF MEDICINE
A student must pass ALL the first year modules in order to advance to the second year. A student who has passed at least 96 credits of the first year, will be allowed to register for selected second year modules, provided that all pre-requisites are met and the maximum number of credits is not exceeded.

SECOND YEAR TO THIRD YEAR MEDICINE
A second year student must pass ALL the second year modules in order to advance to the third year. A student who has passed all first year modules and at least 96 credits of the second year, will be allowed to register for selected third year modules, provided that all pre-requisites are met and the maximum number of credits is not exceeded.

THIRD YEAR TO FOURTH YEAR MEDICINE
A third year student must pass ALL the third year modules in order to advance to the fourth year. A student who has passed all first and second year modules and at least 144 credits of the third year, will be allowed to register for non-rotation modules, provided that all pre-requisites are met and the maximum number of credits is not exceeded.

FOURTH YEAR TO FIFTH YEAR MEDICINE
A fourth year student must pass ALL the fourth year modules in order to advance to the fifth year. A student who has passed all first, second and third year modules and at least 144 credits of the fourth year, will be allowed to register for non-rotation fifth year modules, provided that all pre-requisites are met and the maximum number of credits is not exceeded.

FIFTH YEAR TO SIXTH YEAR (STUDENT INTERNSHIP)
A student must pass ALL the fifth year modules in order to advance to the final year.

STUDENTS REPEATING A YEAR
A student who is repeating a year may be allowed to take non-conflicting modules from the next academic year, subject to the above requirements and the MAXIMUM number of credits per year.

MINIMUM REQUIREMENTS FOR RE-ADMISSION INTO THE PROGRAMME

A student will not be re-admitted into the programme if she/he has not earned:
1. At least 64 credits by the end of the first year of registration
2. At least 160 credits by the end of the second year of registration
3. At least 272 credits by the end of the third year of registration
4. At least 384 credits by the end of the fourth year of registration
5. At least 528 credits by the end of the fifth year of registration
6. At least 696 credits by the end of the sixth year of registration
7. At least 864 credits by the end of the seventh year of registration

In addition to the above regulations, a student will only be allowed to repeat a particular module twice – failure to clear any module after the third registration of the particular module, will result in termination of studies.

MAXIMUM NUMBER OF CREDITS PER YEAR

Year 1: 160 credits
Years 2-8: A student will be allowed to register for a maximum of 32 credits more than the total credits of the particular curriculum year.

REQUIREMENTS FOR QUALIFICATION AWARD

A student can graduate with the MBChB degree upon successful completion of the prescribed 1024 credits in the curriculum. Following graduation, graduates will be required to successfully proceed into a two year medical internship in Namibia or as per requirement of the relevant country.

Summary Table

The curriculum of the MBChB is made up of the following components:
<table>
<thead>
<tr>
<th>Module Title</th>
<th>Module Code</th>
<th>NQF</th>
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<th>Hours /Week</th>
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<th>Pre-requisites/Co-requisites</th>
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<td>40 hours</td>
<td>ATM3611 and PLG3611</td>
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<td>Pharmacology III</td>
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YEAR 4 semester 1

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<th>Hours</th>
<th>Pre-requisites/Co-requisites</th>
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<td>ATM3611, PMG3711 and PMG3712</td>
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<td>1+2P</td>
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**TOTAL CREDITS** 168

**YEAR 6 Full year modules**

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**TOTAL CREDITS** 160
**Module Title: English for Academic Purpose**

**Code:** ULEA3519  
**NQF level:** 5  
**Notional hours:** 160  
**Contact Hours:** 4 hours per week for 14 weeks  
**NQF Credits:** 16  
**Pre-requisite:** LCE3419  
**Compulsory/Electives:** Compulsory  
**Semester offered:** 1st year semester 1  

**Course Description:**  
This module develops a student's understanding and competencies regarding academic conventions such as academic reading, writing, listening and oral presentation skills for academic purposes. Students are required to produce a referenced and researched essay written in formal academic style within the context of their university studies. Students are also required to do oral presentations based on their essays. The reading component of the course deals with academic level texts. This involves students in a detailed critical analysis of such texts. The main aim is therefore, to develop academic literacy in English.

**Assessment Strategies**  
Continuous Assessment: 60%  
Examination: 40% (1 x 3 hours paper).
**Module Title: Contemporary Social Issues**

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<th>CSI3580</th>
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</table>

**Assessment strategies:** This is a 100% continuous assessment module with a variety of assessments which evaluate and test the students’ individual learning and mastering of the course content (subject knowledge) through quizzes, tests, Moodle assignments, journal entries, reflections as well as service and experiential learning projects.

**Course Content:** The module, Contemporary Social Issues (CSI3580), is designed to encourage behavioral change among UNAM students and inculcate the primacy of moral reasoning in their social relations and their academic lives. In providing students with critical and analytical thinking the module enables students to grow and develop into well rounded citizens, capable of solving contemporary social challenges experienced in their communities and societies. The teaching of the module takes three dimensions: the intellectual, the professional and the personal dimensions. The intellectual dimension is fostered through engaging students with subject knowledge, independent learning and module assessment. The professional dimension, on the other hand, is fostered through exposing students to real life situations of case studies and practical exercises that draws attention to social issues that attract ongoing political, public and media attention and/or debate. Finally, the professional dimension is fostered through group work and online discussions.
Module Title: Computer Literacy

Code: CLC3409
NQF level: 5
Notional hours: 80
Contact Hours: 2 lecture hours
NQF Credits: 8
Pre-requisite: none
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Content:

Assessment: Continuous 100%
Module Title: Medical Physics

Code: PLG3501
NQF level: 5
Notional hours: 80
Contact Hours: 2 hours per week for 16 weeks
NQF Credits: 8
Pre-requisite:
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Aims
The aim of this module is for students to learn core concepts of physics and relating these to their application in medical practice. Students will learn about motion, elasticity, fluids, gases, waves, temperature, electricity, magnetism, and electromagnetism, lights, solids, and radioactivity all of which have direct application in studying some disease processes such as cardio-vascular disease with respect to fluid mechanics or diagnostics such as the use of ultrasound and X-ray which are based on radiation and high frequency resonance; or treatment for example in radiation in cancer therapy or use of laser beams. Students will have opportunity to observe some of the equipment in use.

Module content
Topics: Units (standards, SI system, converting units, order of magnitude); Motion (displacement, velocity, acceleration, falling objects); Vectors (representation, adding, subtracting scalar product, vector product); Force (Newton’s 1st on 3rd laws, mass, weight); Equilibrium (statics, equilibrium, elasticity); Fluids (density, specific gravity, pressure, Pascal’s principle, measurement, flow, Bernoulli’s Principle, viscosity, surface tension, pumps); Waves (wave motion, types of waves, energy, amplitude and frequency, reflection and interference, resource, refraction and diffraction); gas laws, Temperature (atomic theory, temperature and thermometers, thermal expansion, thermal stress, diffusion); Electricity (change, field, potential, currents, basic circuits); Magnetism (magnetic fields, electric currents, force, electric charge, ampere and out coulomb, Ampere’s Law, torque); Electromagnetism (electromagnetic induction, transformers, transmission of power, production of electromagnetic waves, light and electromagnetic spectrum); Light (wave versus particles, diffraction, refraction, visible spectrum and dispersion); Molecules and Solids (bounding in molecules, weak bounds); Radioactivity (structure and properties of nucleus, binding energy and nuclear forces, radioactivity, alpha, beta, and gamma decay, half-life and rate of decay, radioactive dating).

Assessment Strategies
Continuous assessment mark: -
Examination mark:
Final mark:
Module Title: Embryology and Introduction to Anatomy

Code: ATM3511  
NQF level: 5  
Notional hours: 160  
Contact Hours: 3+4P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite:  
Compulsory/Electives: Compulsory  
Semester offered: 1st year semester 1

Module Aims  
This module aims to provide a background to master certain principles of cell biology, histology, human embryology and anatomy. The module establishes the foundation for systemic Anatomy.

Module Content  
The module provides building blocks to master the following topics i) man's place in the organismic kingdom. ii) basic embryological concepts. iii) histological structure and function of the primary tissues in the body. iv) terminology and definitions in anatomy. The module includes an introduction to microscopy and methods in microscopy. Cardio-vascular Systemic Anatomy will be covered at the end of the semester with initiation to dissection hall and cadaver care.

The module consists of four entities:  
1) Introduction to anatomy including topics: Organismic kingdom, evolution, humans and their environment, history of anatomy, anatomical concept and terms. Introduction to all the major body systems (neurological, cardiovascular, respiratory, digestive and urogenital).  
2) Cell biology, consisting of structure and function of cells and cell organelles and biological communication.  
3) Embryology, consisting of basic anatomy and physiology of reproduction, fertilization, implantation, the placenta, and development of the embryo till trilaminar stage.  
4) Introduction to human histology including histology of the basic tissues, namely epithelial tissue, connective tissues, muscle tissue and nervous tissue, and introduction to hematology and immunology.

Assessment Strategies  
Examination mark: One 3-hour examination paper.  
Final mark: 40% of exam mark and 60% of Continuous assessment mark.

Module Title: Systemic Anatomy I

Code: ATM3512  
NQF level: 5  
Notional hours: 160  
Contact Hours: 3+4P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite:  
Compulsory/Electives: Compulsory
Module Aims
This module aims to provide students with sound systemic anatomical and histological knowledge of the cardiovascular, respiratory, digestive and urogenital system to the extent that they can relate from and function and use this in practice in their further studies in medicine and future work.

Module Content
Regional anatomy and topographical anatomy, organ development and histology of respiratory, gastro-intestinal and urogenital systems with dissections and microscopy practical sessions of each system. Examples of the applications of the anatomical knowledge in clinical cases and clinical examination techniques mastered in skills laboratory.

Assessment Strategies
(All class tests in this block have a practical component contributing 40% of the class mark)
Examination mark:  One 2-hour theory examination paper (60%)
One practical examination paper (40%)
Final mark: 40% of exam mark and 60% of Class mark.

Module Title: Systemic Anatomy II

Code: ATM3613
NQF level: 6
Notional hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: Systemic Anatomy I
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 1

Module Aims
This module aims to provide students with sound systemic anatomical knowledge of the musculo-skeletal and neurological system to the extent that they can relate from and function and use this in practice in their further studies in medicine and future work.

Module Content
Regional anatomy and topographical anatomy, development and histology of musculo-skeletal and neurological systems including sensory organs. Dissection and microscopy practical sessions of each system. Examples of the applications of the anatomical knowledge in clinical cases.
Clinical examination of system in skills laboratory.

Assessment Strategies
(All class tests in this block have a practical component that contributes 40% of the mark)
Examination mark:  One 2-hour theory examination paper (60%)
One practical examination paper (40%)
Final mark: 40% of exam mark and 60% of Class mark.
Module Title: Organic Chemistry

Code: BCM5311  
NQF level: 5  
Notional hours: 80  
Contact Hours: 2 lecture hours + 2 P per week for 16 weeks  
NQF Credits: 8  
Pre-requisite: None  
Compulsory/Electives: Compulsory  
Semester offered: 1st year semester 1

Module Aims  
This module introduces students commencing studies in health sciences to the concepts of general, physical and organic chemistry which are foundational for the understanding of biochemical and physiological processes.

Module content  
The materials covered in this module are: Periodic table and electronegativity scale, acid base properties of solutions, thermodynamics, nomenclature of hydrocarbons, basic reactions of organic compounds, introductory spectroscopy, preparation of solution, principles of laboratory safety and laboratory procedures.

Assessment Strategies  
The continuous assessment (CA): 40% (minimum of 3 tests and 2 assignments)  
Examination: 60% Examination (1 x 3 hours written paper + 1½ hour practical examination)

Module Title: General Biochemistry I

Code: BCM3512  
NQF Level: 5  
Notional hours: 160  
Contact Hours: 3 lecture hours + 4 P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite: Compulsory  
Compulsory/Electives: Compulsory  
Semester offered: 1st year semester 2

Module Aims  
This module is the first of two with a focus on cellular organization, biomolecules and cellular function, cell communication and immune recognition, introductory clinical/medical genetics and bioinformatics. The module will correlate changes in cell division, structure, function, biomolecules and genomes associated with homeostasis or disease state.
Module Content
The module will cover the following topics: Principles of Medical Biochemistry; cell structure and function; cell cycle; basic structure, biochemical properties and function of biomolecules in health and disease; glycoconjugates; complex lipids; eicosanoids and their role in inflammation; importance of lipoproteins in health and disease, definition of enzymes and their roles in cell function, therapeutics, diagnostics and inborn metabolic errors; cell signaling and communication; nucleotides and DNA organization; DNA replication, transcription and translation; mechanism of mendelian inheritance; mutations and disease; basic principles of chromosomal aberrations and cytogenetics; basic principles of bioinformatics; techniques in DNA isolation, PCR, sequencing and microarrays; DNA and protein electrophoresis; point of care diagnostics.

Assessment Strategies
The continuous assessment (CA): 40% (minimum of 3 tests and 2 assignments). Examination: 60% (1 x 3 hours written paper + 1½ h practical examination)

Module Title: General Biochemistry II
Code: BCM3631
NQF level: 5
Contact Hours: 3 lecture hours + 4 hours of practicals per week for 16 weeks
NQF Credits: 16
Pre-requisite: none
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 1

Module Aims:
The module focuses on the metabolism and storage of macromolecules, energy transduction and the biochemical basis of nutrition. Students will learn about how the catabolism and anabolism of carbohydrates, lipids, proteins, and vitamins drive cellular homeostasis and how deregulation of these activities lead to disease. Students will also learn about metabolism of xenobiotics and principles of drug-drug interactions and basic hematopoiesis.

Module content
This modules covers the following topics: Principles of bioenergetics; cellular redox systems, inhibitors and regulators of oxidative metabolism; carbon monoxide poisoning; mitochondrial dysfunction in fertility and disease states; hematopoiesis, heme metabolism, jaundice and porphyrias; glycolysis, gluconeogenesis and oxidative metabolism; glycemic indices of foods, pentose phosphate pathway and maintenance of rbc redox status; importance of g6pd deficiency in primaquine therapeutics and malaria; glycogen metabolism, fatty acid metabolism in the liver, impaired oxidation of fatty acids and fatty liver; eicosanoids in health and inflammation; disorders of lipoprotein metabolism and cardiovascular disease, amino acid degradation, urea cycle and inborn errors of metabolism, principles of metabolic regulation and biochemical basis of cancer; food intake and control mechanisms, definition of kwashiokor, marasmus, malnutrition and diarrheal disease; sterols and bile acid metabolism, importance of nutrigenetics and nutrigenomics, xenobiotics and role of CYP enzymes in metabolic regulation and drug-drug interactions.
Assessment Strategies
The continuous assessment (CA): 40% (minimum of 3 tests and 2 assignments).
Examination: 60% (1 x 3 hours written paper + 1½ h practical examination)

Module Title: Medical Microbiology I

Code: MCB 3631
NQF level: 6
Notation: 160
Contact Hours: 3 lecture hours + 4 hours of laboratory practical per week
NQF Credits: 16
Pre-requisite:
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 2

Module Aims
The module aims to introduce the basic principles and application of medical microbiology and immunology with relevance to clinical disease in the preparation of students to become physicians. Also, the module aims to enable students to understand the nature, metabolism, nutrition, growth, pathogenicity, and prevention of bacteria of medical significance and understand their interactions with the human body to cause disease. Furthermore, the module will give insight to students on understanding the basic characteristics and functions of the immune system and its responses to intrusion of pathogens and foreign bodies into the body and the application of immune factors in the prevention and treatment of disease.

Module Content
This module will cover bacterial nomenclature, structure, growth, nutrition, metabolism, pathogenicity and pathophysiological changes resulting from bacterial infections as well as the immunological responses to infection will be discussed; mechanisms of action of major classes of anti-microbial agents, drug resistance, multidrug resistant organisms and the physical and chemical methods used thereof in the prevention of infectious microorganisms; Basic concepts in immunology, components of the immune system, principles of innate and adaptive immunity, antigen recognition by B and T cells, development, maturation and survival of lymphocytes, adaptive immunity to infection, failures of Host defense Mechanisms, (tolerance, allergy and hypersensitivity, autoimmunity, immunodeficiency, immunosuppression), tissue transplant, immune-surveillance, tumor immunity, transplant immunology, immunotherapy and immunization.

Assessment Strategies
The continuous assessment (CA): 50 % (minimum of 2 tests and 2 practicals).
Examination: 50 % (1 X 3 hours paper and 1 ½ practical paper)
Module Title: Medical Microbiology II

Code: MCB 3711
NQF level: 7
Notation: 160
Contact Hours: 3 lecture hours + 4 hours of laboratory practical per week
NQF Credits: 16
Pre-requisite: Compulsory
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 1

Module Aims
The aim of Module is to introduce the basic principles and application of mycology, virology, parasitology and entomology to clinical disease with relevance. This module will give a student to develop both informatics and diagnostic skills in medical virology, mycology, parasitology and entomology so that they can apply this in clinical setting. The module will enable students understand the nature, metabolism, nutrition, growth, life cycles, pathogenicity, and prevention of viral, fungal and parasitic pathogens of medical significance and understand their interactions with the human body to cause disease.

Module Content
Topics include: Parasitology; Overview of parasite, host, parasitism, parasitic diseases prevalent in Namibia and world, Classification, geographical distribution, habitat, morphology, life cycle, pathogenicity (mode of infection, pathogenesis and pathology), immune response to parasitic invasion and escape mechanism and laboratory diagnosis and prevention and control of medically important protozoa and helmintes: Entamoeba histolytica, Giardia lambia, Trichomonas, Ascaris, Ancyclostoma and Necator, Enterobius vermicularis, Trichuris trichiura, Strongloides, Taenia, Echinococcus, Hymenolepis nana, Brugia, Loa loa, Onchocerca, Dracunculus, Plasmodium, Leishmania, African and South American trypanosomiasis, Toxoplasma, Wuchereria and; Medical entomology (insects and arachnids); Mycology; Classification, general structure, physiology, pathogenesis, diagnosis treatment, prevention and control of medical important fungi; superficial mycosis, deep or systemic mycoses, opportunistic mycoses, fungal toxin and Allergies fungal drugs. Virology: History and principles of virology, Taxonomy and replication strategies of various viruses and Bacteriophages; Classification, structure, medical importance, pathogenesis and laboratory diagnosis of Poxviruses, Herpes viruses, Adenoviruses, Picomavirus, Orthomyxovirus, Paramyxovirus, Arbovirus, Rhabdo viruses, Hepatitis viruses, Retrovirus (HIV, HTLV etc), emerging viruses (SARS, MERS), Oncogenic virus, prions, Antiviral drugs; Technique of Diagnostic virology: Cultivation and purification of viruses. Principle and application of serodiagnostic methods: hemagglutination and haemagglutination inhibition tests, Complement fixation, neutralization.

Assessment Strategies
The continuous assessment (CA): 50 % (minimum of 2 tests and 2 practicals).
Examination: 50 % (1 X 3 hours paper and 1 ½ practical paper)
Module Title: Clinical Microbiology

Code: MCB3702  
NQF level: 7  
Notation: 80  
Contact Hours: 2 lecture hours + 2 hours of laboratory practical per week  
NQF Credits: 8  
Pre-requisite: MCM 3631 & MCM 3632  
Compulsory/Electives: Compulsory  
Semester offered: 3rd year semester 2

Module Aims
To able student apply the knowledge and skill they acquired in basic microbiology to elicit history, symptoms and clinical signs of infections in various human organ-systems, make appropriate request, take relevant specimen and be able to interpret laboratory tests. The student should be able to grasp the principles of treatment, prevention and control infectious diseases in a healthcare setting.

Module Content
Organ-system approach will be use; Musculoskeletal system infections (osteomyelitis, septic arthritis, pyomyositis etc.); Respiratory system infections (pharyngitis, tonsillitis, Tuberculosis, pneumonia, empyema etc.); Cardiovascular systems (Septicemia, Rheumatic fever, infective endocarditis etc.); Gastrointestinal system and the biliary system infections (Peptic ulcer disease, secretive & Inflammatory diarrhoeas, dysentery etc.); Urogenital system (UTI, STIs & STI); Central nervous system infections (Meningitis, encephalitis etc.); Skin conditions (Carbuncles, folliculitis, Tineas, etc.); HIV and opportunistic infections, Hospital acquired infections and infection control and prevention. The entire topics will be taught under sub-titles of epidemiology, transmission, natural history of the common infections; pathogenesis and clinical manifestations; diagnosis; treatment; prevention and control.

Assessment Strategies
The continuous assessment (CA): 50% (minimum of 2 tests and 2 practicals).  
Examination: 50% (1 X 3 hours paper and 1 ½ practical paper)

Module Title: Systems Physiology I

Code: PLG3511  
NQF level: 5  
Notional hours: 160  
Contact Hours: 3+4P hours per week for 14 weeks  
NQF Credits: 16  
Pre-requisite: None  
Compulsory/Electives: Compulsory  
Semester offered: 1st year semester 1
Module Aims
The Systems Physiology Course is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The course lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures, and debriefing of problem-solving skills.

Module Content
The study of physiology encompasses a number of fields of study; from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilization of energy, signalling and cellular dynamics. Building upon this we will stress the importance of cellular and tissue compartmentation, and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance.
By the end of the course students will also be familiar with the components and mechanics of the: Basic Cell Processes, energy and cellular metabolism, membrane dynamics and communication, integration, and homeostasis; the cellular and network properties of neurons and how they function within the context of the central and peripheral nervous systems; the Muscular Skeletal system and the control of body movement; the structure and function of the endocrine system; digestive system; cardiovascular control including blood flow and the control of blood pressure; respiratory mechanics and gas exchange; blood and blood products; renal function and control including fluid and electrolyte balance; exercise and metabolism; reproduction and development.

Assessment Strategies
The continuous assessment (CA): 50 % (minimum of 2 tests and 5 laboratory exercises).
Examination: 50 % (1 X 2 hours paper)

Module Title: Systems Physiology II

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<td>Semester offered:</td>
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Module Aims
The Systems Physiology Course is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The course lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures, and debriefing of problem-solving skills.
Module Content
The study of physiology encompasses a number of fields of study; from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilization of energy, signalling and cellular dynamics. Building upon this we will stress the importance of cellular and tissue compartmentation, and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance. By the end of the course students will also be familiar with the components and mechanics of the:

1. Basic Cell Processes including cells and tissues, energy and cellular metabolism, membrane dynamics and finally, communication, integration, and homeostasis.
2. The cellular and network properties of neurons and how they function within the context of the central and peripheral nervous systems.
3. The Muscular Skeletal system and the control of body movement
4. The structure and function of the endocrine system
5. Digestive System
6. Cardiovascular control including blood flow and the control of blood pressure
7. Respiratory mechanics and gas exchange
8. Blood and blood products
9. Renal function and control including fluid and electrolyte balance
10. Exercise and metabolism
11. Reproduction and development

Assessment Strategies
The continuous assessment (CA): 50 % (minimum of 2 tests and 5 laboratory exercises).
Examination: 50 % (1 X 2 hours paper)

Course Title: Pathophysiology

Code: PLG3611
NQF level: 6
Notional hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 1

Module Aims
Pathophysiology is the study of disordered physiological processes associated with disease or injury. This course is an introduction to pathophysiology designed especially to meet the needs of students preparing for careers in the health professions. This course will build on prior knowledge of anatomy and physiology as we explore body functions in altered health conditions.
Module Content
The course focuses on the changes in cellular and systemic physiology that occur in prevalent or important medical conditions. At the cellular level we will cover the responses to tissue injury, abnormal cell growth and the immune system. From there we will investigate the physiological basis of problems associated with most of the major organ systems. In each case we will discuss the effect upon whole body homeostasis.
Topics include: (1) Describing cell injury and its importance in pathophysiological manifestations of disease, (2) Outlining the basic pathophysiological mechanisms leading to the diseased state, (3) Explaining how changes in physiology lead to signs and symptoms of disease (4) Synthesizing important systemic complications during organ or organ system failure and (5) Describing the body’s compensatory mechanisms to restore homeostasis.

Assessment Strategies
The continuous assessment (CA): 50 % (minimum of 2 tests and 5 laboratory exercises).
Examination: 50 % (1 X 2 hours paper)

Module Title: ANATOMICAL PATHOLOGY

Code: PTG 3612
NQF level: 6
Notional hours: 160
Contact Hours: 3 lecture hours + 4 hours of tutorial
NQF Credits: 16
Pre-requisite: Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 2

Module Aims
Pathology (also commonly referred to as laboratory medicine) comprises those services which provide knowledge and diagnostic information for the care of individual patients through the scientific analysis of specimens of blood, fluids, tissues and other samples. Pathology services constitute an essential element of clinical services through the contribution they make to the effective prevention, detection, diagnosis, treatment and management of disease, especially chronic disease. This curriculum in pathology is organized in three modules comprised of histopathology, chemical pathology and haematology.

Module Content
This module intends to impart basic knowledge and skills of histopathology derived from surgical pathology, basic autopsy and cytopathology. There will be revision of basic knowledge of major pathological processes gained earlier in pathophysiology through topics that should include causes of and responses to cellular injury, acute and chronic inflammation, neoplasia, the effects and the environment in health and disease, infections and the basics of immunology. In general surgical pathology, for microscopy, students will be exposed to recognize normal histology and normal variations of common tissue types, select appropriate
histochemical stains for glycogen, fat, mucins and amyloid; familiarize with basic immunohistochemical markers for major tissue and tumour types; for macroscopic pathology, lymph node anatomy and dissection in cancer specimens, ink excision margins will be revisited. Apart from the general surgical pathology, organs/system surgical pathology will deal with the macroscopic and microscopic pathologies of the following: breast, upper and lower gastrointestinal tracts, respiratory, skin, lymphoreticular pathology, ENT, head and neck, female and male genital tracts, liver and gall bladder, cardiovascular system, endocrine pathology, soft tissue, neuropathology, renal and urological pathology, osteoarticular pathology and paediatric pathology.

Students will be introduced to autopsy pathology, with the hope that they will recognize histological changes that occur due to post-mortem artefact. Anatomical features and dissection techniques will be performed on the organ systems enumerated in the section of surgical pathology above. The anatomical features and dissection technique of the organ systems will be correlated with the clinico-pathology knowledge base, for instance osteoporosis during identification of fractures, splenic enlargement or atrophy during examination of spleen etc.

In cytopathology, students will be introduced to general technical aspects of cytology such as sampling devices used and the fixation of specimens, basic knowledge of the range of methods for converting a raw sample into a slide; morphological aspects such as the nuclear features used to diagnose malignancy, features used to determine differentiation of a neoplasm. Topics such as cervical screening, squamous carcinoma and adenocarcinoma will be covered in cervical cytopathology while the role of needle aspirate samples from lung, breast, thyroid, salivary gland, lymph node and other sites will be covered under the non-cervical pathology.

**Assessment Strategies**
Continuous assessment mark: 40% Continuous assessment
Examination mark: 60% Examination (1 x 3 hours written paper+ 1½ practical examination)

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<td>Notional hours: 160</td>
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<td>Pre-requisite: Compulsory/Electives: Compulsory</td>
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<td>Semester offered: 2nd year semester 1</td>
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**Module Aims**
Through this module students will learn about the biochemical and metabolic basis of disease, and the mechanisms involved in restoration and maintenance of normal state. Students will also learn about the approaches to clinical reasoning guiding the choice of laboratory tests, interpretation of results of tests, decision making therefrom, the analytical methods themselves and their limitations.
Module Content
This module also commonly referred to as clinical chemistry or clinical biochemistry, is intended as a guide to offer a comprehensive programme on the biochemistry and physiology of human disease, with emphasis on the proper interpretation of information provided by the chemical pathology laboratory to the clinician. The thrust is on the theory, principles and practice of physiological chemistry, abnormal body chemistry and the different biochemical procedures used in the investigation of disease. The themes of the module are designed to outline background to chemical pathology; cover the routine analyses ("core biochemistry") that would form the basic repertoire of most hospital laboratories; the endocrinology, and specialized investigations which are less commonly requested, but important analyses.

In a nutshell, the module will focus on introduction to the practice of laboratory medicine that includes basic laboratory principles, quality control and quality assurance, few selected analytical methods, clinical chemical pathology (e.g., water and electrolytes, renal, acid base regulation, carbohydrates and lipids, proteins and enzymes, liver and gastrointestinal tract, basic endocrinology), calcium and bone disease, magnesium and phosphate, haemoglobin and porphyrins, purine and pyrimidine metabolism, inborn errors of metabolism, paediatrics biochemistry, nutritional disorders, neurological diseases and psychiatric diseases, cancer and tumour markers,

Assessment Strategies
Continuous assessment mark: 40% Continuous assessment
Examination mark: 60% Examination (1 x 3 hours written paper + 1½ practical examination)

Module Title: HAEMATOLOGY

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<td>Notional hours:</td>
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<td>Semester offered:</td>
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Module Aims
This module will equip the students with knowledge and skills of the morphology and pathophysiology of blood. Student will also master skills and techniques investigating the number, structure and function of the cellular elements, using sophisticated technology to count and size all the types of cells and a variety of staining techniques to make a detailed morphological examination of cells leading to the elucidation of disorders of the blood. Finally, students will also learn about blood transfusion services and the use of blood and its products in medical practice.
Module Content

The module provides comprehensive knowledge on the developmental process of all three haemopoetic cell lines of erythropoiesis, thrombopoiesis, lymphocyte and leucocyte maturation and differentiation; understanding the role growth factors in haemopoiesis and cytokines in haemopoietic proliferation differentiation and maturation; morphology (indication and interpretation of stains used in the peripheral blood smear; normal cellular morphology and composition of peripheral blood; qualitative and quantitative abnormalities of erythrocytes, platelets and white cells); haematologic malignancies (leukemia, polycythaemia vera, myelofibrosis, thrombocythaemia); haemostasis and thrombosis (comprehensive knowledge of function of the various components of haemostasis; diagnosis of various congenital bleeding disorders); blood transfusion (genetics and biochemistry of major blood cell antigens such as ABO, Rhesus, HLA; principles of pretransfusion testing such as basic blood grouping, procedures for compatibility testing, principles of cross match strategies, and principles of antibodies identification); specialized haematology diagnostic modalities (to acquire comprehensive knowledge of the commonly used diagnostic panels such as acute leukaemic screen, chronic screen, plasma screen, CD34 analysis, Platelet marker analysis).

Assessment Strategies

Continuous assessment mark: 40% Continuous assessment
Examination mark: 60% Examination (1 x 3 hours written paper + 1½ practical examination)

Module Title: Medical Imaging and Diagnostics

Code: PLG3701
NQF level: 7
Notional hours: 80
Contact Hours: 2 lecture hours
NQF Credits: 8
Pre-requisite: Compulsory/Electives: Compulsory
Semester offered: 4th year semester 1

Module Aims

This module equips students with knowledge and skills of radiology and radiation, correlating it with normal anatomy. The student grasps clinical reasoning skills necessary for interpreting radiological studies, understanding the role of imaging in clinical investigation and management guidelines and legislation on radiation and radiation protection.

Module Content

Medical Imaging: Introduction to medical physics, radiation and use of radioisotopes in medicine as a diagnostic tool and for treatment. The module discusses risks to radiation, radiation protection, and legislation on radiation, various imaging techniques, the normal appearance of various tissues and organs in plain films, angiography, contrast studies, tomography and resonance. At the end of the module, a student will be able to differentiate
normal from abnormal findings in radiographs and diagnose common pathologies in the chest, abdomen, bone and the skeletal system. The student will also be able to institute due care practices in requesting for imaging investigations, be mindful of the comfort of the patient and obtain consent as necessary. Topics covered include principles of radiation physics and radiological technology; radiation protection; radiobiology; X-rays: normal systemic anatomy using plain X-rays (plain films, contrast studies); imaging modalities and their application; radioisotope imaging, computerized tomography, magnetic resonance imaging, ultrasound, radiological, angiography, images of osteomyoarticular, respiratory, circulatory, digestive, urogenital, hemolymphopoietic, and endocrine systems; radio-therapeutics and bio-effects of radiation.

**Applied radiology and diagnostics:** cost-effective use of medical imaging, the use of plain films as an imaging primary technique for the general physician, actual working with the ultrasound in bedside care of patients, the benefits of tomography, angiography and radio-magnetic resonance. Topics in neuroscience include MRI, CT and plain films: hemorrhage, subarachnoid and subdural haemorrhage, infarct, oedema, mass and hydrocephaly; in the spine: metastatic mass, disc disease, compression; abdomen: bowel obstruction, aortic aneurysm, renal mass, pancreatic mass, hepatic mass, abdominal mass; Chest: pneumonia, effusion, atelectasis, nodule, congestive heart failure, pulmonary oedema, pneumothorax; pelvis: prostate nodule, testicular mass; neck: thyroid nodule; indications of ECHO cardiograph, Doppler; bile duct ultrasound; use of ultrasound and radioisotopes in treatment.

**Assessment Strategies**
Continuous assessment mark: 40% Continuous assessment
Examination mark: 60% Examination (1 x 3 hours written paper)
Module Content
Sociological understanding of health, illness and disease considers the structural and social factors and not largely relies on biological medical explanations of health and disease. The structural emphasis will entail consideration of the political, economic and social cultural elements that foster ill/health, as well as the forces that allow/ constrain the health care system and individuals’ responses to illness. The module also focuses on the indirect pathway between sociology and health/disease, and emphasizes the role that beliefs and behaviors play in health and illness.

Furthermore, the module will address the sociological definition of disease, explore major theoretical perspectives in health, behavioral science, and sociology, the influence of class, gender and ethnicity on health; global and rural health problems; health promotion and community health services among others. This will enable the students to understand the social determinants of health, social construction of illness, social meanings of illness, patterns in the distribution of health and illnesses, people health seeking behaviors; interaction between patients and the health provider. The course will also explore medicine as power and social control and the role of alternative medicines.

Students will also examine health-related behaviors and apply many of the theories to specific behaviors, e.g. addictive behaviors and the factors that predict smoking and alcohol consumption as well as Gender Based Violence and HIV. Throughout the course students will focus on the interrelationships between beliefs, behavior and health using the example of placebo effects; illustration of this interrelationship in the context of illness, focusing on HIV, cancer, obesity and coronary heart disease; aspects of women’s health; the problems with measuring health status and the issues surrounding the measurement of quality of life.

Assessment Strategies
Continuous Assessment: 40%
Final Examination: 60%

Module Title: DEVELOPMENTAL PSYCHOLOGY

Code: PCT3600
NQF Level: 5
Notional hours: 160
Contact Hours: 2 lecture hours per week for two semesters
NQF Credits: 16
Pre-requisite: Compulsory/Electives: Compulsory
Semester offered: 2nd year semesters 1 and 2

Module Aims:
Through this module students will gain knowledge of the theories of psychosexual development normal physical, cognitive and emotional development and their application in states of health and disease. Students will also learn about the approaches to the diagnosis,
management and rehabilitation of people with suspected cognitive or psychological or behavioral conditions.

**Module Content**
This module focuses on applicable developmental theories such as the psychodynamic theory, particularly Freud’s psychosexual theory and Erickson’s psychosocial theory and developmental theories of cognitive development. To be considered here are Piaget’s theory of cognitive development as well as Vygotsky’s theory of cognitive development (sociocultural-historical theory, particularly the notions of the zone of proximal development and scaffolding in cognitive development). The course will examine perinatal/prenatal development, including the period from conception to birth. Environmental influences on prenatal development, hereditary/genetic influences on human development and hereditary/genetic transmission, genetic and chromosomal abnormalities, birth complications, and maternal stress will be explored. How infants sense and perceive the world will be examined. Furthermore, the course will examine the five domains of human development from infancy, adolescence, through adulthood (cognitive development, physical development, emotional development, social development and language development (attainment of normal developmental milestone)). Finally, chronic illness in childhood and hospitalization, as well as child physical, emotional, and sexual abuse will be covered. The development of the concept of death among children will also be discussed.

**Assessment Strategies**
The continuous assessment (CA): 40% (minimum of 3 tests and 2 assignments). Examination: 60% (1 x 3 hours written paper)

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**Module Title: Community Based Education and Service I**

**Code:** CMM3600  
**NQF Level:** 5  
**Notional hours:** 160  
**Contact Hours:** 4 hours of integrated learning and Household attachment  
**NQF Credits:** 16  
**Pre-requisite:** Compulsory  
**Compulsory/Electives:** Compulsory  
**Semester offered:** 2nd year semesters 1 and 2

**Course Aims:**
The aims of this module are to prepare the student to practice in different socio-economic cultural and technological settings in Namibia, the region or internationally. This module integrates core principles of community medicine and family medicine and helps the student to gain knowledge and skills essential for evidence based delivery of a continuum healthcare services to an individual patient, family, community or population groups. The module also assists students to internalize the ethical values particularly the tenets of human dignity, social justice, equity and right based healthcare services. The module gives opportunities for the students to address the root causes of health conditions to improve the well-being of the family. The experience gained will help the students to identify resources in
the household and leverage this for health in support of health promotion, prevention, control, treatment and rehabilitation. The module also allows students to learn how through the application of principles and practice of Community Based Education leads to transforming of individuals, families and communities into well-informed, self-reliant and empowered society.

**Module Content**
The construct of a family; urban household set up; socio-economic and cultural determinants of health at household setting i.e. the basic unit of society; health seeking behavior, access and demand factors as well as culturally mandated disposal of household income and allocation to health; longitudinal follow and observational techniques; health outcomes for pregnancy, childhood and in chronic disease as well among the elderly or aged persons; primary care elements, health education, health promotion, antenatal care, well baby and well mother clinics as well as making observation such as DOTS; household resources and resource allocation; the care for people with disabilities and mental illness or other vulnerable groups. In this way a student will apply holistic approach to healthcare delivery. This is also value-based approach that emphasizes on the role of family members in assessing and analyzing their own health problems, allocate resources to health and develop solutions; interaction of household, families, environment and influencing factors; community strengths, resources available at household levels, socio-economic conditions, cultural practices, educational levels, use of information to develop intervention strategies; participatory identification of health problems, identify appropriate tools to sustain programmes developed; application of principles and practice of community based education approach, health promotion theories, integrated health education application.

**Assessment Strategies**
The continuous assessment 100%

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**Module Title: Community Based Education and Service II**

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<tr>
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<td>Compulsory/Electives:</td>
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<tr>
<td>Semester offered:</td>
<td>3rd year semester 2</td>
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**Module Aims**
This modules equips students with knowledge and skills to live and work in a rural setting as well as to formulate evidence based community intervention that are sustainable and beneficial to the community. Through this module students learn and practice the principles of community engagement, community entry strategies and how to provide quality primary health care services to medically underserved communities and vulnerable populations.
Module Content
The module covers principles of community engagement, community entry strategies; community diagnosis; assessment of the health status of the community, community organizational institutions and their capacities; role of the community in managing their own health and facilitate a process of needs assessment health care package for rural Health Centers: comprehensive, culturally competent, quality primary health care services to medically underserved communities and vulnerable populations; Health centers as community-based and patient-directed organizations that serve populations with limited access to health care including low income populations, the uninsured, those with limited educational proficiency, migrant and seasonal farmworkers, individuals and families experiencing homelessness, and those living in public housing; the functioning of a Health in delivery of required primary, preventive, enabling health services and additional health services as appropriate and necessary, either directly or through established written arrangements and referrals.

Topics: health promotion; education; and knowledge of the disease profile in the community. Communicable and non-communicable disease management, childhood illnesses, maternal and infant mortality assessment, existing prevention and control programmes, communication, and behavioral impact activities; School and Place Health Programs; mental healthcare and rehabilitation; sources of data, evaluation methods implemented; categories of indicators used, such as infant mortality rate, maternal mortality rate, child mortality rate, sanitation morbidity (incidence/ prevalence rate); leadership in the community, development of health services, infrastructure, budget allocation for sustainability, human resources, referral system and catchment area; healthcare management.

The first of four cycles in the community leads to community diagnosis, while the subsequent attachment of new groups of students will work with the community to design and intervention, plan its implementation and lastly conduct an evaluation. This attachment is co-supervised with the Ministry of Health and Social Services health works in the health centre.

Assessment Strategies
The continuous assessment 100%

Module Title: Community Based Education and Service III

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<td>Pre-requisite:</td>
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Compulsory/Electives: Compulsory

Semester offered: 4th year

Module Aims
The aim of this module is equip students with knowledge and skills necessary to manage healthcare delivery system at the district level; and to provide patient care at the first level hospital. Furthermore, through this module student learn through the practical application of the principles and concepts of management and leadership. Finally students learn the core
elements of family medicine by shadowing a family medicine physician in the district or by using the guidelines in the manual on Family Practice.

**Content**

This module covers important topics of: the district health systems and services; the essential district health package; the district health manager(s); the district health team; leadership; healthcare financing and health economics; human resource management; budgeting and financial management; health information management systems; assets security and management; health policy formulation and implementation; evaluation of projects and interventions.

**Assessment Strategies**

The continuous assessment 100%

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<table>
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<td>Pre-requisite: Compulsory/Electives: Compulsory</td>
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<td>Semester offered: 1st year semester 2</td>
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**Module Aims**

This module aims at teaching the students how to gather and analyse data that can be used to provide honest information about unanswered biomedical questions. The module will aims at equipping the students with technical skills in applied statistics that is concerned with the application of statistical methods to medicine, clinical trials, demography, population estimation, modeling, community diagnosis, surveys and survival analysis.

**Module Content**

**Describing Univariate Data**: Central Tendency, Spread, shape and graphs. **Describing Bivariate Data**: Scatterplots, Introduction to Pearson's Correlation, Computational formula for Pearson's Correlation, Example values of r, Effect of linear transformations on Pearson's Correlation, Spearman's rho. **Introduction to Probability (elementary)**: Simple probability, Conditional probability, Probability of A and B, Probability of A or B, Binomial distribution. **Normal Distribution**: What is it? The standard normal distribution: Why is it important? Converting to percentiles and back, Area under portions of the curve, Sampling Distributions. **Sampling Distributions**: Sampling distribution of the mean, Standard error, Central limit theorem, Area under sampling distribution of the mean, 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 Why the null hypothesis is not accepted, The precise meaning of the p value, At what level is $H_0$ really rejected? 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 $\mu$, $\sigma$ known, Tests of $\mu$, $\sigma$ estimated, $\mu_1 - \mu_2$, independent groups, $\sigma$ estimated, $\mu_1 - \mu_2$, dependent means, $\sigma$ estimated, Tests of Pearson's correlation, Differences between correlations, Proportions, Differences between proportions. **Chi square** : Testing differences between $p$ and $\pi$, More than two categories, Chi square test of independence (Introduction, Calculations, Assumptions), Reporting results. **Power**: Factors affecting power; Size of difference between means, Significance level, Sample size, Variance, Other factors, Estimating power. **Measuring effects**: Variance explained in ANOVA, Variance explained in correlation, Variance explained in contingency tables.

**Assessment Strategies**
The continuous assessment (CA): 40% (minimum of 3 tests and 2 assignments). Examination: 60% (1 x 3 hours written paper)
risk factors to health outcome; Analytic study designs; Causal inference; Sources of error; Multicausality — Confounding; Outbreak investigation; prevention strategies, diagnostic tests and screening; Sensitivity and specificity, Predictive value, Likelihood ratio (LR), Predictive value and prevalence, Stability of the sensitivity and specificity, Clinical case definition, measures of agreement.

**Assessment Strategies**
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)

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**Course Title: Research Methods and Proposal Writing**

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<tr>
<td>Contact Hours:</td>
<td>1 hour Lecture + 2 hours Practical per week for 14 weeks</td>
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<td>NQF Credits:</td>
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<td>Pre-requisite:</td>
<td>Compulsory</td>
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<td>Semester offered:</td>
<td>4th year</td>
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**Module Aims**
This module aims to equip the students with principles, skills and methods to conduct scientific research and analysis required on any matter within the domain of health. Students will learn about the quantitative and qualitative research methods.

**Module Content**
This module covers the following topics: Introduction to Quantitative research and Qualitative research, 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 different of studies design.
Sampling Methods: Non-probability sampling, Probabilistic or random sampling; sample size determination. Study population, Specification study variables, and types of variables.
The 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.

**Assessment Strategies**
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)
Course Title: Nutrition and Dietetics

Code: CMM3702

NQF level: 7

Notional hours: 160

Contact Hours: 1 hours Lecture + 2 Practical per week for 14 weeks

NQF Credits: 8

Pre-requisite: Compulsory

Compulsory/Electives: Compulsory

Semester offered: 4th year semester 2

Module Aims
This module aims to equip students with necessary knowledge on the role diet plays in health, disease causation, prevention, development, and treatment of most of today’s major diseases. The clinical nutrition program prepares students to manage medical conditions using specific nutritional strategies. The module also will enable students to discuss the interplay between availability of food (food security), culture, dietary supplementation and diversification, growth and development and individual life style.

Module Content
Major areas to be addressed include: Fundamentals of Nutrition and Metabolism, Disease-related Malnutrition, Practical Nutritional Assessment, Therapeutic Aspects of Clinical Nutrition, Nutrition and Public Health, Malnutrition in the Community, Disease and Disordered Eating. It will provide an overview of the importance of nutrition in health and will enable students to gain a general foundation in the different types of malnutrition (both under and over nutrition) including micronutrient deficiencies.

Other areas include: Nutritional concepts, nutritional needs through life cycle, including digestion, absorption, metabolism, storage, and excretion of nutrients and other markers of nutritional adequacy or excess with emphasis on micronutrients. Functions, dietary sources and deficiencies of essential nutrients in humans; a balanced diet; role of nutrients in heart disease, cancer, hypertension, osteoporosis; weight control and eating disorders; vegetarianism; food safety; dietary supplements; government regulation of food supply. This unit will cover the following area

Clinical nutrition: This is nutrition of patients in health care settings. Clinical in this sense refers to the management of patients, including not only outpatients at clinics, but also (and mainly) inpatients in hospitals. It incorporates primarily the scientific fields of nutrition and dietetics. It aims to keep a healthy energy balance in patients, as well as providing sufficient amounts other nutrients such as protein, vitamins and minerals

Assessment Strategies
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)
Module Title: Health Systems Management

Code: CMM3701
NQF level: 7
Notional hours: 80
Contact Hours: 2 hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: Compulsory/Electives: Compulsory
Semester offered: Year 4 semester 1

Module Aims
To provide student the skills to manage the different roles of individuals in the health system management is including skills in leadership, financial management, health care policy, marketing, and human resources.

Module Content
As a manager of a primary care centers, responsibilities include coordination of the hiring and firing of clerical staff, instituting community outreach, marketing the services of the centers within the community, financial planning, and overseeing the billing sequence. The roles are site specific in that the needs of the different types of health services determine what responsibilities logically belong to the administrator.

Students will be introduced in leadership skills which is needed for success in health service administration. It will also focus around effective communication and understanding the principles of many theories used to characterize organization management.

Health economics applies the tools of economics to issues of the organization, delivery, and financing of health care. The objectives of this course are to: (1) develop an understanding of the relevance of economic concepts to the health care sector, (2) to describe the system of health care financing and delivery arrangements in the health care sector, and (3) to impart an understanding of the role of economic factors in the development of public policy concerning health and health care.

Financial management will include the ability to develop and assess a budget, to determine where monies are best spent, to set up systems to monitor and evaluate the outcomes, to complete a cost benefit analysis of the service provided, and the ability to write up the needed reports. A meaningful budget that avoids overpayment of anything is a must in today's marketplace. Thus, health services administration is focused on insuring that costs (output) are offset by income through budgetary and fiduciary oversight.

Human resources training will deal with the personnel component of any organization. For a health services administrator, the responsibilities would include developing policy for hiring, discipline, and termination of personnel through direct management or as a supervisor of the individual assigned to these services. Adherence to state employment law is an integral part of this responsibility.

Assessment Strategies
1. Continuous assessment (40%)
2. End of module examination (60%): 1 x 3 hours paper
**Course Title: ELECTIVES**

**Code:** MDC3789  
**NQF level:** 7  
**Notional hours:** 240  
**Contact Hours:** 35 hours fieldwork per week  
**NQF Credits:** 24  
**Pre-requisite:**  
**Compulsory/Electives:** Compulsory  
**Semester offered:** 4th year

**Module Aims**
This module aims to empower the student to plan his/her own learning and personal growth in perspective of his/her own future career development. The module also aims at developing the adaptation skills, cultural sensitivity and the practice of medicine in different socio-economic - technological settings.

**Module Content**
Three elective blocks of 8 weeks each have been established within the School of Medicine program in the second, third and fourth years (24 weeks total). This time is allocated within the MBChB program to allow students to investigate elements of medicine that are outside the core curriculum, that complement an area of interest or to study subjects in greater detail. In all, it is expected that students will complete 16 weeks of training in the allotted elective time. The student will have to develop the elective proposal, work plan and successfully defend it. The established eight-week blocks may be broken into blocks of four weeks (not smaller) but electives cannot run concurrently. Upon completing an elective the student is responsible for ensuring that his or her evaluation form is completed and submitted to the School of Medicine for credit. The School of Medicine recognizes the importance rural practice and as such requires that at least two four week blocks must be undertaken as rural attachments domestically. In all cases students must seek approval of a specific elective and the School reserves the right to approve and or cancel chosen electives. We will also actively discourage students from scheduling electives during periods the School has designated for vacation.

**Assessment Strategies**
The continuous assessment (CA): 100% Continuous Assessment

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**Module Title: FAMILY MEDICINE I**

**Code:** FMM3601  
**NQF:** 6  
**Notional hours:** 160  
**Contact Hours:** 2 + 2P hours per week for 14 weeks  
**NQF Credits:** 8  
**Pre-requisite:** None
Module Aims
The module aims at introducing students to the principles of Family Medicine, the role of the Family Physician and the Synergy between Family Medicine, core concepts of Primary Health Care, Community and Family oriented primary care. It will explore the relationship between lifestyle and the health of a community, the application of health promotion theory and approaches, the planning and development of health promotion interventions. It will also introduce the student to the principles of Community Oriented Primary Care (COPC) and working with communities, as well as general systems theory as applied to Family Medicine and Family Oriented Primary Care (FOPC). This course builds on Public Health approaches such as Epidemiology which are covered in other modules.

Module Content
The module covers the following topics: Definitions of Family Medicine, Primary Health Care and Public Health and how they overlap; Primary Health Care – origins, different approaches and challenges; Disease Prevention and Health promotion – definitions, approaches and behavior change theories, principles of disease prevention and social determinants of ill health; Communicable and Non-communicable diseases and screening for preventable conditions; Brief behavior change counselling and how to communicate health information; Community orientated primary care (COPC) and how to apply the principles of COPC; Family orientated primary care and how to utilize different tools to assess family function eg genograms, ecomaps and family APGAR as well as conducting a home visit and family conference.

Assessment Strategies
- Continuous assessment (40%)
- End of module examination (60%): 1 x 3 hours paper

Module Title: FAMILY MEDICINE II
Code: FMM3701
NQF: 7
Notional hours 160
Contact Hours: 2 + 2P hours per week for 14 weeks
NQF Credits: 8
Pre-requisite: FMM3601
Compulsory/Elective: Compulsory
Semester offered: 3rd year semester 1

Module Aims
This module aims to introduce the student to the key components of Family Medicine. These include: The primary care consultation, communication and counselling skills, and ethics
relevant to Family Medicine. The student will develop a clear understanding of what constitutes Family Medicine and how Family Medicine forms an integral part of other disciplines of medicine.

**Module Content**
The module covers the following topics; the principles of Family Medicine; the Bio-psychosocial approach and the use of the three stage assessment; patient-centeredness and the dynamics of the consultation; comprehensive primary care assessment (Stott's model); communication and basic counselling skills; bioethics and an approach to solving ethical dilemmas in clinical practice.

**Assessment Strategies**
1. Continuous assessment (40%)
2. End of module examination (60%): 1 x 3 hours paper

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**Module Title: FAMILY MEDICINE III**

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<td>Semester offered:</td>
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**Module Aims**
This module aims to introduce students to environmental and occupational health and safety, disability and the management of disability within the primary health care setting and gerontology. Also, the module aims to equip students with the knowledge on management of common diseases and disability and people with health special needs in the community.

**Module Content**
The module covers the following topics; Environmental and Occupational health and Disability and Rehabilitation in primary health care as well as Gerontology and the primary care needs of older persons.

**Assessment Strategies**
1. Continuous assessment (40%)
2. End of module examination (60%): 1 x 3 hours paper
Course Title: Research Project

Code: RPD3810
NQF level: 8
Notional hours: 320
Contact Hours: 4 hours per week
NQF Credits: 32
Pre-requisite: Compulsory/Electives: Compulsory
Semester offered: 5th year

Module Aims
The aim of the module is to enable able student to: develop and apply the knowledge and skills required in identifying and prioritizing public health problems and systematically investigating them with the view to finding practical answers. By carrying out a modest research project and producing a report in this module, students are provided the opportunity to consolidate the various research methods, statistical and epidemiological techniques and other public health theoretical lessons they studied in the previous years.

Module Content
DATA COLLECTION AND ANALYSIS: The student focuses on data collection during the first semester of the fourth year as a longitudinal module from primary or secondary sources in Windhoek/Khomas region. According to the proposal, the data can be from the clinics, hospital, City Council, Ministry of Health and Social Services or its institutions or from the community in a specified income cluster. The student will apply the skills of research methodology and epidemiology to clean and process the data using a suitable software package. At the end of the semester, the student will make a presentation detailing the results of the field work, summary tables and preliminary findings. Feedback from the student conference assists the student to review the analytical framework and finalize the data analysis. The conference presentation rating will constitute the continuous assessment for the semester. The student can then proceed to write the thesis using the UNAM format. Optionally, students can write a scientific paper to be submitted in refereed journal.

WRITING AND PRESENTATION OF THESIS: This final stage is for the student to write the Thesis with regular advice from the Faculty mentor. The student will be able to make revisions using advice from the mentor aiming at producing the final revised copy one month before the end of the tenth semester (end of year 5 academic year). The Thesis will be graded by two faculty appointed evaluators. The student will also make a presentation of the research study at the final student conference to be held before graduation. The mentor will assist a student who requests to prepare a manuscript for publication in a refereed scientific journal.

Assessment strategies:
100% continuous assessment of the project report by two designated Faculty members other than the supervisor.
Module Title: PHARMACOLOGY I

Code: PMG 3612
NQF level: 6
Contact Hours: 4 lecture hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 2

Module Aims:
The module introduces students to principles of pharmacodynamics and pharmacokinetics as integrated concepts that explain the effects and mechanisms of drug actions. It lays the foundation for students' understanding of drug therapy as will be taught in subsequent modules in the pharmacotherapy of systemic diseases.

Module content
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; 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 metabolizing enzymes; enzyme induction and inhibition; Fundamental principles of drug interactions

Assessment Strategies
The continuous assessment (CA): 40%
Examination: 60% (1 x 3 hours written paper)

Module Title: PHARMACOLOGY II

Code: PMG 3711
NQF level: 7
Contact Hours: 4 lecture hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: PMG 3612
Compulsory: Compulsory
Semester offered: 3rd year semester 1
Module Aims:
The module aims at introducing students very early in the medical programme to drug therapy in both systemic and infectious diseases. A teaching strategy that gives preference to making students understand pharmacologic principles as a first step in drug therapy will be adapted. Course outlines principally focus on the pharmacological basis of drug therapy in disorders of the autonomic and somatic nervous system and renal control of the cardiovascular system as well as the chemotherapy of bacterial infections. Much emphasis will be laid on the development of students’ ability to evaluate the therapeutic actions of drugs to be discussed from the perspectives of their mechanisms of action and pharmacological properties. Mechanisms of action, activity limitations posed by bacterial morphological characteristics, spectra of antibacterial activities, adverse effects, compatibilities and clinical applications of antibacterial agents will similarly be the focus in presentations dealing with chemotherapy of infectious diseases.

Module content
Neurohormonal transmission and initiation of post junctional activity; autonomic and somatic nervous system: structure and organ innervations; peripheral neurotransmitters (acetylcholine, noradrenaline, dopamine) and co-transmitters (ATP, adenosine, nitric oxide, endothelin, neuropeptide Y, vasoactive intestinal polypeptides); cholinergic and adrenergic receptors: their tissue distributions and effects of their stimulations; cholinergic and anticholinergic drugs (choline esters, natural alkaloids, anticholinesterases, depressor drugs, neuromuscular blocking agents); their mechanisms of action and clinical uses; sympathomimetics (α and β adrenoceptor agonists) and adrenergic receptor blockers (α and β adrenoceptor antagonists): mechanisms of action and clinical uses; angiotensin converting enzyme inhibitors, angiotensin II receptor antagonists and diuretics: mechanisms of action and clinical uses; Bacterial pathogens: staining properties and morphological classifications, virulent characteristics; associations with infections of given anatomical sites and mechanisms of resistance development; antibacterial agents (Beta-lactam antibiotics (penicillins, cephalosporins, penems and monobactams), Glycopeptides (vancomycin and teicoplanin); Protein synthesis inhibitors: 50S ribosomal protein inhibitors (chloramphenicol, macrolides and ketolides, lincosamides, spectogramins); 30S ribosomal protein inhibitors (Tetacyclines, glycyclyclines and aminoglycosides); bacterial nucleic acid synthesis inhibitors (quinolones, sulphonamides and trimethoprim, metronidazole)

Assessment Strategies
The continuous assessment (CA): 40%
Examination: 60% (1 x 3 hours written paper)
Module Aims:
The module aims at preparing students to prescribe appropriate chemotherapy of antiviral, antifungal, antiparasitic infections and cancer chemotherapy. The pharmacological basis of drug therapy in disorders of the central nervous system, the endocrine system and blood will particularly be covered. Much emphasis will continue to be placed on the development of students’ ability to evaluate the therapeutic actions of drugs to be discussed from the perspectives of their mechanisms of action and pharmacological properties. Students will be assisted to gain knowledge of the importance of the health team in the care of patients.

Module content
Receptors, neurohumours and neurotransmission in the central nervous system; general anaesthetics; local anaesthetics; analgesics: Opioid and non-steroidal anti-inflammatory analgesic agents; drug addiction and abuse; ethanol; hypnotics and sedatives, antiepileptic drugs; anti-psychiatric, antipsychotic and anti-maniac drugs; antidepressants and anxiolytics; principles of antibiotic prescribing; HIV replication; Antiretroviral drugs: Classifications and mechanisms of action and resistance development; principles antiretroviral therapy and HAART; non-antiretroviral and antifungal agents: mechanisms of their action and clinical uses particularly in opportunistic infections in immune compromised patients; chemotherapy of parasitic infections (anti-helminthics); chemotherapy of neoplastic diseases; tumour cell growth and cell kill hypothesis; sites of action of cytotoxic drugs in the cell cycle; antineoplastic drugs: Classes (Cytotoxics, hormones and biologic response modifiers) therapeutic uses; adverse effects of ctotoxic drug and their management, principles of cancer chemotherapy

Assessment Strategies
The continuous assessment (CA): 40%
Examination: 60% (1 x 3 hours written paper)

Module Title: PROFESSIONAL ETHICS

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<tr>
<td>Semester offered:</td>
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Module Aims
The aim of this module is assist students to develop a personal philosophy for lifelong practice of medicine and ongoing professional growth. In particular, students will be equipped with skills to examine the four cardinal principles of: respect for autonomy, beneficence, non-maleficence and justice. In addition students explore issues on double effect (conflict between autonomy, beneficence, and non-maleficence), Codes on Medical ethics and deontology, end of life decisions, and continual learning as a means to remaining competent
in the era of rapidly changing medical practice, genetic engineering and other technologic advances.

**Module Content**

Medical Ethics and Philosophy: This module is designed to describe the basic principles of professional conduct, ethics, and legal practice in health, with particular emphasis on social values, norms, and culture of the Namibian society. A student will be able to professionally engage in his/her medical practice, observe professional conduct with regard to patients, their families, and professional colleagues, evaluate ethical dilemmas and give professional evidence in a court of law. Topics covered include: basic principles of ethics and philosophy in health; social obligations, values, and norms with the emphasis of the Namibian society regarding health; the patient-physician relationship; common ethical dilemmas: fundamental ethical guidelines, conflicts between beneficence and autonomy, patients who lack making-decision capacity, decision about life-sustaining interventions, conflicts of interest; basic principles of medico-legal practice, review of the health related Namibian legislative code; forensic pathology: traumatic injuries in forensic medicine, asphyxia of medico-legal interest, sexual abuse, criminal abortion, individual identification; toxins, poisons, venoms, drug overdose; epidemiology, diagnosis, and general principles of treatment of alcoholism and drug dependency; HIV/AIDS; research and ethics; international codes and declarations; Hippocratic and other oaths in medicine.

**Assessment Strategies**

Continuous assessment (40%)
End of module examination (60%): 1 x 2 hours paper

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**Module Title: Anaesthesiology I**

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<th>Code:</th>
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<tr>
<td>NQF level:</td>
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<td>Semester offered:</td>
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**Module Aims**

This module aims at acquainting medical students with the essential knowledge and the practice of anaesthesia in surgery. This module will equip the students with the commonly used anaesthetic drugs, their mechanisms of action, and their side effects. Also, the module will enable the students to master the relevant techniques of administering safe regional and general anaesthesia to patients.

**Module Content**

This course reviews the physiology, pathophysiology and anatomy of the respiratory, cardiovascular and autonomic nervous systems as well as the pharmacology of medicines used in the context of anaesthesia.
The course will acquaint students with pre-operative preparation of the patient and family; this includes consent to anaesthesia and choice of appropriate pre-operative additional medications and investigations.

Students will be taught the principles of General Anaesthesia including the choice of medicines for induction and maintenance, the application of intravenous and inhalational anaesthesia, the use of neuromuscular blocking and analgesic agents, as well as the function of appropriate monitoring during anaesthesia. Complications of General Anaesthesia, in particular in respect the airway management will be discussed in detail. Students will be lectured on the principles of Regional Anaesthesia including the pharmacology of medicines used for local and regional anaesthesia, and pain management; emphasis will put on spinal anaesthesia and the management of its side effects and possible complications.

Assessment Strategies
The continuous assessment (CA): 40 %
Examination: 60 % (1 X 3 hours paper, which includes practical examination paper)

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<thead>
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<td><strong>Compulsory/Electives:</strong></td>
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<td><strong>Semester offered:</strong></td>
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**Module Aims**
This module aims to deepen essential knowledge and the practice of anaesthesia in surgery. This module will prepare students to determine appropriate anaesthetic method for the management of specific conditions. Also, the module will enable the students to apply different techniques and administer the relevant anaesthetic. The students will be equipped with skills to monitor the effectiveness of anaesthetic being used and manage the patients during the post anaesthetic period.

**Module Content**
This course applies the practice of anaesthesia in different clinical settings: childhood and adulthood, the aged, in different surgical domains, including obstetric care, and under different medical conditions. Students observe, experience and practice pre-operative assessment and pre-medication, as well as providing peri-operative care in the form of general and regional anaesthesia, in the set-up of clinical training by an anaesthesiologist.
Students will learn the application and interpretation of peri-operative clinical and technical monitoring of patients. They will gain observational and practical experience in ICU management of patients.

**Assessment Strategies**
The continuous assessment (CA): 40 %
Examination: 60 % (1 X 2 hour OSCE, 1 x 1 hour clinical written paper)

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**Module Title: Internal Medicine I**

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<td>Semester offered:</td>
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**Module Aims**
This course aims to introduce students to basic clinical procedure through didactic teaching and hands-on practice. Students are equipped with knowledge and skills in Basic Patient Care, Interpersonal Communication, Physical Examination, First Aid and Basic Life Support.

**Module Content**
This module covers the following topics: Infection control, universal precautions, communication skills, medical ethics, general physical examination, systemic physical examination, First Aid, Basic Life support, physician-patient relationships, social communication.

**Assessment Strategies**
Continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)

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**Course Title: Internal Medicine II**

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Module Aims
This module aims to introduce students to various disease processes exploring the aetiology, pathogenesis, natural history, treatment and prognosis of various systemic disorders. Students are also introduced to the process of conducting a medical interview and physical examination of patients in the health care setting.

Module Content
This module covers the following topics: General Medicine: Homeostasis, Fluid and Electrolyte Imbalance; Haematological disorders; Heart Failure; Lung Disease and Respiratory Failure; Renal Conditions and Renal Failure; Metabolic Disorders; Endocrine Disorders in states of hypo function and hyper function; Liver disorders and liver failure; Gastrointestinal malignancies; Digestive and Pancreatic Disorders; Stroke and tumours/space occupying lesions of the brain and meninges, semi and paraplegia; allergy and autoimmune disease. Laboratory Medicine: Basic Chemistry of Body fluids, enzymatic, biochemical and haematological tests on respiratory, circulatory, hemolymphmphopietic and endocrine systems.

Assessment Strategies
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)

Course Title: Internal Medicine III

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Module Aims
This course introduces students to Infectious diseases and medical conditions affecting the skin. Students learn about different infectious agents, their modes of transmissions, diagnostic tools and therapeutic plans for individual patients as well as for community settings.

Module Content
Approach to the patient with skin disorder, diagnostic techniques, common skin disorders. Infectious dermatosis; superficial mycosis, dermatosis caused by viruses including HIV manifestations, dermatosis caused by zoo parasites, pyoderma, skin manifestations of sexually transmitted diseases, leprosy. Immunologically mediated skin diseases, papulosquamous disorders: psoriasis, lichen plans; benign and malignant pigmented lesions; drugs and preparations in common use for the treatment of common skin conditions.

Assessment Strategies
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)
Module Title: Internal Medicine IV

Code: ITM3890
NQF level: 7
Notional hours: 160
Contact Hours: 10 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 6th year semesters 1 & 2

Module Aims
This module equips the student with clinical skills in Internal Medicine and, under the supervision of a qualified Internist(s), gain practical hands-on-experience and under supervision provide professional care to individual patients, their families, and population groups within the setting of a hospital, a household, or community. Students also learn how to function as members of a team. The goals of the module are to prepare the student to independently carry out a professional interview and physical examination of an adult patient, suspect the presence of a medical condition(s), institute cost-effective investigative plan to confirm the diagnosis, develop safe and effective treatment plan, including therapeutic procedures, after-care management, and assess quality of care. Through this module the student acquires practical skills on the epidemiology, pathogenesis, preclinical and clinical manifestations of communicable and non-communicable diseases, including mental health conditions and finally, the students learns how to perform the professional tasks of a newly graduated physician in the management of illnesses resulting from physical agents, chemicals, infectious agents, physiological and anatomical abnormalities, and degenerative processes affecting the nervous, respiratory, cardiovascular, urinary, digestive, and endocrine systems, haematological, locomotor apparatus, and epidemiological health problems.

Module Content
A student intern has come across many medical conditions in the preceding years. At this point, the student intern should be able to manage many of the common medical conditions in Namibia including:

- Medical emergencies: causes of acute pain (acute coronary syndrome), syncope and collapse, cardiac dysrhythmias, causes of acute breathlessness (pneumothorax, pulmonary embolism, pulmonary edema, life threatening asthma), causes of acute confusional state, causes of shock syndrome, acute abdomen, anemia and major bleeding, toxic and metabolic emergencies; common medical condition in Namibia including: cardiac condition (ischemic heart diseases, heart failure, hyperlipidemia, hypertension, common cardiac arrhythmias, infective endocarditis and rheumatic heart diseases); causes and management of stroke; causes and management of pneumonia; causes and management of pleural effusion; causes and management of ascites; causes and management of HIV and related conditions including administration of antiretroviral therapy; causes and management of pulmonary and extra pulmonary tuberculosis; causes and management of asthma; causes and management of COPD;

- Causes and management of arthritis; causes and management of hepatitis, cirrhosis and hepatocellular carcinoma and causes and management of meningitis (viral, bacterial, fungal and tuberculosis).
**Assessment Strategies**
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)

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**Module Title: OBSTETRICS AND GYNAECOLOGY I**

**Module Code:** OBG3712  
**NQF Level:** 7  
**Notional hours:** 200  
**Contact Hours:** 1h lecture/week for 16 weeks and a 5 week clerkship  
**NQF Credits:** 20  
**Prerequisite:** ATM3611, PLG3611  
**Compulsory/Elective:** Compulsory  
**Semester Offered:** 2nd Semester of 3rd YEAR

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**Module Aims**
The goal of this clerkship is make the student gain knowledge, skills and professional attributes necessary for evidence based practice in obstetrics.

**Module Content**
This course is designed to introduce students to the management of common obstetrical conditions and their complications. Students will be able to evaluate normal and suspect high risk or abnormal pregnancy, carry out selected diagnostic investigations, develop an intervention plan, observe practical and surgical interventions as an assistant to clinical faculty member, prepare patient record, present findings to clinical faculty members, and make proper referrals of patients.

Topics to be covered include: Conception, pregnancy & the management of normal pregnancy; high-risk pregnancy; abnormal pregnancy; medical conditions and HIV in pregnancy; normal and abnormal labor; use of partograph for monitoring labour; operative vaginal delivery; patho-physiology of high risk and abnormal pregnancy; obstetric operations, e.g. caesarean section; ethical issues in obstetrics, all with specific reference to practicing in Namibia; Miscellaneous medical disorders: Haematological problems in pregnancy; Renal disease, Diabetes and endocrine disease; Heart disease; hypertensive disorders; malpresentation; malposition; cephalopelvic disproportion; obstetric procedures: induction and augmentation of labour; prolonged pregnancy; preterm labour; multiple pregnancy; disorders of fetal growth and assessment of fetal well-being; obstetric emergencies: APH,PPH, cord prolapse, etc.; neonatal care for obstetricians; puerperium and lactation; analgesia and anesthesia for obstetrics; fetal monitoring during labour; antenatal care; pre-conception counseling; Normal fetal growth; the placenta and fetal membranes; prenatal diagnosis and genetics.

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**Exams / assessment**
Continuous Assessment Mark (CA mark) 40%  
Examination mark will contribute 60%
Module Title: OBSTETRICS AND GYNAECOLOGY II

Module Code: OBG 3789
NQF Level: 7
Notional hours: 200
Contact Hours: 2h lectures/week for 5 weeks followed by a 5 week clerkship
NQF Credits: 20
Prerequisite: Obstetrics and Gynaecology I OBG3712
Compulsory/Elective: Compulsory
Semester Offered: 4th year semesters 1 & 2

Module Aims
This course aims at making the student gain knowledge, skills and professional attributes necessary for evidence based practice in Gynaecology.

Module Content
This module is designed to acquaint students with the use of their professional skills to identify diseases affecting the reproductive system, conduct appropriate investigations, interpret results, explain the underlying patho-physiological processes, and develop a management plan.
Topics to be covered include The menstrual cycle; Normal and abnormal development of the genital tract; gynaecological exploration; major gynaecological syndromes: leucorrhoea, pelvic pain; menstruation, menstrual abnormalities & menstrual problems: premenstrual syndrome (PMS) & dysmenorrhea; benign and malignant conditions of vulva and vagina; benign and malignant conditions of uterus; ovarian tumors; pelvic inflammatory disease; uterine prolapse; climacteric, menopause and post-menopause; contraception; infertility & assisted reproduction; sexual education and family planning; Hysteroscopy and laparoscopy; Urinary incontinence; Pelvic floor dysfunction – utero-vaginal prolapse; endometriosis; chronic pelvic pain; polycystic ovary syndrome; amenorhoea – primary & secondary; Gynaecological disorders of childhood and adolescence; Gestational Trophoblastic disease; spontaneous miscarriage; recurrent miscarriage; termination of pregnancy and the medicolegal aspect of termination of pregnancy; Ectopic pregnancy; Acute abdomen in gynaecology; the role of Ultrasound in Gynaecology; sexually transmitted infections (STIs); sexual assault and domestic violence.

Assessment strategies
The Continuous Assessment Mark (CA mark) 40%
Examination mark will contribute 60%
Module Title: OBSTETRICS AND GYNAECOLOGY III

Module Code: OBG3880
NQF Level: 8
Notional hours: 400
Contact Hours: 10 week
NQF Credits: 40
Prerequisite: Successful completion of OBG3789 Module
Compulsory/Elective: Compulsory
Semester Offered: 5th year semesters 1 & 2

Module Aims
The goal of the clerkship is to make student to gain knowledge, skills and professional attributes necessary for evidence based practice in Gynaecology.

Module Content
This module enables students to practice gynaecological and obstetrical care of patients and, under the supervision of a Gynaecologist-Obstetrician, shadow as an intern and gain practical hands-on-experience in the care of individual patients with conditions affecting the reproductive organ-systems and their functions in women during the entire reproductive cycle as well as during states of pregnancy and lactation and deliver reproductive health care in a health facility, household, or community.
Course includes performing the listed obstetrical procedures and assist in frequently performed obstetric/gynaecologic surgical operations. Students will acquire practical skills in the assessment of sexuality, hereditary conditions, normal pregnancy and high risk pregnancy, home delivery and institutional management of labour; complications during labour, caesarean section and assisted/operative vaginal delivery; indications and contra-indications of frequently used procedures, drugs and interventions; puerperium; contraception; infertility; the epidemiology, pathogenesis and clinical manifestations of communicable and non-communicable diseases that affect the reproductive system and functions including sexually transmitted infections (STI), that are prevalent in Namibia and neighbouring countries; emergencies affecting pregnancy and the reproductive systems; evidence-based care for women and adolescents; invasive and non-invasive diagnostic and therapeutic procedures; cost-effective and rational use of drugs; surgical interventions and laboratory investigations; screening for disease markers for prevention of diseases; health care for populations and health groups; ethical issues and the gate-keeping role of physicians; health resource allocation and management, and health systems research in gynaecological-obstetrical care.

Exams / assessment
The Continuous Assessment Mark (CA mark) 40%
Examination mark 60%

Module Title: OBSTETRICS AND GYNAECOLOGY IV

Module Code: OBG3890
NQF Level: 8
Notional hours: 400
Contact Hours: 10 week
NQF Credits: 40
Module Aims
The aim of this module is to impart practical skills to the student interns through hands-on apprenticeship with minimum classroom work. In addition to learning the principles and practice of Obstetrics & Gynaecology, the student intern will go through practical education and training in major areas of elective & emergency Obstetric and gynaecological conditions. They will assist the intern doctors on duty and, as much as possible, shadow intern doctors in the management of common obstetric and gynaecological emergencies.

By practicing gynaecological and obstetrical care of patients under the supervision of a Gynaecologist/Obstetrician, the student interns will gain practical experience in the care of individual patients with conditions affecting the reproductive organ-systems in women during the entire reproductive life as well as during states of pregnancy and lactation and deliver reproductive health care in a health facility, household, or community.

Student interns will clerk patients, carry out investigations, make diagnoses and, in consultation with the medical intern or ward doctor or specialist, initiate appropriate treatment. They will prepare patients for operation; carry out simple ward procedures like conducting normal vaginal deliveries; repair of episiotomies and simple tears; evacuation (ERPOC) & manual vacuum aspiration (MVA) for incomplete miscarriage and assist during major operations like caesarean section and laparotomy for ectopic pregnancy, TAH, etc., all of which geared towards imparting practical skills to the student intern.

Mentoring of the student intern will make him/her become interested to Select obstetrics and gynecology as a field for future specialization.

Module Content
As a way of reducing maternal and neonatal mortality emphasis will be put on the following areas for student interns to gain more practical knowledge: Antenatal care – traditional and focussed ANC; Premature rupture of membrane (PROM) Preterm labour and Preterm birth; Induction and augmentation of labour; Hypertensive conditions in pregnancy particularly preeclampsia, eclampsia & HELLP syndrome; Cardiac disease in pregnancy; Operative vaginal delivery i.e. vacuum extraction and low forceps delivery; Caesarean section/delivery; Obstructed labour & ruptured uterus; Retained placenta; Post-partum haemorrhage; Puerperal sepsis; Acute abdomen in obstetrics – ectopic pregnancy, appendicitis in pregnancy, red degeneration, etc.

The following gynaecology topics will also be taught to the student interns: Post-abortion care – incomplete abortion, septic abortion, etc. (the 4 pillars of post-abortion care) Postpartum sterilization; Short term and long term contraceptive methods; Infertility; Medico-legal aspects of sexual assault and/or rape; Termination of pregnancy and Medico-legal aspects of termination of pregnancy; Sexually transmitted infections; Pelvic infections – pelvic inflammatory disease; Uterine fibroids; Pre- and post-operative assessment and care and Discharge plans.
Module Title: PAEDIATRICS I

Code: PDC3712
NQF level: 7
Notional hours: 160
Contact Hours: 5 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 2

Module Aims
This module aims at equipping the students with knowledge and skills to recognize normal child growth and development, identify abnormalities in growth and development, and to learn how the child relates to their family and the community. Also, the module will enable the students to implement public health interventions such as immunisation schedules, child health and nutrition. Furthermore, the student will gain mastery in history taking, examination requesting of diagnostics’ tests and diagnosis of common childhood illnesses including neonatology and paediatric oncology.

Develop understanding of the sick child, abnormalities in growth and development, and how the child relates to their family and the community. This will include studying many different diseases in the paediatric setting. Also learn the principles of how to provide emergency support in the paediatric setting. Interaction with aspects of obstetric care will be arranged to enable an understanding of how maternal health and delivery of the baby impacts on neonatal health.

Module Content
Students will attend the paediatric wards and clerk patients, to develop an understanding of the normal and sick child, identify abnormalities in growth and development, and to learn how the child relates to their family and the community. The emphasis will be laid on clinical history and examination, making a correct diagnosis and formulating a management plan for the common childhood illnesses. They will learn the principles of administering first aid during medical emergency, make effective referral and follow-up of a baby or child who requires life-saving care.

Assessment Strategies
40% Continuous assessment
60% Final Examination (1 X 3 hours written paper + 2 hours clinical + 30 minutes viva voce examination)
**Module Title: PAEDIATRICS II**

**Code:** PDC3789  
**NQF level:** 7  
**Notional hours:** 160  
**Contact Hours:** 5 weeks  
**NQF Credits:** 16  
**Co/Pre-requisite:** Paediatrics I  
**Compulsory/Electives:** Compulsory  
**Semester offered:** 4th year

**Module Aims**
The aim of this module is to equip the student with theoretical and clinical knowledge and skills necessary to diagnose and manage a sick child, abnormalities in growth and development, and how the child relates to their family and the community. This will include studying many different diseases in the paediatric setting, including neonatology and paediatric oncology. Also learn the principles of how to provide emergency support in the paediatric setting. Interaction with aspects of obstetric care will be arranged to enable an understanding of how maternal health and delivery of the baby impacts on neonatal health.

**Module Content**
The purpose of this module is to continue to develop an understanding of the normal and sick child, identify abnormalities in growth and development, and to learn how the child relates to their family and the community. Students will attend out-patients, and in-patient wards, including neonatal and oncology wards, attend XR meetings and seminars. They will learn to take a full history and examination of children and come to a provisional diagnosis with differentials. They will learn about the investigations needed to help make a diagnosis. They will formulate a management plan for childhood illnesses. They will learn the principles of administering first aid during medical emergency, make effective referral and follow-up of a baby or child who requires life-saving care.

The student will gain mastery in the following areas: (1) Knowledge of, and skills necessary for safe and efficient paediatric practice, (2) Communicating and interacting effectively with patients, parents and carers, (3) Recognizing a sick child, knowledge of diseases as they occur in children, and how to identify problems in development and health of the child, by problem solving and clinical reasoning, (4) Neonatal care, both normal and abnormal, (5) Recognizing the impact of childhood illness within the family, including ethical issues, (6) Self-reflection on his/her own practice, (7) The principles of dealing with medical emergencies, make effective referral and follow-up of a baby or child who requires life-saving care.

**Assessment Strategies**
40% Continuous assessment  
60% Examination (1 X 3 hours written paper + 2 hours clinical + 30 minutes viva voce examination)

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**Module Title: PAEDIATRICS III**

**Code:** PDC3880  
**NQF level:** 8  
**Notional hours:** 200  
**Contact Hours:** 5 weeks
Module Aims
The aim of this module is to continue to improve the knowledge base and to enable the student to gain mastery in clinical skills necessary for managing a healthy child and sick child, identify abnormalities in growth and development, and to learn how the child relates to their family and the community. The emphasis will be laid on history and examination of a child, making a correct diagnosis and formulating a management plan for the common childhood illnesses including neonatology and paediatric oncology; identifying and arranging appropriate investigations and interpreting these to help formulate an appropriate management plan. Students will also learn the principles of providing emergency support in the paediatric setting; interaction with aspects of obstetric care especially as it relates to how maternal health and delivery impacts on the health of the neonate.

Module Content
The student will continue to develop an understanding of the normal and sick child, identify abnormalities in growth and development, and to learn how the child relates to their family and the community. Students will attend out-patients, and in-patient wards, including neonatal and oncology wards, attend XR meetings and seminars. They will spend 5 weeks in Windhoek and 5 weeks in the Northern Campus. They will learn to take a full history and examination of children and come to a provisional diagnosis with differentials. They will learn about the investigations needed to help make a diagnosis. They will formulate a management plan for childhood illnesses, and follow up patients during and after their hospital admission. They will also learn to manage children with chronic illnesses and disabilities. They will learn the principles of administering first aid during medical emergency, make effective referral and follow-up of a baby or child who requires life-saving care.

Assessment
40% Continuous assessment
60% Examination (1 X 3 hours written paper + 2 hours clinical + 30 minutes viva voce examination)
Module Aims
The module aims at providing the student to gain masterly in the care of sick children from birth, in the neonatal period throughout childhood to and puberty. This is done in as a structured and skills development oriented apprenticeship. The main aim is to facilitate the development of evidence based practice of medicine, clinical reasoning and masterly of essential skills that will allow them to become competent medical interns.

Module content
The student interns will spend ten (5) weeks in the various units of the Paediatric of the Teaching Hospitals. They will be required to attend daily ward rounds and all academic meetings including periodic mortality statistics meetings. Clinical supervision will be provided by both hospital staff and UNAM SOM academic staff. The student interns will have encountered many medical conditions in the preceding years. They should be, at this point, able to recognize the normal child and his/her development and to manage many of the common paediatric conditions in Namibia, including the following: Anaphylaxis, asthma, eczema; Malnutrition, marasmus and kwashiorkor; acute and chronic infections; Gastro-enteritis, dehydration; Upper respiratory infections, otitis media, rhinitis, sore throat; Lower respiratory infections, bronchiolitis, croup, bronchitis, pneumonia; Meningitis and meningococcal septicemia; Renal diseases including nephrotic syndrome and acute nephritis; Febrile convulsions, epilepsy; anaemia and bleeding disorders; nappy rash; Diabetes mellitus; Down’s syndrome and other chromosome disorders; Understand the investigation and management of the above conditions, fluid and electrolyte therapy and paediatric prescribing; and common neonatal disorders such as prematurity, neonatal sepsis and neonatal jaundice; Viral exanthema; congenital infections; Immunodeficiency; Coeliac disease; congenital heart disease; neural tube defects; Dysmorphic syndrome; inborn errors of metabolism; congenital hip dysplasia; Septic arthritis; transient synovitis; juvenile rheumatoid arthritis; Kawasaki’s disease; gastrointestinal reflux; inflammatory bowel disease; Hirschsprung’s disease; intussusception; pyloric stenosis; Henoch-Schonlein purpura; idiopathic thrombocytopenia purpura; Sickle cell disease and other blood disorders, thalassaemia and acute leukemia; solid paediatric tumors; vesico-ureteric reflux; accidental poisoning; Munchhausen by proxy; autism; attempted suicide; attention deficit hyperactivity disorder; and eating disorders.

Assessment strategies
Continuous assessment: 40%
End of year examination: 60%
Module Aim
This module aims at equipping the student with knowledge, skills and techniques for diagnosing and managing patients presenting with different psychiatric disorders. Student are assisted to integrate prior learning in the areas of neuro-anatomy, neuro-physiology, developmental psychology, neuropharmacology, internal medicine and paediatrics to recognize and explain the manifestation of psychiatric disorders, the diagnostic process and the general principles of disease prevention, treatment and rehabilitation. This is done through a combination of approaches of teaching and learning including didactic lectures and apprenticeship.

Module Content
Topics: Diagnoses of patients with mental/psychiatric disorders, neuropsychiatry, behavioral neurology and psychopharmacology; application of medical and psychopathological knowledge and procedural skills to collect and interpret data, make appropriate clinical decisions; carry out diagnostic procedures using an appropriate combination of biological, psychological and sociological methods, including up-to-date, ethical and cost-effective clinical practice and effective communication with patients, other health care providers and the community; psychiatrist as communicator, collaborator, health advocate, manager, scholar and professional; theories of personality and psychopathology; examination of the psychiatric patient; classification of mental/psychiatric disorders; close connections with neuropsychiatry and behavioral neurology, internal medicine, general pharmacology, psychopharmacology and gross and functional anatomy of the brain (including neuro-imaging) as tools for making psychiatric diagnoses; psycho-pathology.

Assessment strategies
Continuous assessment: 40%
End of year examination: 60%

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Module Title: PSYCHIATRY II

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Module Aim
The aim of this module is to students to gain mastery of the principles underpinning the range of psychotherapies used to manage mental health patients and central theories in psychiatry as a branch of medicine. Students achieve this though didactic lectures, clinical apprenticeship and shadowing of health professionals.
Module Title: PSYCHIATRY III

Code: PCT3890
NQF: 8
Notional hours: 200
Contact Hours: 5 weeks
Credits: 20
Pre-requisite: Psychiatry I Psychiatry II
Compulsory/Electives: Compulsory
Semester offered: 6th year

Module aim
The aim of this module is to effectively prepare the student to manage common psychiatric conditions in Namibia. Students learn in a clinical setting to take care of children, elderly, and forensic psychiatric patients. In this module student learn how to take a comprehensive history; carry out mental state examination; make a psychiatric formulation, differential diagnosis; make a multiaxial formulation and manage a patient according to the biopsychosocial approach.

Module content
Cumulatively, students master the following competencies: Assessment of patients with different psychiatric disorders; Management of psychiatric disorders; Handling of aggressive patient; Assessment of patients with suicidal/homicidal behavior; Management of substance withdrawal; Ethics and the law; Counseling and crisis intervention; Family interventions; Pharmacological and other treatments in psychiatry; Management of psychiatric emergencies.

Assessment strategies
Continuous Assessment: 40%
End of year examination: 60%
Module Title: Surgery I

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Module aims
This module aims at enabling students to master the principles and practice of general surgery and develop skills necessary to effectively practice the art and science of surgery. Students learn through didactic lectures and other modalities of active participation in learning including case based learning and clinical apprenticeship. Students are also assisted to learn and master technical skills by performing diagnostic and selected surgical procedures under supervision.

Module Content
The course will concentrate on the core general surgery content areas including with emphasis on eliciting clinical signs and symptoms; history of surgery; ethics, confidentiality, Supportive care; history taking and physical examination in cases of pain, lump, ulcer, sinus, fistula; principles of Disinfection and Sterilization; Wounds, Wound healing and complications; Infections of Surgical importance, specifically, microbial infections in surgery, Mycotic infections of surgical importance, Infections by Nematodes and Trematodes; HIV/AIDS and a surgical patient; Skin and Subcutaneous tissues specifically Ulcers, sinuses, fistulae, Mole and melanoma, papilloma and wart, carcinoma, lipoma, fibroma, lymph node, cyst, bursa, etc; Principles of fluid and electrolyte therapy & Acid Base Disturbance; Introduction to the Management of Multiple injured patient. Penetrating and non-penetrating injury; Shock; Use of blood & blood products. Normal & Abnormal Haemostasis; Metabolic response to trauma; Nutrition in Surgery; Bums and scalds; Abdominal wall & abdomen focusing on history taking and examination of a patient with gastrointestinal complaints, Hemiae, umbilicus, abdominal wall abnormalities. Technique of abdominal examination, Definition and Causes and signs of an acute abdomen, causes of abdominal distension and causes of abdominal mass; Rectum and anal canal specifically the symptoms of anorectal disease, technique of anorectal examination, conditions presenting with anal pain, conditions presenting with anal bleeding, conditions presenting with anal mass and Pruritus ani; Breast inclduing benign conditions, malignant conditions, axillary examination; Neck examination with focus on thyroid, midline masses and non-midline masses; vascular examination of arteries, veins and lymphatic; palliative care in surgery based on W H O definition of Palliative Care, Quality of Life, Pain assessment & management, total pain concept, distress thermometer & Psycho-social support and spiritual support; examination of the face especially general facial appearance, eyes and orbit, mouth, salivary glands.

Assessment strategies
Continuous assessment 40%
Examination 60% (1x3 hours written paper + OSCE)
Module Title: Surgery II

Code: SUR3780
NQF: 7
Notional hours: 200
Contact Hours: 5 weeks
Credits: 20
Pre-requisite: SUR3710
Compulsory/Electives: Compulsory
Semester offered: 4th year

Module aim
This module aims at equipping the student with the basic knowledge and skills for managing common or live threatening medical conditions in the sub-specialties of urology, otorhinolaryngology, ophthalmology, trauma and orthpaedics. Students learn in a structured environment that integrates didactic lectures and clinical apprenticeship. Students also learn by performing selected first line procedures under the supervision of a qualified medical practitioner or qualified health professional.

Module Content
The course will cover the core areas for the non-specialist medical practitioner including:

**Orthopaedics:** the assessment of the musculoskeletal system; an approach to x-rays & other diagnostic imaging; fracture healing & complications; principals of operative treatment; bone & joint infections; skeletal Tuberculosis; osteoarthritis, gout and other joint pain; rheumatic disorders; bone tumours; Metabolic bone disease, osteonecrosis & osteochondritis; genetic disorders, dysplasias & malformations; neuromuscular disorders; an introduction to ATLS and assessment of the injured patient; general principals of fractures & dislocations; management of wounds & soft tissue including GSW's; brachial Plexus & peripheral nerve injuries; amputation & rehabilitation; acute pyogenic bone & joint infections in children; fractures & joint injuries in children; the child's hip; deformities of legs & feet in children; limb length inequalities

**Urology:** Benign Prostatic Hypertrophy (BPH); cancer prostate; urinary tract imaging; renal trauma; ureteric trauma; bladder trauma; urethral trauma; external genital trauma; urinary tract infection (uti); urolithiasis; cancer kidney; cancer bladder; cancer testis; dd of scrotal swelling; male infertility

**otorhinolaryngology:** introduction to otorhinolaryngology; applied anatomy & physiology of the external ear; external ear conditions; clinical examination of the ear; applied anatomy & physiology of the middle ear cleft; applied anatomy & physiology of the inner ear; hearing loss; balance disturbances; facial nerve and audiology; applied anatomy & physiology – nose, paranasal sinuses and nasopharynx; applied immunology/allergology for ent (part i); specific conditions of the nose, paranasal sinuses, nasopharynx; applied anatomy & physiology of the mouth and pharynx (oro and laryngo pharynx); obstructive sleep apnoea, applied anatomy and physiology of the larynx and trachea; specific conditions of the larynx and trachea; hiv and otorhinolaryngology; speech disorders.

**Ophthalmology**
Disorders of the lid; disorders of the lacrimal apparatus; conjunctivitis & ophthalmia; neonatorum; trachoma & other chronic conjunctivitis; keratitis and corneal ulcers; corneal ulcer; scleritis & episcleritis; refractive error & method of correction; presbyopia; accommodation convergence; congenital cataract; senile cataract; metabolic & complicated cataract; primary angle closure glaucoma; congenital glaucoma; primary open
angle glaucoma; secondary glaucomas; anterior uveitis; posterior uveitis; blindness prevalence, prevention & rehabilitation; retinopathies, hypertensive, toxemia and pregnancy, diabetic retinopathy; retinal detachment, types, symptoms and pre-disposing Retinoblastoma and other ocular neoplasms; binocular vision amblyopia & concomitant Optic nerve lesions; ocular emergencies (traumatic and non-traumatic); minor ophthalmic surgery; and general principles of intraocular

**Assessment strategies**

Continuous assessment 40%
Examination 60% (1x3 written paper + OSCE)

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**Module Title: Surgery III**

**Module aim**
The aim of the module is to enable the student master the principles and practice of surgery through didactic instructions and hands-on training. The students also learns through carrying out technical procedures under supervision of a qualified health professional. Further the modules equips the students with the knowledge and skills of prescribing appropriate medicines, the practic of, and administration of safe anaesthesia.

**Module Content**
The course will cover the specific topics of pain & pain management; surgical nutrition; wound healing; metabolic response to trauma; infections of surgical importance; disorders of the appendix; burns & scalds; disorders of the biliary tree; liver disorders of surgical importance; non-malignant thyroid disorders; oesophageal disorders; fluid & electrolyte disorders in surgery; pancreatitis; head injury; thoracic trauma; malignant thyroid disorders; stomach & duodenum; the small bowel; non-malignant large bowel disorders; peritonitis & principles of management; malignant large bowel disorders; breast disorders; breast cancers; arterial disease; aneurysmal disease; venous disease & vte; the paediatric surgical patient; paediatric trauma; common paediatric surgical emergencies; common paediatric solid tumours; thoracic malignancies; abdominal trauma; investigation & management of postoperative jaundice; principles of palliative care in surgical practice; palliative care: spiritual support; investigation & management of postoperative pyrexia; haemorrhoids & anal mass; peri-anal sepsis; principles of safe; surgery: who checklist; the spleen & lymphatic disorders.

**Assessment strategies**

Continuous assessment 40%
Examination 60% (1x3 hours written paper + OSCE)
Module Title: Surgery IV

Code: SUR3890
NQF: 8
Notional hours: 400
Contact Hours: 10 weeks
Credits: 40
Pre-requisite: SUR3780, SUR3880
Compulsory/Electives: Compulsory
Semester offered: 6th year

Module Description
The aim of the module is to prepare each student for the surgical challenges of Namibia and the region as a medical intern and subsequently medical officer. The student will be groomed in the practice of the art, science, and principles of surgery including the surgical subspecialties of Orthopaedics and trauma, Ophthalmology, neurosurgery, Urology and Otorhinolaryngology.

Module Content
Areas to be covered include: review of eliciting symptoms and signs in surgery as well as evidence-based clinical decision making; surgical biology, with specific emphasis on wound healing, blood and blood products, anaemia, haemostasis, surgical pathology, shock, hypovolaemia and blood transfusion, gastrointestinal haemorrhage, surgical infection and basic surgical skills; perioperative care: focusing on preoperative preparation, nutrition and fluid therapy, WHO surgical safety checklist, postoperative care and analgesia in the perioperative period, surgical nutrition; trauma and the injured patient: specifically the assessment of the injured patient, ABCDE of trauma, pathophysiology and management of head injury & spine injury, soft-tissue injuries of the neck, chest trauma, abdominal and pelvic injuries, vascular trauma and compartment syndrome, burns and principles of skin grafting, bites and stings; priority surgical disorders: of the skin and soft tissues including perianal & perineal sepsis, abdominal wall hemias, oesophageal disorders, stomach and duodenum, acute abdomen, small bowel, colon and rectum, breast and endocrine surgery, liver, gallbladder and pancreas, infections and infestations of surgical importance; common paediatric surgical disorders; principles of palliative care in surgery: being a member of a health team; and ethics and medico legal issues; patient consultation; patient discharge and follow-up.

Assessment strategies
Continuous assessment: 40%
Examination 60% (1x3 hours written paper + OSCE)
PURPOSE AND RATIONALE OF THE QUALIFICATION

Occupational therapy is concerned with restoring and promoting health and well-being while also preventing ill health through engagement in selected everyday activity.

Occupational therapy services aim at enabling individuals of all ages and throughout the lifespan who struggle to choose, plan and/or execute their daily activities, tasks or duties due to a health condition and thus fail to fulfil their life roles satisfactorily. Furthermore, occupational therapy aims at providing individuals, communities and/or populations opportunities to engage in occupations (activities) in order to build a well-functioning society. These occupations are chosen to be a dignifying, health-promoting, meaningful and purposeful and range from self-care, community survival, leisure, play, education and learning, social participation, rest and sleep, and work. Participation can be either active or vicarious. Occupational therapy focuses on health, which included physical, mental, developmental and social aspects of health.

EXIT PROGRAMME OUTCOMES

Upon completion of the programme the graduate will be able to demonstrate the following competencies:

Patient Care competencies

Occupation, person and environment (Council Competency Domain 1)
1. Synthesise the theoretical concepts underpinning occupational therapy, specifically the occupational nature of human beings, their performance of occupations and their function in everyday activities
2. Understand the relationship between occupational performance, health and well-being
3. Apply relevant knowledge from bio-medical, psychological, sociological, technological and occupational sciences, together with theories and models of occupation and participation, which includes to understand the structure and function of the human body

Assessment and Clinical reasoning
1. Interpret referrals and obtain collateral information
2. Synthesise knowledge and skills in the assessment of components of functioning, occupational performance, analysis of occupational profiles and occupations and the environment using standardised and non-standardised assessment tools
3. Gather information from collateral, assessment, expertise in occupational, psychosocial and biomedical sciences to formulate therapy goals
4. Select, modify and apply relevant approaches based on the unique needs, characteristics, abilities, limitations, history and background of clients

5. Select, modify and apply appropriate theories, models of practice and methods to meet the occupational and health needs of individuals/populations

6. Collect, evaluate and apply a range of information and evidence to ensure that practice is up-to-date and relevant to the client

**Intervention**

1. Synthesise all information of the client (individual, group, community, population) and design a person-centered plan

2. Apply knowledge of grading and adapting activity, choosing, adapting and making of assistive devices and splints to achieve treatment goals

3. Monitor and evaluate treatment outcomes

4. Apply knowledge of managing a variety of groups to reach treatment goals

5. Evaluate intervention and the documentation thereof

**Competencies for communication**

*Professional communication*

1. Apply knowledge and skills of effective oral, written, non-verbal and electronic communication to interact with patients, family, caregivers and others involved in the delivery of healthcare services

2. Apply knowledge and skills to initiate communication in difficult situations

3. Analyse contexts to be sensitive to cultural diversity, as well as adapt behaviour and communication accordingly taking into account differences in race/ethnicity, nationality, gender/sex and disability status

**Competencies for Accountability and professional development**

*Management, ethical practice and promotion of occupational therapy*

1. Comply with local/regional/national and global policies and procedures, professional standards and employer’s regulations impacting on service delivery of occupational therapy and understand the impact of legislation on the delivery of care

2. Demonstrate continuing lifelong learning to enhance occupational therapy and develop knowledge of occupation and occupational therapy practice.

3. Demonstrate ethical decision-making and practice in an ethical manner, respecting clients, colleagues, team members and other stakeholders taking account of professional codes of conduct for Occupational Therapists (consult the Code of Ethics and Professional Conduct for Occupational Therapists as documented by the Namibian Association of Occupational Therapists)

**Competencies for Research**

*Research*

1. Identify the need for research on issues related to occupation, occupational therapy and/or occupational science and formulate relevant research questions.
2. Apply knowledge and skills of searching, finding appropriate scientific literature independently, and synthesise knowledge and skills of critiquing scientific literature relevant to occupation therapy.

3. Understand, select and defend research designs and methods appropriate to human occupation considering ethical aspects.

Competencies for leadership and management of healthcare delivery systems and promotion of profession

Promotion of the profession
1. Evaluate situations and prioritise occupational therapy services
2. Determine resources required for these services, including human, financial, inventory, material and information technology resources.
3. Conduct a risk/benefit and cost/benefit analysis of the various service delivery methods.
4. Be aware of applicable health and safety legislation, and any relevant safety policies and procedures in the workplace, such as incident reporting, and be able to act in accordance with these.

REGULATIONS

I. Criteria for Admission

In order to be admitted to the programme, candidates must satisfy at least one of the following requirements:

1. 30 points in five subjects on the UNAM scale with a grade B or better in ordinary level English OR 32 points in five subjects on the UNAM scale with a grade C or better in ordinary level English

2. A Score of “2” or better on higher level in Mathematics and Physical Sciences (or 2 in Mathematics and 3 in Physical Science) (or 2 in Physical Science and 3 in Mathematics) or a grade B or better in ordinary level Mathematics and Physical Sciences

3. Grade B or better in ordinary level Biology/Life Science or a score of 3 or better on higher level Biology/Life Science

(Please refer to the General Information and Regulations Prospectus for the scale used by the University to calculate the UNAM score);

OR

4. Successful completion of the entire first year Science curriculum and must have passed each Chemistry, Biology, Mathematics and Physics module with a final mark of at least 55%.

OR

5. Successful completion of a Science degree from a recognised University with passes in Chemistry, Biology, Mathematics and Physics including at least at first year level

OR
6. Satisfy the following conditions for entry through the Mature Age Entry Scheme:
   a. They should be at least 25 years old on the first day of the academic year in which
      admission is sought
   b. They should have successfully completed senior secondary education
   c. They should have proof of at least five years Occupational therapy relevant work
      experience (as determined by the School).
   d. They should pass each paper of the prescribed Mature Age Entry Tests with an overall
      average of 55%

Meeting the above student admission criteria **DOES NOT** necessarily ensure admission. Admission is awarded on merit based on places available on the programme and any other conditions that may be determined from time to time. The Faculty reserves the right to administer special written entry tests and interviews before admission.

**DURATION OF STUDY**
The minimum duration for full-time study programme extends over a period of four (4) years. The maximum period of full-time study is six (6) years.

**EXAMINATION REGULATIONS**

Assessment Criteria
Techniques of examination include practical examinations, theoretical papers, vivas, and practical papers, file presentations, clinical tests and reports on clinical work. In the professional subjects, practical and clinical works are weighted equally with theoretical work.

All subjects are examined through Continuous Assessment and final examination:

1. Admission to examination: To qualify for examination in a module, the overall
   Continuous Assessment mark must be at least 45%
2. The Continuous Assessment marks will constitute 50% of the Final mark and the Exam
   will be 50% of the Final mark.
3. Pass Requirements: The minimum final pass is 50% for each module with a sub-
   minimum of 50% in the clinical examination where applicable and sub-minimum of
   45% in the theory paper.
4. To qualify for a Supplementary Examination: The minimum final mark must be at
   least 45% with a sub-minimum of 40% in the clinical examination where applicable.

**ACADEMIC ADVANCEMENT RULES**

**MINIMUM REQUIREMENTS FOR RE-ADMISSION INTO THE PROGRAMME**
To be re-admitted to the School for a particular year of registration, a student must have passed the minimum number of credits required as indicated below:

1. 64 credits by the end of the first year; 32 credits of these credits must be non-core
2. 144 credits by the end of the second year
3. 240 credits by the end of the third year
4. 352 credits by the end of the fourth year
5. 440 credits by the end of the fifth year

ADVANCEMENT AND PROGRESSION RULES

In general a student advances to the following academic level of study when at least 2/3 of the modules of the curriculum for a specific year have been passed. If a student passed only 1/3 of the full curriculum of a specific year, he/she may not register for any modules of the following year. In all cases, prerequisites for modules have to be passed before a student can proceed to register for modules that require prerequisites.

1. From year 1 to year 2: At least 120 credits prescribed for year 1 must be passed.
2. From year 2 to year 3: All first year modules plus at least 120 credits prescribed for year 2 must be passed.
3. From year 3 to year 4: All first, second and third year modules must be passed.
MAXIMUM NUMBER OF CREDITS PER YEAR:
No student will be allowed to register for more than the following credits as indicated below

1. Year 1: 152 credits
2. Year 2: 168 credits
3. Year 3: 152 credits
4. Year 4: 128 credits

REQUIREMENTS FOR QUALIFICATION AWARD
This qualification will be awarded to candidates credited with a minimum of 560 credits, and who have met all the requirements of the Degree programme, including field/clinical placements and portfolios.

CAREER OPPORTUNITIES
The graduates of this Bachelor of Science (Professional Honours) in Occupational Therapy may become a/an:

1. Clinician – engaging directly or indirectly in a patients’ or clients’ health care, by applying the occupational therapy process in relation to the occupational function of individuals or groups of people.
2. Occupational coach- supporting individuals, groups and communities towards meeting occupational needs and goals as part of the occupational identify discovery, retention and redefinition.
3. Manager – planning and, implementing and evaluating the occupational therapy services (including staff and other resources) and leading and motivating staff.
4. Researcher and scholar – questioning current evidence for occupational therapy and developing ways to refine and improve service, by producing effective and efficient practice, also engaging in academic and research practices.
5. Educator – instructing, leading and guiding undergraduate and postgraduate students in theory and practice, including supervision in clinical practice.
6. Collaborator – interacting and working with other health care practitioners, members of the multi-disciplinary team and community members across sectors and government departments.
7. Lobbyist, pleading for the cause of people and/or marginalised groups and/or communities by campaigning for and promoting changes in societal attitude with would facilitate their inclusion of at all levels and promote participation in meaningful and dignified occupations.
8. Advocate, promoting the interest of the profession of occupational therapy

Occupational Therapists, working as mentioned above may work in the

1. Public Service in any Ministry, but particularly in the following Ministries: Health and Social Services; Agriculture, Water and Forestry; Education; Environment and Tourism; Defence; Gender Equality and Child Welfare; Labour and Social Welfare; Lands and
Practice settings include but are not limited to

1. Institution-based settings (health care facilities, schools, correctional service, retirement and frail care facilities, rehabilitation facilities, houses, sheltered work, etc.)
2. Community-based,
3. Faith-based
4. Non-Governmental Organisations
5. Private Practices
6. Commercial, industrial or informal work-settings
7. Domiciliary (home-based) settings.

Prospective employers may thus include a variety of Ministries, MVA, WCA NGOs, faith-based organisations, private practice or self-employment.
## Summary Table for all Modules in the Programme

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**TOTAL CREDITS YEAR 3**

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**Total Credits Semester 1**

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**TOTAL CREDITS YEAR 4**

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**TOTAL CREDITS FOR THE PROGRAMME**

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Module Title: English for Academic Purpose

Code: ULEA3519
NQF level: 5
Notional hours: 160
Contact Hours: 4 hours per week for 14 weeks
NQF Credits: 16
Pre-requisite: LCE3419
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Course Description:
This module develops a student’s understanding and competencies regarding academic conventions such as academic reading, writing, listening and oral presentation skills for academic purposes. Students are required to produce a referenced and researched essay written in formal academic style within the context of their university studies. Students are also required to do oral presentations based on their essays. The reading component of the course deals with academic level texts. This involves students in a detailed critical analysis of such texts. The main aim is therefore, to develop academic literacy in English.

Assessment Strategies
Continuous Assessment: 60 %
Examination: 40 % (1 x 3 hours paper).
Module Title: Contemporary Social Issues

Code: CSI3580
NQF level: 5
Notional hours: 80
Contact Hours: 1 hour per week for 2 semesters (offered Online)
NQF Credits: 8
Pre-requisite: none
Compulsory/Electives: Compulsory
Semester offered: 1st year semesters 1 & 2

Assessment strategies: This is a 100% continuous assessment module with a variety of assessments which evaluate and test the students' individual learning and mastering of the course content (subject knowledge) through quizzes, tests, Moodle assignments, journal entries, reflections as well as service and experiential learning projects.

Course Content: The module, Contemporary Social Issues (CSI3580), is designed to encourage behavioral change among UNAM students and inculcate the primacy of moral reasoning in their social relations and their academic lives. In providing students with critical and analytical thinking the module enables students to grow and develop into well-rounded citizens, capable of solving contemporary social challenges experienced in their communities and societies. The teaching of the module takes three dimensions: the intellectual, the professional and the personal dimensions. The intellectual dimension is fostered through engaging students with subject knowledge, independent learning and module assessment. The professional dimension, on the other hand, is fostered through exposing students to real life situations of case studies and practical exercises that draw attention to social issues that attract ongoing political, public and media attention and/or debate. Finally, the professional dimension is fostered through group work and online discussions.
Module Title: Computer Literacy

Code: CLC3409
NQF level: 5
Notional hours: 80
Contact Hours: 2 lecture hours
NQF Credits: 8
Pre-requisite: none
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Content:

Assessment: Continuous 100%
Module Title: Anatomy for Allied Health Sciences

Code: ATM3531
NQF level: 5
Notional hours: 160
Contact hours: 3 + 4p hours per week for one semester
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
This module aims to provide students with sound systemic anatomical and histological knowledge of the anatomical systems to the extent that they can relate from and function and use this in practice in their further studies in medicine and future work.

Module Content
Introduction to all the major body systems; Introduction to human histology including histology of the basic tissues; Regional anatomy and topographical anatomy, organ development and histology of the systems with dissections and microscopy practical sessions of each system. Examples of the applications of the anatomical knowledge in clinical cases and clinical examination techniques mastered in skills laboratory.

Assessment Strategies
Continuous Assessment mark: 50%
Examination mark: One 2-hour theory examination paper (50%)
One practical examination paper (50%)
Final mark: 50% of exam mark and 50% of CA
Module Title: Medical Physics

Code: PLG3501
NQF level: 5
Notional hours: 80
Contact Hours: 2 hours per week for one semester
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
The aim of this module is for students to learn core concepts of physics and relating these to their application in medical practice. Students will learn about motion, elasticity, fluids, gases, waves, temperature, electricity, magnetism and electromagnetism, lights, solids, and radioactivity all of which have direct application in studying some disease processes such as cardio-vascular disease in respect with fluid mechanics or diagnostics such as the use of ultrasound and X-ray which are based on radiation and high frequency resonance; or treatment for example in radiation in cancer therapy or use of laser beams. Students will have opportunity to observe some of the equipment in use.

Module content
Topics: Units (standards, SI system, converting units, order of magnitude); Motion (displacement, velocity, acceleration, falling objects); Vectors (representation, adding, subtracting scalar product, vector product); Force (Newton's 1st on 3rd laws, mass, weight); Equilibrium (statics, equilibrium, elasticity); Fluids (density, specific gravity, pressure, Pascal’s principle, measurement, flow, Bernoulli’s Principle, viscosity, surface tension, pumps); Waves (wave motion, types of waves, energy, amplitude and frequency, reflection and interference, resource, refraction and diffraction); gas laws; Temperature (atomic theory, temperature and thermometers, thermal expansion, thermal stress, diffusion); Electricity (change, field, potential, currents, basic circuits; Magnetism (magnetic fields, electric currents, force, electric charge, ampere and out coulomb, Ampere's Law, torque); Electromagnetism (electromagnetic induction, transformers, transmission of power, production of electromagnetic waves, light and electromagnetic spectrum); Light (wave versus particles, diffraction, refraction, visible spectrum and dispersion); Molecules and Solids (bounding in molecules, weak bounds); Radioactivity (structure and properties of nucleus, binding energy and nuclear forces, radioactivity, alpha, beta, and gamma decay, half-life and rate of decay, radioactive dating).

Assessment Strategies
Continuous Assessment: 50%
Examination: 50% (1 x 3 hours paper)

Module Title: Occupational Science I

Code: OTH3501
NQF level: 5
Notional hours: 80
Contact hours: 2 hours per week for one semester
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims:
The module aims at providing students with an introduction to the basic science, occupational science, the associated concepts and how this field of study interfaces with occupational therapy.

Module Content:
Defining occupational science and occupational therapy; Describe what occupational scientists and occupational therapists do (similarities and differences); History of occupational science and history of occupational therapy; Theory of Human Nature and participation in occupation; Describing human occupation and the term “natural occupation”; Analyse the concepts form (physical and sociocultural dimensions) function, and meaning of occupations; Explore human beings as occupational and social beings.

Module assessment:
Continuous assessment: 50%
EXAM: 50%
Module Title: Systemic Physiology I

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Module Aims
The systems physiology module is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The module lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures and debriefing of problem-solving skills.

Module Content
The study of physiology encompasses a number of fields of study from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilisation of energy, signalling and cellular dynamics. Building upon this we will stress the importance of cellular and tissue compartmentation and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance.

Students will familiar them with the components and mechanics of the: Basic Cell Processes, energy and cellular metabolism, membrane dynamics and communication, integration and homeostasis; the cellular and network properties of neurons and how they function within the context of the central and peripheral nervous systems; the muscular skeletal system and the control of body movement; the structure and function of the endocrine system; digestive system; cardiovascular control including blood flow and the control of blood pressure; respiratory mechanics and gas exchange; blood and blood products; renal function and control including fluid and electrolyte balance; exercise and metabolism; reproduction and development.

Assessment Strategies
The Continuous Assessment (CA): 50%
Examination: 50% (1 X 3 hours paper)

Module Title: Occupational Therapy Science I

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Module Aims:
Our occupations harness our time and interests, and utilise our personal capacities. Our ability to participate in occupations that we have to do or want to do can be impacted on by a variety of determinants, thus placing challenges to people in doing needed occupations. Occupational therapy science is founded on research that suggests that appropriately selected occupations used in specific therapeutic ways are agents of change and improve participation in, performance in, and satisfaction in occupations and thus contributes to occupational justice and quality of life.

Module Content:
This module introduces students to the ICF and their understanding of human occupation by including an analytical exploration of the relationship between what people do and their health, well-being and quality of health, in the form of WHO determinants of health. By introducing Erik Erikson’s stages of psychosocial development and related actions/tasks/occupations and by engaging with people of different ages in various practice learning contexts, students gain deeper appreciation of normal human development challenges, how dimensions of occupational performance in self-care and community living and survival; play; work; social interaction unfold across the lifespan and how culture context and ability relate to these. Students are exposed to interviewing techniques and skills and practice; student gain skills in obtaining a narrative from another person in the classroom; Kinesiology, ergonomics and design (synergistic and pathological moment patterns, body alignment, proportions and relationship of these and functioning and disability gap (ICF). Students are introduced to the practice of reflection and reasoning and its values for self-learning and development as a scientifically thinking therapist. In a clinical setting, student apply engaging with narrative, and thus develop an appreciation of the lived experience of having a disability, and how dimensions of occupational performance in self-care, productivity and leisure are affected by disability. Students learn how to describe their understanding of the lived experience of a person with a disability using techniques of interviewing and using narrative.

Module assessment:
Continuous Assessment: 70%
EXAM: Written 2 hour paper 30%
Module Title: General Biochemistry I

Code: BCM3512
NQF Level: 5
Notional hours: 160
Contact Hours: 3 + 4P hours per week for one semester
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 2

Module Aims
This module is the first of two with a focus on cellular organisation, biomolecules and cellular function, cell communication and immune recognition, introductory clinical/medical genetics and bioinformatics. The module will correlate changes in cell division, structure, function, biomolecules and genomes associated with homeostasis or disease state.

Module Content
The module will cover the following topics: Principles of Medical Biochemistry; cell structure and function; cell cycle; basic structure, biochemical properties and function of biomolecules in health and disease; glycoconjugates; complex lipids; eicosanoids and their role in inflammation; importance of lipoproteins in health and disease, definition of enzymes and their roles in cell function, therapeutics, diagnostics and inborn metabolic errors; cell signalling and communication; nucleotides and DNA organisation; DNA replication, transcription and translation; mechanism of mendelian inheritance; mutations and disease; basic principles of chromosomal aberrations and cytogenetics; basic principles of bioinformatics; techniques in DNA isolation, PCR sequencing and microarrays; DNA and protein electrophoresis; point of care diagnostics.

Assessment Strategies
The Continuous Assessment (CA): 50%
Examination: 50% (1 x 3 hours written paper + 1½ h practical examination)
Module Title: SOCIOLOGY OF HEALTH AND DISEASE

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<td>Contact Hours</td>
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<tr>
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<td>Compulsory/Electives</td>
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<tr>
<td>Semester offered</td>
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**Module Aims**

The module aims at equipping students with knowledge and skills necessary to practice in different social-cultural settings. Students will learn about the indirect pathways between sociology and health/disease with emphasis on the role of beliefs and behaviours in health and illness. The goal of the module is to acquaint students with the sociological construct of health, illness and disease which takes into account the structural and social factors not necessarily relying on biological and medical explanations of health and disease. Students also get exposure to political, economic, and sociocultural elements that foster ill/health as well as the forces that allow or constrain the healthcare system and individual’s responses to illness.

**Module Content**

Sociological understanding of health, illness and disease considers the structural and social factors and not largely relies on biological medical explanations of health and disease. The structural emphasis will entail consideration of the political, economic and social cultural elements that foster ill/health, as well as the forces that allow/constrain the health care system and individuals’ responses to illness. The module also focuses on the indirect pathway between sociology and health/disease and emphasises the role that beliefs and behaviours play in health and illness.

Furthermore the module will address the sociological definition of disease, explore major theoretical perspectives in health, behavioural science and sociology, the influence of class, gender and ethnicity on health; global and rural health problems; health promotion and community health services among others. This will enable the students to understand the social determinants of health, social construction of illness, social meanings of illness, patterns in the distribution of health and illnesses, people health seeking behaviours; interaction between patients and the health provider. The module will also explore medicine as power and social control and the role of alternative medicines.

Students will also examine health-related behaviours and apply many of the theories to specific behaviours, e.g., addictive behaviours and the factors that predict smoking and alcohol consumption as well as Gender Based Violence and HIV. Throughout the module students will focus on the interrelationships between beliefs, behaviour and health using the example of placebo effects; illustration of this interrelationship in the context of illness, focusing on HIV, cancer, obesity and coronary heart disease; aspects of women’s health; the problems with measuring health status and the issues surrounding the measurement of quality of life.

**Assessment Strategies**

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<th>Assessment Type</th>
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Module Title: Anatomy for Occupational Therapy

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<td>Semester offered:</td>
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**Module Aims**

This module is designed to provide continued study of histological and anatomical systems with the emphasis on occupational therapy outcomes. In this semester special attention is paid to the relation of anatomy of these systems to their function and dysfunction in human movement. It has a strong focus on the mechanical properties of bone, ligaments, tendons, cartilage, neural and muscle tissue as these are the fundamental materials or structures of which the musculoskeletal system is composed. There is some revision of gross anatomy and functional musculoskeletal anatomy of the limbs and trunk as appropriate to the module. In addition to normal function it includes the mechanisms of and adaptations to injury, disease and rehabilitation. Anatomical aspects of posture and locomotion and their changes through the lifespan are also covered.

**Assessment Strategies**

Continuous Assessment mark: 50%

Examination mark: One 2-hour theory examination paper (50%)
                    One practical examination paper (50%)

Final mark: 50% of exam mark and 50% of CA

Module Title: Systemic Physiology II

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**Module Aims**

The systems physiology module is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The module lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures, and debriefing of problem solving skills.

**Module Content**

The study of physiology encompasses a number of fields of study; from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilisation of energy, signalling and cellular dynamics.
Building upon this we will stress the importance of cellular and tissue compartmentation and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance. By the end of the module students will also be familiar with the components and mechanics of the:

1. Basic cell processes including cells and tissues, energy and cellular metabolism, membrane dynamics and finally, communication, integration and homeostasis
2. The cellular and network properties of neurons and how they function within the context of the central and peripheral nervous systems
3. The muscular skeletal system and the control of body movement
4. The structure and function of the endocrine system
5. Digestive System
6. Cardiovascular control including blood flow and the control of blood pressure
7. Respiratory mechanics and gas exchange
8. Blood and blood products
9. Renal function and control including fluid and electrolyte balance
10. Exercise and metabolism
11. Reproduction and development

Assessment Strategies
The continuous assessment (CA): 50%
Examination: 50% (1 X 3 hours paper)
**Year 2**

**Module Title: Occupational Therapy Interventions**

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<tr>
<td>Semester offered:</td>
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**Module Aims:**
This module provides students with an experiential learning opportunity in which they start to build up a repertoire of occupations (indoor/outdoor and performing arts), which they can use in therapy.

**Module Content:**
This module will cover the following theoretical aspects of a number of indoor activities (such as cookery and nutrition, wool crafts, pottery, paper crafts, sewing, leather crafts, jewellery making, wire craft, string craft, woodwork and performing arts), as well as outdoor activities (soccer, basketball, netball, volleyball, fun ball games athletics and other outdoor games, indoor/outdoor gardening) history of, purpose of, materials needed, tools/implements/equipment needed, care, maintenance and storage of these and precautionary measures. Practical skills for all these activities need to be acquired.

**Module assessment:**
Continuous Assessment: 100%
Module Title: Occupational Therapy Science II

Code: OTH3690
NQF level: 6
Notional hours: 240
Contact hours: 3 hours per week for both semesters
NQF Credits: 24
Pre-requisite: OTH3501, OTH3502
Compulsory/Electives: Compulsory
Semester offered: 1 and 2

Module Aims:
Occupational therapy science is founded on research that suggests that appropriately selected occupations used in specific therapeutic ways are agents of change and improve participation in, performance in, and satisfaction in occupations and thus contributes to occupational justice and quality of life. This module focuses on models, and how these inform assessment of mobility and disability, environment and social power structures as well as physical, mental and social ability and disability and how this information translates into an occupational therapy plan.

Module Content:
Foundation of Occupational Therapy (philosophy of occupational therapy (Adolf Meyer/ Eleanor Clark Slagle; Medical approaches, social approaches, occupational approaches); Foundation of Occupational Therapy in Namibia. Selected frame works used in occupational therapy (WHO ICF (2002) and ICF-CY (2001), (2008), and Occupational Therapy Models (CAOT Canadian Model of Occupational Performance - Engagement (2007), and Kielhofner’s Model of Human Occupation practice and models (MOHO, CMOP -E and PEO, Vona du Toit’s MOCA, Occupation Based Community Development Framework (ObCD) and the models change modalities. Introduction to function (Based on ICF (2002) such as mental, sensory, pain musculoskeletal and movement related, cardiovascular, respiratory, genitourinary and reproductive functions and AOTA Occupational Therapy Practice Framework -Domains and Framework (2014);Activity analysis (with reference to above-mentioned functions, e.g. physical (muscles, joints, physical endurance etc.), mental (concentration, attention, higher cognitive functions) emotional (gratification, locus of control, number of steps, concept formation), social and community requirements (intra- and interpersonal relationships, emotional intelligence, adhering to social standards etc.). Intersectional analysis ref Kimberlé Williams Crenshaw (Intersection of class, gender, sexual orientation, race, religion socio-economic status, educational status, ability, nationality, their interactional power relations and influence on identity formation. Environment analysis (observes occupations meaningful in the environment and aligns occupations according to cultural preferences whilst deepening their understanding of the role a variety of environments (physical, social, political etc.). Kinesiology, ergonomics and design (synergistic and pathological movements patterns, body alignment, proportions, positions and relationship of how these minimise the disability gap. Activity adaptations (to increase or decrease or adapt the requirements related to occupations (activity level) across the life span). Reflect on the explicit knowledge of and implicit understanding of disability, ability and participation, integrating knowledge of the above-mentioned analyses using activities that form part of occupational therapy change modalities. Learning theories:
Moya Wilson and others; Anne Cronon Mosey’s seven adaptive skills, adult learning theories, action learning, participative action learning. Occupational therapy practice process; occupational therapy targets; Change theories and modalities; Learn about professional relationships with patients. Assessment (theory and assessment, types of, reason for, information gathering to choose, learn assessment at body structure (e.g. wound assessment, muscle strength, ROM) and body function (nerve function, attention, concentration level (all assessment that are used in third year practical need to be covered here – including all diagnosis and across all ages), and at activity and participation levels (activities that form part of occupational therapy change modalities. Assessment of environment, recording of data, analysis of data, theory and data analysis, strengths and challenges); Intervention goals, occupational therapy targets, change modalities and enablement and intervention (understanding an intervention plan and an intervention programme – using strengths to address challenges in execution of activities of daily living (ADL), using environment and structure to facilitate change to enable persons to achieve their aspirations and capabilities as occupational beings). Intervention principles (Handling, Structuring, Presentation, Activity requirements and grading of these treatment principles). Introduction to theoretical base of clinical work: case studies (reasoning behind case studies, models and theories in case studies, patient records and ethical considerations, documentation and legal responsibilities, format of case studies and patient file audit).

Module assessment:
Continuous Assessment: 50%

EXAM: 1x3 hour written paper 50%

Module Title: Occupational Science II

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<td>Semester offered:</td>
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Module aims:
The module aims at introducing students to analysing the relationship between engagement in occupation, occupational justice and quality of life.

Module content:
Occupational risk factors (injustice, justice, marginalisation, imbalance, deprivation and alienation) and how people, the physical environment, government policies, economic factors, cultural believes etc. impact on occupational justice). Analyse occupation as
roles, purpose and meaning), as an end (acquiring skills, earn a living, overt or covert, tangible or intangible) and as a means to an end. Relate occupational injustice to practice situations (Intersectional Analysis). Analyse themselves as occupational beings and identify which occupations require active engagement, which passive and which vicarious. Complete an occupational profile for an identified person and identify links between human occupation, health and well-being combining the all the above-mentioned analytical elements. e.g. occupational risk factors.

Module assessment:
Continuous Assessment: 100%

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Module Title: Occupational Science III

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<td>Semester offered:</td>
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Module Aims:
The course aims at providing the student with the skills and knowledge to obtain and appraise relevant scientific information and in particular regarding occupational science and occupational therapy to apply the information in relation to occupational therapy.

Module Content:
Search for the philosophical and theoretical perspectives of occupation by devising information seeking strategies; using appropriate paper and electronic search toolseffectively and appraise information. Exploration of the current body of knowledge relating to occupational science, including health and well-being; Explore occupation and temporality, occupational and human development, the relationship between occupational science occupational therapy and other scientific disciplines.

Module assessment:
Continuous Assessment: 100%
Module Title: PSYCHOLOGY

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<td>Semester offered</td>
<td>1 and 2</td>
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Module Aims
Through this module students will gain knowledge of the theories of psychosexual development normal physical, cognitive and emotional development and their application in states of health and disease. Students will also learn about the approaches to the diagnosis, management and rehabilitation of people with suspected cognitive or psychological or behavioural conditions.

Module Content
This module focuses on applicable developmental theories such as the psychodynamic theory, particularly Freud's psychosexual theory and Erickson's psychosocial theory and developmental theories of cognitive development. To be considered here are Piaget's theory of cognitive development as well as Vygotsky's theory of cognitive development (sociocultural-historical theory, particularly the notions of the zone of proximal development and scaffolding in cognitive development). The module will examine perinatal/prenatal development, including the period from conception to birth. Environmental influences on prenatal development, hereditary/genetic influences on human development and hereditary/genetic transmission, genetic and chromosomal abnormalities, birth complications, and maternal stress will be explored. How infants sense and perceive the world will be examined. Furthermore, the module will examine the five domains of human development from infancy, adolescence, through adulthood (cognitive development, physical development, emotional development, social development and language development (attainment of normal developmental milestone). Finally, chronic illness in childhood and hospitalisation, as well as child physical, emotional, and sexual abuse will be covered. The development of the concept of death among children will also be discussed.

Assessment Strategies
The Continuous Assessment (CA): 50% (minimum of 3 tests and 2 assignments)

Examination: 50% (1 x 3 hours written paper)

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Module Title: Clinical Sciences I

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<td>Semester offered</td>
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Module Aims
This module aims at equipping students with knowledge on structural changes affecting tissues, organs and systems of the human body due to various processes and insults.

Module Content
This module focuses on systemic discussions of the causation and mechanisms of change involved in the various pathological lesions resulting from infection, cell injury, acute and chronic inflammation, metabolic disorders, neoplasia and accumulation; non-infective disorders topics: Definition and scope of pathology; Cell damage; Cell death; Connective tissue and damage; The inflammatory response; Chronic inflammation; Classification and general characteristics of common microbial organisms of medical importance; Body's defences and responses to infection; Healing; Radiation, trauma and temperature; Abnormalities of cell growth; Neoplasia; Circulatory disturbances oedema; Circulatory disturbances, thrombosis and embolism; Circulatory disturbances, ischaemia and infraction; Abnormalities of calcium metabolism; Abnormal pigmentation; laboratory tests in relation to microbial, endocrine, metabolic and other pathological changes.

Module Assessment
Continuous Assessment: 50% (minimum of 2 tests and 2 assignments and practical)
Examination 50% (1 x 3 hours paper)
Module Title: Clinical Sciences II

Code: OTH3612
NQF level: 6
Notional hours: 160
Contact Hours: 4+3P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: ATM3531, PLG3511, ATM3532 and PLG3512
Compulsory/Electives: Compulsory
Semester offered: 2

Module Aim
This module which is the mainstay and foundation of clinical medical practice is envisaged to introduce the students early on to the professional and technical skills, scientific knowledge and human understanding necessary in the care of the sick, frail, their families and the community and build up on the art of medical practice to near perfection. The module also introduces students to basic clinical procedure through didactic teaching and hands-on practice. A student is also equipped with knowledge and skills for providing emergency first aid resuscitation and support before arranging for secure and safe transfer to health facility.

Module Content
It emphasises on the establishment of direct, one-to-one caregiver-patient relationships the process of social communication and the performance of physical examination based on competent use of professional skills. Topics covered include infection control, universal precautions, communication skills, general, regional and systemic physical examination of patients; basic clinical skills; first aid. Geriatric Medicine: Gastrointestinal disorders, Lymphoma, Metabolic bone disease, Thyroid, adrenal and pituitary disease, Renal pathology.

Assessment Strategies
Continuous Assessment: 50%
Examination pass mark is 50% (1 x 3 hours paper)
Module Title: Professional Practice

Code: PTY3681
NQF level: 6
Notional hours: 120
Contact Hours: 3 hours per week for one semester
NQF Credits: 12
Pre-requisite: ATM3531, PLG3511, ATM3532 AND PLG3512
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
The aim of this module is assist students to develop a personal philosophy for lifelong practice of medicine and ongoing professional growth. In particular, students will be equipped with skills to examine the four cardinal principles of: respect for autonomy, beneficence, non-maleficence and justice. Legal aspects of being a professional will be covered as well as the importance of and the ethical implication of documentation.

Module Content
Medical Ethics and Philosophy: This module is designed to describe the basic principles of professional conduct, ethics and legal practice in health, with particular emphasis on social values, norms and culture of the Namibian society. A student will be able to professionally engage in his/her medical practice, observe professional conduct with regard to patients, their families and professional colleagues, evaluate ethical dilemmas and give professional evidence in a court of law. Topics covered include: basic principles of ethics and philosophy in health; social obligations, values and norms with the emphasis of the Namibian society regarding health; the patient-physiotherapist relationship; common ethical dilemmas: fundamental ethical guidelines, conflicts between beneficence and autonomy, patients who lack making-decision capacity, decision about life-sustaining interventions, conflicts of interest; basic principles of medico-legal practice, review of the health related Namibian legislative code.

Assessment Strategies
Continuous assessment (50%)
End of module examination (50%): 1 x 3 hours paper
Module Title: Clinical Occupational Therapy I

Code: OTH3622
NQF level: 6
Notional hours: 80
Contact Hours: 80 of integrated learning for one semester
NQF Credits: 8
Pre-requisite: OTH3501, OTH3502
Compulsory/Electives: Compulsory
Semester offered: 2

Module Aims:
Occupational therapy intervention aims at addressing challenges a person (or population) faces in relation to doing their everyday occupations. This module introduces students to become agents of change by consolidating and applying already acquired knowledge and skills in a service learning setting.

Module Content:
Patient rights (autonomy, privacy, beneficence, justice, informed consent, right to refuse treatment, participation, etc.) Gatekeeping (referrals, requests for intervention, permission to enter premises/community/institution). Conduct visits to non-clinical settings in which occupational therapy could be meaningful (prison services, old age homes, orphanages, self-help schemes, craft projects, etc. aiming at sharpening observation skills); Engage a person in a non-clinical setting in occupation and narrative (sharpen interviewing skills and skills of facilitating engagement in occupation). Formulating results (including results obtained from observations, narratives, co-lateral information and reflection).

Module assessment:
Continuous Assessment: 100%
Module Title: Local Language for health science communication

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<tr>
<td>Semester offered:</td>
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**Module Aims**

The module is to ensure that students have adequate communications skills in one of the commonly used Namibian in addition to their home language in terms of patient interaction and practise.

**Module Content**

This module develops a students understanding regarding social norms and confessions in one other population group in Namibia; listening, verbal and non-verbal communication; medical terminology and construct of common symptoms in the relevant language.

**Assessment Strategies**

100% Continuous Assessment consisting of at least six interactive engagement of dialoging in class
Year 3  
Module Title: Occupational Therapy Science III

Code: OTH3710
NQF level: 7
Notional hours: 320
Contact Hours: 4+3P hours per week for both semesters
NQF Credits: 32
Pre-requisite: OTH3690, OTH3611, OTH3612
Compulsory/Electives: Compulsory
Semester offered: 1 and 2

Module Aims:
This module focuses on intervention techniques and how they can be utilised through participation in activities of the change modalities. By the end of this module students will be able to describe the link between human occupation, participation in occupation, health and well-being; discuss various forms of occupational risk/dysfunction, focusing on environmental determinants; discuss various means of enabling occupational performance and write occupational therapy intervention programmes (also population focus); they will understand the role of an OT and other role players within practice learning settings; use reflection and reasoning as crucial for taking control of own learning; and learn how to turn their own profession into a possible business venture.

Module Content:
Revision of previous years concepts and models (Reflection and reflexivity, Performance enablers and change theories, OT Targets, OT theoretical frameworks, Change modalities, Performance enablers, Intervention principles, interviewing skills, assessments). Intervention techniques and how they can be used in enabling a person’s participation in life through the use of occupational therapy change modalities: Intervention Techniques; Bobath neuro-developmental treatment techniques; Muscle strengthening techniques and techniques of improving ROM, Eliciting balance reactions and retraining balance; Bandaging techniques (amputation stump forming); Stress Management techniques (Indications for relaxation training, Structure and handling principles. Frames of Reference: Behavioural and cognitive perspectives, Learning, Memory, Assessment. Group management techniques (group dynamics, principles of groups, Types of groups - aims, handling and structuring, Leadership styles, establishing a group; forming of groups – forming storming- norming-performing). Warm ups (“actions speak louder type of activities” and warm up games. Evocative techniques: Drama: Remedial drama - puppets, masks, role play, Definition, Relationship between role-play and psychodrama, Aims of role-play, Methods and approaches. Management (Logic model and application thereof for projects and occupational therapy programmes (population), including introduction to Monitoring and Evaluation (M & E); Competing Values Framework (MC Quinn and The McKinsey 7S management framework and its application to occupational therapy practice. Intervention techniques and how they can be used in enabling a person’s participation in life through the use of occupational therapy change modalities: Sensory modulation techniques and Intervention strategies (Sensory processing and modulation, sensory regulation, sensory diet, sensory integration, and how all these fir into occupational therapy using change modalities. Community based rehabilitation (institution and non-institution based); Population health (advocacy to address occupational
participation and the multiple determinants of health, community and population directed interventions - analysis, intervention strategies, occupation based proposals; Occupational therapy theory and intervention (approaches, philosophies, professional reasoning), critiquing Models and approaches. Professional behaviour in clinical settings (Hierarchies in wards' ward rounds, communication channels, accountability, supervision)

**Module assessment:**
Continuous Assessment (50%)

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<th>EXAM (50%)</th>
<th>1x 3 hours written paper</th>
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**Module Title: Clinical Occupational Therapy II**

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<td><strong>Compulsory/Electives:</strong></td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>Semester offered:</strong></td>
<td>1 and 2</td>
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</table>

**Module Aims:**
Students engagement with issues of diversity is extended to include an exploration of the role of an occupational therapist as a transformative agent, using occupation as performance enablers in non-acute clinical or community settings Clinical Occupational therapy II students start to take responsibility for client management under supervision of lecturers. The aim is to prepare students for independent and teamwork practice within the comprehensive health care system.

**Module Content:**
Preparation for service training (logbooks, attendance registers, case study outline, case study requirements, ethical behaviour, professional behaviour, work ethics). Evaluation of service training (explain assessment strategies and evaluation). Supervision of service training (explain supervisor agreement forms, importance of signing agreements, documentation of supervision). Service learning settings (introduction to settings, aims, gateways, arrangements, rules, working hours at facility). Three service training blocks at community or non-acute clinical settings, each 70 contact hours (210). Apply ALL steps of the occupational therapy practice process: Collateral/background information (Obtain background information, plan interview, occupational profile of client, use observation and narrative to determine strengths and weaknesses). Assessment (choose appropriate assessments (body function and body structure level as well as activity and participation level, either standardised or non-standardised assessment tools and compile problem list. Identify contra indications; Intervention plan
(collaboratively and evidence based, formulate intervention goals, using all available gathered information, focusing on relevant occupational therapy targets. Design intervention and monitoring plan by choosing appropriate occupations at the “just right challenge”, criteria to measure change, change modalities, plan for actions of therapists as therapeutic agent, plan environment and support structures and precautionary measures). Implement intervention plan and monitor change (observe, benchmark participation, satisfaction and change with set criteria and ameliorate intervention plan as needed). Re-assessment (only if applicable). Evaluation (Reflective notes on the process, interactions, disappointments, challenges, successes, corrective measures etc.)

Module assessment:
Continuous Assessment: 100%

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Module Title: Psychiatry for Occupational Therapy

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<td>1 and 2</td>
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Module Aim
This module aims at equipping the student with knowledge, skills and techniques for providing Occupational Therapy care to patients who have concomitant psychiatric illness in different age groups. Students are assisted to integrate prior learning in the areas of neuro-anatomy, neuro-physiology, short review of developmental psychology, neuropharmacology to recognise and explain the manifestation of psychiatric disorders, the diagnostic process and the general principles of disease prevention, rehabilitation and be able to classify common drugs used in psychiatry. This is done through a combination of approaches of teaching and learning including didactic lectures and apprenticeship.

Module Content:
In this module students are introduced to the following topics: Diagnoses of patients with mental/psychiatric disorders, neuropsychiatry, behavioural neurology and psychopharmacology; application of medical and psychopathological knowledge and procedural skills to collect and interpret data, make appropriate clinical decisions; carry out diagnostic procedures using an appropriate combination of biological, psychological and sociological methods, including up-to-date ethical and cost-effective clinical practice and effective communication with patients, other health care providers and the community; psychiatrist as communicator, collaborator, health advocate, manager, scholar and professional; theories of personality and psychopathology; examination of the psychiatric
patient; classification of mental/psychiatric disorders; close connections with neuropsychiatry and behavioural neurology, general pharmacology, psychopharmacology and gross and functional anatomy of the brain (including neuro-imaging) as tools for making psychiatric diagnoses; psycho-pathology.

Assessment strategies
Continuous assessment 50%
Examination 1x3 hour written paper 50%

Module Title: Applied Occupational Therapy I

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<tr>
<td>Semester offered:</td>
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Module Aims:
The aim of this module is equip students with professional reasoning skills necessary to provide patient care in occupational therapy at secondary or tertiary health care level. Students learn intervention protocols for the most common physical conditions (all ages) with an emphasis on occupational therapy targets of impairment reduction, adaptation and skills acquisition - thus restorative and preventative programmes.

Module Content:
Students are exposed to pathology prognosis, prevalence and incidence, special examinations, medical intervention, complications, and interventions of other health professionals, of health conditions related to functions of the cardiovascular, haematological, immunological and respiratory systems, genitourinary and reproductive functions, neuromusculo-skeletal and movement-related functions, functions of the skin and related structures, structure of the nervous system, structure of the cardiovascular, immunological and respiratory systems, structure related to genitourinary and reproductive systems, structures related to movement, skin and related structures across all ages; Students select techniques, change modalities and learn protocols to restore loss of function due to impairment and prevent secondary complications or disability, related to the above mentioned health conditions across all ages; Students evaluate occupations that contribute to restorative and preventative programmes in terms of above mentioned health conditions across all ages; Students will identify occupational therapy models (CMOP -E; MOHO, V du Toit MOCA etc.) and theories (Neuro-developmental, sensory modulation, theories of learning and knowledge transfer, theories of change, theories of motivation, theories of goal setting etc.), precautionary measures (positioning, structural support, etc.) in planning intervention programmes across all ages. Students will apply knowledge and skills in Work rehabilitation, vocational rehabilitation,
and protected employment. Furthermore students will be able to design or recommended an ergonomic workstation for given case studies.

Assessment Strategies
Continuous assessment 50%

Examination 50%

OSCE’s 25%

1x3 hour written paper 25%
Module Title: Research Methods

Code: PTY3700
NQF level: 7
Notional hours: 160
Contact Hours: 2 hours per week for both semesters
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1 and 2

Module Aims

This module aims to equip the students with principles, skills and methods to conduct scientific research and analysis required on any matter within the domain of health.

Module Content

This module covers the following topics: Introduction to Quantitative research and Qualitative research, 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 different of studies design. Sampling Methods: Non-probability sampling, Probabilistic or random sampling; sample size determination. Study population, Specification study variables, and types of variables. The Data collection methods: Data collection techniques, development of data collection tools and/or questionnaires. Report writing and use of The Harvard referencing system.

Assessment Strategies

100% continuous assessment:
Module Title: Applied Occupational Therapy II

Code: OTH3712

NQF Level: 7

Notional hours: 160

Contact Hours: 3+2T hours per week for one semester

NQF Credits: 16

Pre-requisite: OTH3611, OTH3612

Compulsory/Electives: Compulsory

Semester offered: 2

Module Aims:
The aim of this module is equip students with professional reasoning skills necessary to provide patient care in occupational therapy at secondary or tertiary health care level. The focus is on Impairment reduction, adaptation and skills acquisition (related to effects of pathology), thus restorative and preventative programmes. Furthermore, students learn intervention protocols for the most common psychiatric conditions (all ages, sensory processing disorders included).

Module Content:
Students are exposed to psycho and occupational-pathology, prognosis, prevalence and incidence, special examinations, medical intervention, complications, and interventions of other health professionals of the following conditions:

Neurodevelopment disorder, schizophrenia spectrum and other psychotic disorders, bipolar and related disorders, anxiety disorder, obsessive-compulsive and related disorders, trauma- and stressor-related disorders, somatic symptom and related disorders, feeding and eating disorders, elimination disorder, sleep/wake disorders, sexual dysfunctions gender dysphoria, disruptive, impulsive control and conduct disorder (CID), substance-related and addictive disorders, neurocognitive disorders, personality disorders, medication-induced movement disorders and other adverse effects of medication; Students select techniques, change modalities and learn protocols to restore loss of function due to impairment and prevent secondary complications or disability, related to the above mentioned disorders; Students evaluate occupations that contribute to restorative and preventative programmes in terms of above mentioned disorders. Students will identify occupational therapy models (CMOP -E; MOHO, V du Toit MOCA etc.) and theories (Neuro-developmental, sensory modulation, theories of learning and knowledge transfer, theories of change, theories of motivation, theories of goal setting etc.), precautionary and safety measures (structuring the environment, choice of tools, materials, occupations, etc.) in planning intervention programmes.

Assessment Strategies
Continuous assessment 50%
Examination 50%
OSCE’s 25%
1x3 hour written paper 25%
Year 4

Module Title: Research Project

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<td>Semester offered:</td>
<td>1 and 2</td>
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Module Aims:
The aim of the module is to enable able student to develop and apply the knowledge and skills required in identifying and prioritising public health problems and systematically investigating them with the view to finding practical answers. By carrying out a modest research project and producing a report in this module, students are provided the opportunity to consolidate the various research methods, statistical and epidemiological techniques and other public health theoretical lessons they studied in the previous years.

Module Content
Research proposal is written before the fourth year commences. Ethical clearance is obtained in first quarter of first semester, Data collection and analysis: The student focuses on data collection during the first semester of the fourth year as a longitudinal module from primary or secondary sources in Windhoek/Khomas region. According to the proposal the data can be from the clinics, hospital, City Council, Ministry of Health and Social Services or its institutions or from the community in a specified income cluster. The student will apply the skills of research methodology and epidemiology to clean and process the data using a suitable software package. At the end of the semester, the student will make a presentation detailing the results of the field work, summary tables and preliminary findings. Feedback from the student conference assists the student to review the analytical framework and finalise the written report. The conference presentation rating will constitute the continuous assessment for the semester.

Assessment strategies:
100% Continuous Assessment
**Module Title: Applied Occupational Therapy III**

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<td>Compulsory</td>
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<td>Semester offered:</td>
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**Module Aims:**
The aim of this module is equip students with professional reasoning skills necessary to provide patient care in occupational therapy with community and population focus, thus promotion, primary prevention, rehabilitation programmes and response in humanitarian emergencies. Furthermore, students learn to design direct and indirect service delivery to individuals, groups and communities for the attainment of health and development objectives through occupation, aiming to obtain occupational justice (all ages and all intersections).

**Module Content:**
Burden of disease (financial cost, mortality, morbidity, health indicators, quality-adjusted and disability adjusted life, of years), health statistics and their importance; Impact of communicable (HIV, STD, TB, malaria), and non-communicable disease (heart attack, stroke, cancer, diabetes, chronic respiratory diseases, musculoskeletal diseases and injuries form motor vehicle crashes, globally and on Namibia; Linkages between disease and socio-economic status and access to health services; Health and other relevant policies - international and global (health promotion, WHO documents and charters, Health literacy and health behaviour (health campaigns, health workshops, oral presentations and visual presentations). Humanitarian emergencies and disaster responses from an occupational therapy perspective. Students select techniques, change modalities and learn protocols to address burden of disease by using change modalities and occupational therapy models and theories to design health programmes at population level. Students evaluate occupations whether they dignifying, health promoting, meaning and purposeful and that contribute to occupational justice.

**Assessment strategies:**
- Continuous assessment: 50%
- Examination 50%
  - 1x3 hour written paper 25%
  - OSCE 25%
Module Title: Clinical Occupational Therapy III

Code: OTH3880  
NQF level: 8  
Notional hours: 800 hours  
Contact hours: 800 hours of integrated learning for both semesters  
NQF Credits: 80  
Pre-requisite: All 3rd year modules passed  
Compulsory/Electives: Compulsory  
Semester offered: 1 and 2

Module Aims:
This module will enable students to function under supervision in clinical advanced settings as first contact practitioner within the Namibian context. Opportunities will be for the students to develop competencies in professional and ethical practices in secondary and tertiary care settings.

Module Content:
Preparation for service training (logbooks, attendance registers, case study outline, case study requirements, ethical behaviour, professional behaviour, work ethics); Evaluation of service training (explain assessment strategies and evaluation); Supervision of service training (explain supervisor agreement forms, importance of signing agreements, documentation of supervision); Service learning settings (introduction to settings, aims, gateways, arrangements, rules, working hours at facility). Synthesize/consolidate all knowledge and skills acquired in the previous three years. Implement the occupational therapy process (choose relevant assessment tools, theoretical frameworks, intervention protocols, methods, techniques, occupations, environmental adaptations, principles, etc., evaluate progress of client and of intervention and own role, analyse shortcomings and amendments in intervention. Practice client-centred (involve patient in goal setting, cultural sensitive, intersection appropriate, personal preferences and strengths); Practice occupation-based (enable engagement active, passive and vicarious, occupational change modalities, natural occupations and therapist as therapeutic agent); Practice outcome-based (measure and document baseline data and record progress); Practice evidence-based (precise record keeping, formulate PICO questions and search for evidence, review evidence, apply in Namibian setting).

Module assessment:
Continuous assessment 50%  
Examination 50% 1x3 hour written paper

Module Title: Applied Occupational Therapy IV

Code: OTH3802  
NQF level: 8  
Notional hours: 80
**Contact Hours:** 4 hours of integrated learning for one semester

**NQF Credits:** 8

**Pre-requisite:** All 3rd year modules passed

**Compulsory/Electives:** Compulsory

**Semester offered:** 2

**Module Aims:**
This module aims to prepare student for professional practice. It also aims at broadening students perspective by solving clinical problems and organising a journal club.

**Module Content:**
Management (defined, functions, form, Quinn's competing values framework, McKinsey 7-S framework; Developing and evaluating services (Logic model, M&E of health system strengthening (WHO), health services audits; Supervision and mentoring (functions and form, type of supervision, practical tips; Organising journal club (preparing and presenting, reading and critiquing articles, attending presentations and giving constructive feedback; Solving clinical problems and sharpening professional reasoning (case presentations, case discussions, arguing stances in case management).

**Assessment strategies:**
Continuous assessment: 100%
PURPOSE AND RATIONALE OF THE QUALIFICATION

Physiotherapy profession is an important role player within the National Health Service. It provides services to individuals and populations enabling them to develop, maintain and restore maximum movement and functional ability throughout their lifespan. This includes providing services in circumstances where movement and function are threatened by ageing, injury, pain, disease, disorders, other conditions or environmental factors. Functional movement is central to what it means to be healthy.

EXIT PROGRAMME OUTCOMES

The physiotherapist graduating from University of Namibia should embrace the principle of empathy, be person centred and culturally sensitive. He/she should be able to listen, learn and lead in a wide range of clinical settings, locally and globally with emphasis on community settings, within multi sectoral, inter-professional teams. Furthermore, he/she should demonstrate professional competence, skills, knowledge, and be a lifelong learner who practice ethically. He/she should be an effective communicator as well as role model in society.

Upon successful completion of this programme, graduates will be able to:

Patient care competences

1. Establish and maintain a safe working environment as well as be sensitive to the psychological and physiological needs of patients and make appropriate adjustments
2. Independently obtain clinical information from patients and other sources in a safe, logical and organised manner as part of the examination
3. Uses clinical information and evidence to formulate diagnosis or initial hypothesis which is congruent with the pathology, impairment, functional limitation or disability and prioritise selection of tests and measurements
4. Select appropriate assessment techniques and outcome goals and measures/indicators;
5. Request for diagnostic procedures and tests in a cost-effective manner and interpret results
6. Synthesise examination data and results from tests to make clinical diagnosis for physical therapy interventions and list of differential diagnosis as well as make clinical decisions/judgements
7. Find physical therapy solutions of care in collaboration with the patient, family, care giver, and others involved in the delivery of healthcare services
8. Manage independently and effectively patients through prevention, treatment or rehabilitative methods
9. Establish goals and time bound desired functional outcomes
10. Perform interventions/procedures in a safe, effective efficient, logical and coordinated manner
11. Manage pain and provide palliative care to patients and families
12. Diagnose and present clinical decisions based on logic, rationale, evidence and within context of ethical practice
13. Document all aspects of physical therapy care
14. Develop a final rehabilitation plan

**Competences for communication**
1. Communicate effectively verbally and non-verbally with patients, family, caregiver and others involved in the delivery of healthcare services
2. Initiate communication in difficult situations
3. Recognise and be sensitive to cultural diversity, adapt to behaviour and communication accordingly taking into account differences in race/ethnicity, nationality, gender/sex and disability status

**Competences for Accountability and professional development**
1. Evaluate his/her own capability and implement educational programmes in order to, at all times maintain the required level of professional competencies
2. Places patients needs above self-interests and identifies his/her personal limitations
3. Recognises and accepts responsibility for actions and reports mistakes
4. Perform evidence based health/patient care in a professional and ethical manner

**Research and innovation competences**
Perform research in the specialty of Physiotherapy and practice evidence based care

**Competences for leadership and management of healthcare delivery systems**
Apply technical procedures, concepts and principles of management, leadership and medical jurisprudence to administer health care delivery systems.

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**REGULATIONS**

**Criteria for Admission**
In order to be admitted to the programme, candidates must satisfy at least one of the following requirements:
1. 30 points in five subjects on the UNAM scale with a grade B or better in ordinary level English OR 32 points in five subjects on the UNAM scale with a grade C or better in ordinary level English
2. A Score of “2” or better on higher level in Mathematics and Physical Sciences (or 2 in Mathematics and 3 in Physical Science) (or 2 in Physical Science and 3 in
Mathematics) or a grade B or better in ordinary level Mathematics and Physical Sciences

3. Grade B or better in ordinary level Biology/Life Science or a score of 3 or better on higher level Biology/Life Science

(Please refer to the General Information and Regulations Prospectus for the scale used by the University to calculate the UNAM score);

OR

4. Successful completion of the entire first year Science curriculum and must have passed each Chemistry, Biology, Mathematics and Physics module with a final mark of at least 55%.

OR

5. Successful completion of a Science degree from a recognised University with passes in Chemistry, Biology, Mathematics and Physics including at least at first year level

OR

6. Satisfy the following conditions for entry through the Mature Age Entry Scheme:
   a. They should be at least 25 years old on the first day of the academic year in which admission is sought
   b. They should have successfully completed senior secondary education
   c. They should have proof of at least five years Physiotherapy relevant work experience (as determined by the School).
   d. They should pass each paper of the prescribed Mature Age Entry Tests with an overall average of 55%.

Meeting the above student admission criteria DOES NOT necessarily ensure admission. Admission is awarded on merit based on places available on the programme and any other conditions that may be determined from time to time. The Faculty reserves the right to administer special written entry tests and interviews before admission.

DURATION OF STUDY
The minimum duration for full-time study programme extends over a period of four (4) years. The maximum period of full-time study is six (6) years.

EXAMINATION REGULATIONS

Assessment Criteria
Techniques of examination include practical examinations, theoretical papers, viva voce (oral evaluation), and practical papers, file presentations, clinical tests and reports on clinical work. In the professional subjects, practical and clinical works are weighted equally with theoretical work.

All subjects are examined through Continuous Assessment and final examination:

1. Admission to examination: To qualify for examination in a module, the overall Continuous Assessment mark must be at least 45%.

2. The Continuous Assessment marks will constitute 50% of the Final mark and the Exam will be 50% of the Final mark.
3. Pass Requirements: The minimum final pass is 50% for each module with a sub-minimum of 50% in the clinical examination where applicable and sub-minimum of 45% in the theory paper.

4. To qualify for a Supplementary Examination: The minimum final mark must be at least 45% with a sub-minimum of 40% in the clinical examination where applicable.

ACADEMIC ADVANCEMENT RULES

MINIMUM REQUIREMENTS FOR RE-ADMISSION
To be re-admitted to the Physiotherapy program for a particular year of registration, a student must have passed the minimum number of credits required as indicated below:

1. 64 credits by the end of the first year: 32 credits of these credits must be non-core
2. 144 credits by the end of the second year
3. 240 credits by the end of the third year
4. 352 credits by the end of the fourth year
5. 440 credits by the end of the fifth year

ADVANCEMENT AND PROGRESSION RULES
In general a student advances to the following academic level of study when at least 2/3 of the modules of the curriculum for a specific year have been passed. If a student passed only 1/3 of the full curriculum of a specific year, he/she may not register for any modules of the following year. In all cases, prerequisites for modules have to be passed before a student can proceed to register for modules that require prerequisites.

1. From year 1 to year 2: At least 120 credits prescribed for year 1 must be passed.
2. From year 2 to year 3: All first year modules plus at least 120 credits prescribed for year 2 must be passed.
3. From year 3 to year 4: All first, second and third year modules must be passed.

MAXIMUM NUMBER OF MODULES PER YEAR:
No student will be allowed to register for more than the following credits as indicated below

1. Year 1: 152 credits
2. Year 2: 168 credits
3. Year 3: 144 credits
4. Year 4: 128 credits

REQUIREMENTS FOR QUALIFICATION AWARD
This qualification will be awarded to candidates credited with a minimum of 528 credits and who have met all the requirements of the Degree programme, including field/clinical placements and portfolios.
CAREER OPPORTUNITIES
The graduates of this Bachelor of Science Physiotherapy (Honours) may become: Physiotherapists and assessors for disability cases. Public and Private hospitals, Insurance companies, MVA Fund, Workmen’s compensation programmes (Social Security, etc.) are potential employers. Such graduates may also work in nursing homes, industry, rehabilitation centres, local community practice, prisons, education sector, health management or pursue research.

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<th>Module name</th>
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**Summary Table for all Modules in the Programme**
Module Title: English for Academic Purpose

Code: ULEA3519
NQF level: 5
Notional hours: 160
Contact Hours: 4 hours per week for 14 weeks
NQF Credits: 16
Pre-requisite: LCE3419
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Course Description:
This module develops a student’s understanding and competencies regarding academic conventions such as academic reading, writing, listening and oral presentation skills for academic purposes. Students are required to produce a referenced and researched essay written in formal academic style within the context of their university studies. Students are also required to do oral presentations based on their essays. The reading component of the course deals with academic level texts. This involves students in a detailed critical analysis of such texts. The main aim is therefore, to develop academic literacy in English.

Assessment Strategies
Continuous Assessment: 60 %
Examination: 40 % (1 x 3 hours paper).
Module Title: Contemporary Social Issues

Code: CSI3580
NQF level: 5
Notional hours: 80
Contact Hours: 1 hour per week for 2 semesters (offered Online)
NQF Credits: 8
Pre-requisite: none
Compulsory/Electives: Compulsory
Semester offered: 1st year semesters 1 & 2

Assessment strategies: This is a 100% continuous assessment module with a variety of assessments which evaluate and test the students' individual learning and mastering of the course content (subject knowledge) through quizzes, tests, Moodle assignments, journal entries, reflections as well as service and experiential learning projects.

Course Content: The module, Contemporary Social Issues (CSI3580), is designed to encourage behavioral change among UNAM students and inculcate the primacy of moral reasoning in their social relations and their academic lives. In providing students with critical and analytical thinking the module enables students to grow and develop into well rounded citizens, capable of solving contemporary social challenges experienced in their communities and societies. The teaching of the module takes three dimensions: the intellectual, the professional and the personal dimensions. The intellectual dimension is fostered through engaging students with subject knowledge, independent learning and module assessment. The professional dimension, on the other hand, is fostered through exposing students to real life situations of case studies and practical exercises that draws attention to social issues that attract ongoing political, public and media attention and/or debate. Finally, the professional dimension is fostered through group work and online discussions.
Module Title: Computer Literacy

Code: CLC3409
NQF level: 5
Notional hours: 80
Contact Hours: 2 lecture hours
NQF Credits: 8
Pre-requisite: none
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Content:

Assessment: Continuous 100%
Module Title: Anatomy for Allied Health Sciences I

Code: ATM3531
NQF level: 5
Notional hours: 160
Contact hours: 3 + 4p hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
This module aims to provide students with sound systemic anatomical and histological knowledge of the anatomical systems to the extent that they can relate from and function and use this in practice in their further studies in medicine and future work.

Module Content
Introduction to all the major body systems; Introduction to human histology including histology of the basic tissues; Regional anatomy and topographical anatomy, organ development and histology of the systems with dissections and microscopy practical sessions of each system.
Examples of the applications of the anatomical knowledge in clinical cases and clinical examination techniques mastered in skills laboratory.

Assessment Strategies
Continuous Assessment mark: 50%

Examination mark: One 2-hour theory examination paper (50%)
One practical examination paper (50%)

Final mark: 50% of exam mark and 50% of class mark.
Module Title: Medical Physics

Code: PLG3501
NQF level: 5
Notional hours: 80
Contact Hours: 2 hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
The aim of this module is for students to learn core concepts of physics and relating these to their application in medical practice. Students will learn about motion, elasticity, fluids, gases, waves, temperature, electricity, magnetism and electromagnetism, lights, solids, and radioactivity all of which have direct application in studying some disease processes such as cardio-vascular disease in respect with fluid mechanics or diagnostics such as the use of ultrasound and X-ray which are based on radiation and high frequency resonance; or treatment for example in radiation in cancer therapy or use of laser beams. Students will have opportunity to observe some of the equipment in use.

Module content
Topics: Units (standards, SI system, converting units, order of magnitude); Motion (displacement, velocity, acceleration, falling objects); Vectors (representation, adding, subtracting scalar product, vector product); Force (Newton’s 1st on 3rd laws, mass, weight); Equilibrium (statics, equilibrium, elasticity); Fluids (density, specific gravity, pressure, Pascal’s principle, measurement, flow, Bernoulli’s Principle, viscosity, surface tension, pumps); Waves (wave motion, types of waves, energy, amplitude and frequency, reflection and interference, resource, refraction and diffraction); gas laws; Temperature (atomic theory, temperature and thermometers, thermal expansion, thermal stress, diffusion); Electricity (change, field, potential, currents, basic circuits; Magnetism (magnetic fields, electric currents, force, electric charge, ampere and out coulomb, Ampere’s Law, torque); Electromagnetism (electromagnetic induction, transformers, transmission of power, production of electromagnetic waves, light and electromagnetic spectrum); Light (wave versus particles, diffraction, refraction, visible spectrum and dispersion); Molecules and Solids (bounding in molecules, weak bounds); Radioactivity (structure and properties of nucleus, binding energy and nuclear forces, radioactivity, alpha, beta, and gamma decay, half-life and rate of decay, radioactive dating). Application of related concepts of physics such as short wave, radio waves, ultrasonic waves, laser and magnetic resonance in physiotherapy practice and medicine in general.

Assessment Strategies
Continuous Assessment: 50%
Examination: 50% (1 x 3 hours paper)
Module Title: Organic Chemistry

Code: BCM3501
NQF level: 5
Notional hours: 80
Contact Hours: 2 lecture hours + 2 P per week for 16 weeks
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
This module introduces students commencing studies in health sciences to the concepts of general physical and organic chemistry which are foundational for the understanding of biochemical and physiological processes.

Module content
The materials covered in this module are: Periodic table and electronegativity scale, acid base properties of solutions, thermodynamics, nomenclature of hydrocarbons, basic reactions of organic compounds, introductory spectroscopy, preparation of solution, principles of laboratory safety and laboratory procedures.

Assessment Strategies
The continuous assessment (CA): 50%
Examination: 50% Examination (1 x 3 hours written paper + 1½ h practical examination)
Module Title: Systemic Physiology I

Code: PLG3511
NQF level: 5
Notional hours: 160
Contact Hours: 3+4P hours per week for 14 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
The systems physiology module is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The module lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures and debriefing of problem-solving skills.

Module Content
The study of physiology encompasses a number of fields of study from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilisation of energy, signalling and cellular dynamics. Building upon this we will stress the importance of cellular and tissue compartmentation and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance.

Students will familiar them with the components and mechanics of the: Basic Cell Processes, energy and cellular metabolism, membrane dynamics and communication, integration and homeostasis; the cellular and network properties of neurons and how they function within the context of the central and peripheral nervous systems; the muscular skeletal system and the control of body movement; the structure and function of the endocrine system; digestive system; cardiovascular control including blood flow and the control of blood pressure; respiratory mechanics and gas exchange; blood and blood products; renal function and control including fluid and electrolyte balance; exercise and metabolism; reproduction and development.

Assessment Strategies
The Continuous Assessment (CA): 50%
Examination: 50% (1 X 3 hours paper)
Module Title: Physiotherapy Science I

Code: PTY 3502  
NQF level: 5  
Notional hours: 80  
Contact hours: 2 + 2P per week for 16 weeks  
NQF Credits: 8  
Pre-requisite: None  
Compulsory/Electives: Compulsory  
Semester offered: 2  

Module Aims
The module aims to provide students with an introduction surrounding the terminology and basic approaches used in human movement science. Students learn about the basic physiotherapeutic treatment and handling skills including general passive movement skills, massage, posture and movement analysis.

Module Content
The module will provide the student with a sound knowledge of the following topics; 
Kinematics: types of movement; Axis and Planes; Relative position and osteokinematic direction; Kinetics: types of forces, Critical factors and the reaction of forces; Gravity; Application of biomechanical concepts; Force systems; biomechanics of contractile tissue; Non contractile tissue; Shoulder gridle complex; Elbow joint complex; Wrist joint complex and hand (intro); Hip joint complex; Knee joint complex; Ankle joint and foot complex and spinal column.

Module assessment:  
Continuous Assessment: 50%  
Examination: 50% Examination (1 x 3 hours written paper + 1½ h practical examination)

Module Title: General Biochemistry I

Code: BCM3512  
NQF Level: 5  
Notional hours: 160  
Contact Hours: 3 lecture hours + 4P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite: None  
Compulsory/Electives: Compulsory  
Semester offered: 2
Module Aims
This module is the first of two with a focus on cellular organisation, biomolecules and cellular function, cell communication and immune recognition, introductory clinical/medical genetics and bioinformatics. The module will correlate changes in cell division, structure, function, biomolecules and genomes associated with homeostasis or disease state.

Module Content
The module will cover the following topics: Principles of Medical Biochemistry; cell structure and function; cell cycle; basic structure, biochemical properties and function of biomolecules in health and disease; glycoconjugates; complex lipids; eicosanoids and their role in inflammation; importance of lipoproteins in health and disease, definition of enzymes and their roles in cell function, therapeutics, diagnostics and inborn metabolic errors; cell signalling and communication; nucleotides and DNA organisation; DNA replication, transcription and translation; mechanism of mendelian inheritance; mutations and disease; basic principles of chromosomal aberrations and cytogenetics; basic principles of bioinformatics; techniques in DNA isolation, PCR sequencing and microarrays; DNA and protein electrophoresis; point of care diagnostics.

Assessment Strategies
The Continuous Assessment (CA): 50%
Examination: 50% (1 x 3 hours written paper + 1½ h practical examination)
structural emphasis will entail consideration of the political, economic and social cultural elements that foster ill/health, as well as the forces that allows/constrain the health care system and individuals’ responses to illness. The module also focuses on the indirect pathway between sociology and health/disease and emphasises the role that beliefs and behaviours play in health and illness.

Furthermore the module will address the sociological definition of disease, explore major theoretical perspectives in health, behavioural science and sociology, the influence of class, gender and ethnicity on health; global and rural health problems; health promotion and community health services among others. This will enable the students to understand the social determinants of heath, social construction of illness, social meanings of illness, patterns in the distribution of health and illnesses, people health seeking behaviours; interaction between patients and the health provider. The module will also explore medicine as power and social control and the role of alternative medicines.

Students will also examine health-related behaviours and apply many of the theories to specific behaviours, e.g., addictive behaviours and the factors that predict smoking and alcohol consumption as well as Gender Based Violence and HIV. Throughout the module students will focus on the interrelationships between beliefs, behaviour and health using the example of placebo effects; illustration of this interrelationship in the context of illness, focusing on HIV, cancer, obesity and coronary heart disease; aspects of women’s health; the problems with measuring health status and the issues surrounding the measurement of quality of life.

Assessment Strategies
Continuous Assessment: 50%
Final Examination: 50%

Module Title: Anatomy for Physiotherapy II

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Module Aims
This module is designed to provide continued study of histological and anatomical systems. In this semester special attention is paid to the relation of anatomy of these systems to their function and dysfunction in human movement. It has a strong focus on the mechanical properties of bone, ligaments, tendons, cartilage, neural and muscle tissue as these are the fundamental materials or structures of which the musculoskeletal system is composed. There is some revision of gross anatomy and functional musculoskeletal anatomy of the limbs and trunk as appropriate to the topics discussed. In addition to normal function it includes the
mechanisms of and adaptations to injury, disease and rehabilitation. Anatomical aspects of posture and locomotion and their changes through the lifespan are also covered.

**Assessment Strategies**

Continuous Assessment mark:

Examination mark: 1 x 3 hour theory examination paper (50%)

1 x 1 hour practical examination paper (50%)

Final mark: 50% of exam mark and 50% of Class mark.

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**Module Title: Systemic Physiology II**

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**Module Aims**

The systems physiology module is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The module lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures, and debriefing of problem solving skills.

**Module Content**

The study of physiology encompasses a number of fields of study; from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilisation of energy, signalling and cellular dynamics. Building upon this we will stress the importance of cellular and tissue compartmentation and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance. By the end of the module students will also be familiar with the components and mechanics of the:

1. Basic cell processes including cells and tissues, energy and cellular metabolism, membrane dynamics and finally, communication, integration and homeostasis

2. The cellular and network properties of neurons and how they function within the context of the central and peripheral nervous systems

3. The muscular skeletal system and the control of body movement

4. The structure and function of the endocrine system
5. Digestive System
6. Cardiovascular control including blood flow and the control of blood pressure
7. Respiratory mechanics and gas exchange
8. Blood and blood products
9. Renal function and control including fluid and electrolyte balance
10. Exercise and metabolism
11. Reproduction and development

Assessment Strategies
The continuous assessment (CA): 50%
Examination: 50% (1 X 3 hours paper)
Module Title: Physiotherapy Science II

Code: PTY3680
NQF level: 6
Notional hours: 640
Contact Hours: 6 + 8P hours per week for 32 weeks
NQF Credits: 64
Pre-requisite: PTY3502
Compulsory/Electives: Compulsory
Semester offered: 1 and 2

Module Aims
This module aims equip the students with skills of assessment and management of orthopaedics, traumatic orthopaedic conditions in adult and paediatric cases and electrotherapy. This module also aims at equipping students with skills in assessment and treatment of neuro-musculoskeletal (NMS) conditions in particular the lower quarter. Furthermore, this module will teach the students the theory and practical application of proprioceptive neuromuscular facilitation (PNF) to the assessment and treatment of the lower quarter.

Module Content
This module covers the fields of orthopaedics and neuro-musculoskeletal (NMS) physiotherapy with proprioceptive neuromuscular facilitation. Orthopaedics: This component covers the scope of physiotherapy assessment and management of orthopaedic conditions. The focus is on traumatic orthopaedic conditions of the lower quarter involves, amputations and paediatric orthopaedic conditions; use of walking aids. This will focus on the assessment and treatment of simple fractures of the limbs, paediatric orthopaedic conditions and amputations. Neuro-musculoskeletal: This component covers the physiotherapy assessment and treatment of NMS conditions. The focus is on NMS conditions of the lower quarter; functional patterns of the lower limb and trunk. Proprioceptive neuromuscular facilitation: This component covers the theory and practical application of PNF as it applies to the assessment and rehabilitation of patients. Covered to is the theory and practical demonstration of electrotherapeutic and other physical agents in electrotherapy: Low frequency currents; Medium frequency currents; High frequency currents: short wave and micro wave diathermy; Ultrasound; Electro thermotherapy: Infra red; Laser; Cryotherapy.

Assessment Strategies
The Continuous Assessment (CA): 50%
Written Examination and OSCE examination: 50% (1 X 3 hours paper plus OSCE)
Module Title: PSYCHOLOGY

Code: PCT3600
NQF Level: 6
Notional hours: 160
Contact Hours: 2 lecture hours per week for two semesters
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1 and 2

Module Aims
Through this module students will gain knowledge of the theories of psychosexual development normal physical, cognitive and emotional development and their application in states of health and disease. Students will also learn about the approaches to the diagnosis, management and rehabilitation of people with suspected cognitive or psychological or behavioural conditions.

Module Content
This module focuses on applicable developmental theories such as the psychodynamic theory, particularly Freud’s psychosexual theory and Erickson’s psychosocial theory and developmental theories of cognitive development. To be considered here are Piaget’s theory of cognitive development as well as Vygotsky’s theory of cognitive development (sociocultural-historical theory, particularly the notions of the zone of proximal development and scaffolding in cognitive development). The module will examine perinatal/prenatal development, including the period from conception to birth. Environmental influences on prenatal development, hereditary/genetic influences on human development and hereditary/genetic transmission, genetic and chromosomal abnormalities, birth complications, and maternal stress will be explored. How infants sense and perceive the world will be examined. Furthermore, the module will examine the five domains of human development from infancy, adolescence, through adulthood (cognitive development, physical development, emotional development, social development and language development (attainment of normal developmental milestone). Finally, chronic illness in childhood and hospitalisation, as well as child physical, emotional, and sexual abuse will be covered. The development of the concept of death among children will also be discussed.

Assessment Strategies
The Continuous Assessment (CA): 50%
Examination: 50% (1 x 3 hours written paper)

Module Title: Clinical Sciences I

Code: OTH3611
NQF level: 6
Notional hours: 160
Contact Hours: 4+3P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: ATM3531, PLG3511, ATM3532 and PLG3512
Compulsory/Electives: Compulsory
Semester offered: 1

Module Aims
This module aims at equipping students with knowledge on structural changes affecting tissues, organs and systems of the human body due to various processes and insults.

Module Content
This module focuses on systemic discussions of the various pathological lesions resulting from cell injury, acute and chronic inflammation, metabolic disorders, neoplasia and accumulation; non-infective disorders topics: Definition and scope of pathology; Cell damage; Cell death; Connective tissue and damage; The inflammatory response; Chronic inflammation; Body's defences and responses to infection; Healing; Radiation, trauma and temperature; Abnormalities of cell growth; Neoplasia; Circulatory disturbances oedema; Circulatory disturbances, thrombosis and embolism; Circulatory disturbances, ischaemia and infraction; Abnormalities of calcium metabolism; Abnormal pigmentation; laboratory tests in relation to endocrine, metabolic and other pathological changes. Paediatrics: Management of the neonate, Cerebral palsy, Developmental disorders and mental retardation, Congenital and chromosomal abnormalities.

Module Assessment
Continuous Assessment: 50%
Examination pass mark is 50% (1 x 3 hours paper)
Module Title: Clinical Sciences II

Code: OTH3612  
NQF level: 6  
Notional hours: 160  
Contact Hours: 4+3P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite: ATM3531, PLG3511, ATM3532 and PLG3512  
Compulsory/Electives: Compulsory  
Semester offered: 2

Module Aim
This module which is the mainstay and foundation of clinical medical practice is envisaged to introduce the students early on to the professional and technical skills, scientific knowledge and human understanding necessary in the care of the sick, frail, their families and the community and build up on the art of medical practice to near perfection. The module also introduces students to basic clinical procedure through didactic teaching and hands-on practice. A student is also equipped with knowledge and skills for providing emergency first aid resuscitation and support before arranging for secure and safe transfer to health facility.

Module Content
It emphasizes on the establishment of direct, one-to-one caregiver-patient relationships the process of social communication and the performance of physical examination based on competent use of professional skills. Topics covered include infection control, universal precautions, communication skills, general, regional and systemic physical examination of patients; basic clinical skills; first aid. Geriatric Medicine: Gastrointestinal disorders, Lymphoma, Metabolic bone disease, Thyroid, adrenal and pituitary disease, Renal pathology.

Assessment Strategies
Continuous Assessment: 50%
Examination pass mark is 50% (1 x 3 hours paper)

Module Title: Professional Practice

Code: PTY3681  
NQF level: 6  
Notional hours: 120  
Contact Hours: 3 hours per week for 16 weeks  
NQF Credits: 12  
Pre-requisite: None  
Compulsory/Electives: Compulsory  
Semester offered: 1
Module Aims
The aim of this module is assist students to develop a personal philosophy for lifelong practice of medicine and ongoing professional growth. In particular, students will be equipped with skills to examine the four cardinal principles of: respect for autonomy, beneficence, non-maleficence and justice.

Module Content
Medical Ethics and Philosophy: This module is designed to describe the basic principles of professional conduct, ethics and legal practice in health, with particular emphasis on social values, norms and culture of the Namibian society. A student will be able to professionally engage in his/her medical practice, observe professional conduct with regard to patients, their families and professional colleagues, evaluate ethical dilemmas and give professional evidence in a court of law. Topics covered include: basic principles of ethics and philosophy in health; social obligations, values and norms with the emphasis of the Namibian society regarding health; the patient-physiotherapist relationship; common ethical dilemmas: fundamental ethical guidelines, conflicts between beneficence and autonomy, patients who lack making-decision capacity, decision about life-sustaining interventions, conflicts of interest; basic principles of medico-legal practice, review of the health related Namibian legislative code.

Assessment Strategies
Continuous assessment (50%):
End of module examination (50%): 1 x 3 hours paper

Module Title: Clinical Physiotherapy I

<table>
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<tr>
<th>Code:</th>
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<tbody>
<tr>
<td>NQF level:</td>
<td>6</td>
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<tr>
<td>Notional hours:</td>
<td>80</td>
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<tr>
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<td>Total of 80 integrated hours</td>
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<tr>
<td>NQF Credits:</td>
<td>8</td>
</tr>
<tr>
<td>Pre-requisite:</td>
<td>ATM3531, PLG3511, ATM3532 and PLG3512</td>
</tr>
<tr>
<td>Compulsory/Electives:</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester offered:</td>
<td>2</td>
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Module Aims
This module was designed as an introduction to the Clinical Modules of 3rd and 4th year of study. Students are afforded the opportunity to interact with patients in a non-threatening environment as they do not take responsibility for patient management.

Module Content
This introductory module will focus on both the macro level (Namibian context) and micro level (patient level). At the macro level the student will experience the structure and functioning of the Namibian Health Care System as well as the daily routine of a hospital ward. The student will gain limited knowledge of the medico legal aspects within which the physiotherapist practices. There is
opportunity to conduct an interview with a patient, document findings and decide which structures should be assessed

Assessment Strategies:
100% Continuous Assessment consisting of logbook and portfolio

Module Title: Local Language for Health Science Communication

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>NQF level:</td>
<td>6</td>
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<tr>
<td>Notional hours:</td>
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<tr>
<td>Contact Hours:</td>
<td>1 hour per week for 16 weeks</td>
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<tr>
<td>NQF Credits:</td>
<td>4</td>
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<td>Pre-requisite:</td>
<td>None</td>
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<tr>
<td>Compulsory/Electives:</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester offered:</td>
<td>2</td>
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Module Aims
The module is to ensure that students have adequate communications skills in one of the commonly used Namibian in addition to their home language in terms of patient interaction and practise.

Module Content
This module develops a students understanding regarding social norms and confessions in one other population group in Namibia; listening, verbal and non-verbal communication; medical terminology and construct of common symptoms in the relevant language.

Assessment Strategies
100% Continuous Assessment
Year 3

Module Title: Clinical Physiotherapy II

<table>
<thead>
<tr>
<th>Code:</th>
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<tr>
<td>NQF level:</td>
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<tr>
<td>Notional hours:</td>
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<td>Contact hours:</td>
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<tr>
<td>NQF Credits:</td>
<td>40</td>
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<tr>
<td>Pre-requisite:</td>
<td>PTY3602 and PTY3680</td>
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<tr>
<td>Compulsory/Electives:</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester offered:</td>
<td>1 and 2</td>
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</table>

Module Aims
This module aims to develop the knowledge, skill and attitudes to manage patients with simple/uncompounded pathologies effectively, holistically and applicably within the framework of the 5 pillars of healthcare. During clinical physiotherapy III students start to take responsibility for patient management under supervision of lecturers. The aim is to prepare students for independent and teamwork practice within the comprehensive health care system. Third year students are expected to manage uncompounded pathologies.

Module Content
Clinical physiotherapy II builds on I. Here students will have more interaction with patients and should implement the medico legal and professional knowledge learned to practice. Students, under their lecturer supervision, will consult, evaluate and demonstrate the use of specific basic techniques to identify simple/uncompounded pathologies and then should show competency in planning the treatment in assisting patients recovery within the context of the 5 pillars of health care. Work-based learning will bring the opportunity to test and evaluate all components of the students training as to this point and also allow for appropriate necessary experience gathered.

Assessment Strategies:
The Continuous Assessment (CA): 50%
Written Examination and OSCE examination: 50% (1 X 3 hours paper plus OSCE)
Module Title: Applied Physiotherapy I

Module Aim
The goal of this module is to provide students the opportunity to integrate and expand the knowledge, concepts and skills acquired in physiotherapy science with the pathology, social context of a patient and different levels/structures of health care. This integration is a building block in the clinical reasoning process with regard to the evaluation and management of patients. This process allows the students to evaluate, interpret and analyse a client's status and needs (physical, functional and psychological) in order to develop a physiotherapy diagnosis, prognosis and ultimately an outcome based intervention plan.

Module Content
Topics: Immobilisation; Amputation; Lung conditions; evaluation and treatment of gait dysfunction in a CVA patient; discharge planning for an ambulant CVA patient (mainly physiotherapy referral and management; Hamstring Injury; Complete paraplegia and tetraplegia: evaluation (motor and sensory) of a patient with a cervical spinal cord lesion in order to determine a neurological level; the functional level (activity limitations) related to different cervical neurological levels; the physiotherapy management of a patient with a cervical SCI during the sub-acute and early rehabilitation phase; selecting and performing appropriate evaluation techniques (muscle strength, sensation, sitting balance) to determine the neurological level of an SCI lesion; the impact of different neurological levels on function (activity limitation and participation); managing complications following an SCI (medical and physiotherapy management) i.e. for the complications of postural hypotension, circulatory problems, pressure sores, respiratory problems, shortened structures/contractures, spasms, neurogenic pain, autonomic dysreflexia); early physiotherapy management of a patient with a cervical SCI Ankle ligament injury: managing the functional rehabilitation of an ankle ligament injury. Evaluate, identify and manage pelvic fractures, coles fractures, cervical spondylosis, rotator cuff muscles, Shoulder ligament, radial nerve, septic arthritis, pulmonary surgery, coronary artery bypass surgery, burns and tennis elbow (tendon-overuse).

Assessment
The Continuous Assessment (CA): 50%
Written Examination and OSCE examination: 50% (1 X 3 hours paper plus OSCE)
Module Title: Research Methods

Code: PTY3700  
NQF level: 7  
Notional hours: 160  
Contact Hours: 2 per week for 32 weeks  
NQF Credits: 16  
Pre-requisite: None  
Compulsory/Electives: Compulsory  
Semester offered: Semester 1 and 2

Module Aims
This module aims to equip the students with principles, skills and methods to conduct scientific research and analysis required on any matter within the domain of health.

Module Content
This module covers the following topics: Introduction to Quantitative research and Qualitative research, 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 different of studies design.  
Sampling Methods: Non-probability sampling, Probabilistic or random sampling; sample size determination. Study population, Specification study variables, and types of variables. The Data collection methods: Data collection techniques, development of data collection tools and/or questionnaires. Report writing and use of The Harvard referencing system.

Assessment Strategies
100% continuous assessment

Module Title: Pharmacology for Physiotherapy

Code: PTY3701  
NQF level: 7  
Notional hours: 80  
Contact Hours: 2 per week for 16 weeks  
NQF Credits: 8  
Pre-requisite: BCM3501, BCM3512, PTY3502 and PTY3680  
Compulsory/Electives: Compulsory  
Semester offered: Semester 1
**Module Aims**
The module aims to learn students about the fundamentals of therapeutics, pharmacokinetics and pharmacodynamics of the commonly used drugs in their field as well as the mechanisms of action, adverse effects and precautions. Students will also learn about the side effects of drugs, drug interactions and the treatment of side effects to certain pathophysiological conditions relevant to physiotherapy.

**Module Content**
This module will cover the introduction to pharmacodynamics and pharmacokinetics of various pharmacological terminology and drugs in physiotherapy. The students will learn the autonomic nervous system; adrenergic and cholinergic systems. Central nervous system: Parkinsonism; anxiolytics and hypnotics; affective disorders and antidepressants; neuroleptics; epilepsy and anti-convulsants; opioid analgesics. Selected topics and drugs: Pain and inflammation (analgesics, steroids, local anaesthetics); muscle relaxants (orphenadrine etc.); respiratory disorders (bronchodilators, mucolytics); allergy and anaphylaxis; cardiovascular drugs; chemotherapy (antibiotics, antivirals, antifungals, anti-cancer drugs); gastrointestinal tract drugs; pharmacology affecting homeostasis and thrombosis; endocrine pharmacology; reproductive pharmacology; drug abuse; central stimulants/depressants; drug interaction.

**Assessment Strategies**
The Continuous Assessment (CA): 50%
Written Examination: 50% (1 X 3 hours paper)
evidence-based practice in order to understand the management for patients presenting with complex and multi-factorial clinical conditions. Students must have a sound understanding of current government legislation: public health act, health professions act, hospitals and health facilities acts, pharmacy act, mental health act and the implication of this on their practice in the context of multidisciplinary/interdisciplinary team working and holistic care in meeting the needs of individual clients. Theories, concepts and principles of health systems management: organisation of healthcare delivery services, management of human resources, finance and assets, information and logistics management; health care financing.

Assessment Strategies:
Continuous Assessment: 50%
Examination: 50% (1 x 2 hour paper)
Year 4

Module Title: Research Project

**Code:** PTY3810  
**NQF level:** 8  
**Notional hours:** 320  
**Contact Hours:** 4 hours per week  
**NQF Credits:** 32  
**Pre-requisite:** None  
**Compulsory/Electives:** Compulsory  
**Semester offered:** Semester 1 and 2

**Module Aims**  
The aim of the module is to enable able student to develop and apply the knowledge and skills required in identifying and prioritising public health problems and systematically investigating them with the view to finding practical answers. By carrying out a modest research project and producing a report in this module, students are provided the opportunity to consolidate the various research methods, statistical and epidemiological techniques and other public health theoretical lessons they studied in the previous years.

**Module Content**  
Data collection and analysis: The student focuses on data collection during the first semester of the fourth year as a longitudinal module from primary or secondary sources in Windhoek/Khomas region. According to the proposal the data can be from the clinics, hospital, City Council, Ministry of Health and Social Services or its institutions or from the community in a specified income cluster. The student will apply the skills of research methodology and epidemiology to clean and process the data using a suitable software package. At the end of the semester, the student will make a presentation detailing the results of the field work, summary tables and preliminary findings. Feedback from the student conference assists the student to review the analytical framework and finalise the written report. The conference presentation rating will constitute the continuous assessment for the semester.

**Assessment strategies:**  
100% Continuous Assessment

Module Title: Applied Physiotherapy II

**Code:** PTY3830  
**NQF level:** 8  
**Notional hours:** 320  
**Contact Hours:** 7 integrated hours per week for 32 weeks  
**NQF Credits:** 32
Pre-requisite: PTY3790
Compulsory/Electives: Compulsory
Semester offered: Semester 1 and 2

Module Aims
Applied physiotherapy II builds on applied physiotherapy I therefore it enables students to gain knowledge and skills necessary to accurately interpret the findings of an examination/evaluation and appropriately demonstrate proper use of manual therapy techniques, formulate a physiotherapy diagnosis/hypothesis and priorities problems; students also gain experience in selecting physiotherapy interventions as well as motivate the various approaches that can be followed in the management of patients. The module also prepares students to compile specific, measurable, realistic goals coupled with a time interval and defend practice based on current evidence (quality, highest level; best practice, appropriate for patient).

Module Content
Exercise therapy: Common indications for exercise therapy; principles of evaluation procedures and acquire the competency in using proper manual therapy techniques e.g. Maitland and Kaltenborn mobilization techniques; use of exercise therapy in the clinical setting; provide a practice opportunity to revise selected exercise evaluation and treatment techniques for the upper and lower quadrants.

Neuro-developmental therapy: Limitation in the musculoskeletal/system/kinesiological issues of the young baby and child with abnormal movement patterns; the role of the developmental sequence when choosing facilitating techniques; the role of the family in the treatment of a baby/child with neuro-developmental disability; facilitation and adaptation of the following techniques for children with cerebral palsy (hemiplegia, spastic diplegia and spastic quadriplegia); as well as children with low tone (e.g. Down Syndrome).

Traumatic conditions; orthopaedics and burns: The role of physiotherapy in the management of patients with fractures; causes of fractures; medical management of fractures; mobilisation regimes according or type of fixation of a fracture; scientific requirements for x-ray discussion; precautions and contra indications with fractures; adaptation of patient management according to different methods of fixation. Understand and manage burns as its applicable to physiotherapy in general.

Woman/child health and chronic medical conditions as well as neurosurgical, congenital and cardiopulmonary surgery conditions.

Assessment:
Continuous Assessment: 50%
Examination: 50% (1 x 3 hour paper)
Module Title: Clinical Physiotherapy III

Code: PTY3880
NQF level: 8
Notional hours: 640
Contact Hours: Total of 640 integrated hours
NQF Credits: 64
Pre-requisite: PTY3780
Compulsory/Electives: Compulsory
Semester offered: Semester 1 and 2

Module Aims
This module will enable students to function independently as first contact practitioner within the Namibian context. Opportunities for the students to develop competencies in professional and ethical practices in primary, secondary and tertiary care settings.

Module Content:
Role of a physiotherapy as an independent professional and as a member of a wider health team; clinical reasoning model; Application of the WHO International Classification of Functioning; framework; Examination of human movement; biopsychosocial approach to healthcare and evidence based practice; historical and contemporary professional issues; exercise science and therapy; physical activity and health; sports medicine and injury; management of complex medical problems: burns and plastic medicine, cardio-respiratory disease and critical care as well as rehabilitation; palliative care; neuro-rehabilitation and combined approach to spinal rehabilitation; physiotherapeutic management of women’s health through the lifespan and child birth in particular; personal and professional development; managing own learning and reflective learning, use of online resources.

Assessment Strategies:
Continuous Assessment 50%
Clinical practical examination 50%: OSCE
1. Purpose and Rationale of the Qualification

**Introduction**

**Purpose and rationale of the qualification**

**Purpose:**

The program aims to develop professional dentists who are knowledgeable, skilled and ethically positioned to:

- provide evidence-based oral health care (EBOHC);
- promote oral health as an integral part of total health, and, oral healthcare as an integral part of comprehensive healthcare;
- apply the community-based, patient-centered approach to clinical care within the dental team (which includes hygienists, dental assistants, and dental technicians);
- direct the dental team as team leader and manager to promote efficient and cost-effective service provision by all team members;
- apply appropriate knowledge, skills and abilities, and behaviors to practise safely and efficiently;
- practise concept of prevention and primary care in dentistry;
- provide oral health care to various populations and communities (including marginalized communities);
- adopt a reflective practitioner approach committed to the active pursuit of life-long learning.

The degree program is organized into competence areas that include knowledge and skills on general medicine, oral biology, dental materials, concepts on society and its management; good diagnostic, practical and interaction skills; clinical and research data gathering concepts, interpretation and critique as well as general concepts on humanity. The competences reflect the seven domains that are described by Association for Dental Education in Europe (ADEE). These have been identified to represent the broad categories of professional activity and concerns that occur in the general practice of dentistry.

1. Professionalism
2. Interpersonal, Communication and Social Skills
3. Knowledge Base, Information and Information literacy
4. Clinical Information Gathering
5. Diagnosis and Treatment Planning
6. Therapy: Establishing and Maintaining Oral Health
7. Prevention and Health Promotion

**Rationale**

The graduates of the BChD programme will increase access and equity to Oral health and dental surgery services to all Namibians particularly the rural populations where such services are limited and/or poorly resourced. Thus moving towards fulfilling the 2030 Vision of comprehensive health care provided by the Namibian people.
EXIT PROGRAMME OUTCOMES

On completion of the Bachelor of Dental Surgery (BChD) programme students are able to:

Knowledge and understanding:

- Understand the scientific basis of dentistry, including relevant biomedical sciences, mechanisms of knowledge acquisition, scientific methods and evaluation of evidence.
- Analyse critically the disease processes of infections, inflammation, disorders of the immune system, degeneration, neoplasia, metabolic disturbances and genetic disorders.
- Obtain an understanding of the organisation and provision of dental health care in the community and in hospital.
- Demonstrate an understanding of the broader issues of dental practise, including ethics, medico-legal considerations, management, and the maintenance of a safe working environment.

Professional skills:

- Respect patients and colleagues that encompasses without prejudice, diversity of background, language and culture.
- Show respect to the community and sensitive to issues of the community.
- Demonstrate an understanding of patients’ rights, particularly with regard to confidentiality and informed consent, and of patients’ obligations.
- Act with integrity, honesty and trustworthiness.
- Understand that dentists should strive to provide the highest possible quality of health and patient care at all times.
- Manage own learning in the context of continuing professional development in order to ensure a high levels of clinical competence and knowledge are maintained.
- Apply leadership and teamwork skills with colleagues and other oral health personnel in the delivery of oral health care.
- Manage a dental practise effectively and efficiently.
- Practise dentistry in a professional manner with consideration of ethical and legal responsibilities involved in the provision of care to individual patients and to communities.

Practical skills:

- Obtain and record a comprehensive history, perform an appropriate physical examination, interpret the findings and organise appropriate further investigations.
- Apply medical and clinical sciences to ensure appropriate diagnosis and treatment of patients.
- Apply evidence-based treatment when giving care.
- Undertake a range of clinical procedures within a dentist’s area of competence to carry out specific treatment interventions, including techniques required to prevent, restore or maintain patient’s oral health.
• Acquire, analyse, process and communicate information in a scientific manner to solve problems and to guide clinical decision-making.
• Provide counselling for clients in situations where ethical issues arise and participate in discussions of ethical issues in health care, as they affect health professions and communities.
• Communicate effectively with patients, their families and associates, and with their other health professionals involved in their care.
• Share with patients provisional assessment of their problems and formulate plans for their further investigation and management.

Transferable/generic skills:

• Exercise initiative skills and personal responsibility.
• Apply critical thinking and problem solving while providing the oral health care of patients.
• Make decisions based on sound ethical, moral and scientific principles.
• Use information technology as a means of communication, collecting and analysing data, and for self-directed learning.
• Communicate effectively at all levels in both the scientific and professional contexts using verbal, non-verbal and written means.
• Work effectively as a member of a team.
• Manage time, set priorities and work to prescribed time limits.

National health policy related skills:

• Assess, prevent and mitigate the impact of environmental hazards on dental health.
• Demonstrate appropriate communication skills with patients, their families, colleagues and other health care professionals for effective delivery and promotion of oral health.
• Evaluate the evidence published in refereed scientific journals and other publications for sound experimental design and statistical analysis. Incorporate and balance cost and quality in the decision-making processes.
• Assess and implement preventive approach to all oral health care activities, both on individual and population level.

CRITERIA FOR ADMISSION

Admission Criteria
Admission to the School of Dentistry for the BChD is based on the applicant’s academic standing (see admission requirements below), essay writing skills, letters of recommendation, and a successful interview. All admissions are made collectively by the Committee on Admissions and must be approved by the Faculty Board on recommendation from the Board of the School of Medicine.

Admission Requirements
(i) To admission for the BChD, a candidate must hold a valid NSSC (Namibian Senior Secondary Certificate) or any other equivalent qualification with at least 35 points on the UNAM scale with a grade 2 or better on higher level or a grade B or better on ordinary level for Mathematics and Physical Sciences, and a grade B or better on
ordinary level for Biology and English (please refer to the scale used by the University to calculate the UNAM score);

OR

(ii) To admission for the BChD, a candidate must have successfully completed the entire first year of the BSc curriculum with at least a score of 60% in each of the Mathematics, Biology, Chemistry and Physics modules;

OR

(iii) To admission for the BChD, a candidate must have successfully completed a relevant degree program in Health Science.

(iv) Mature Entry: Candidates aspiring for admission to the BChD through the Mature Age Entry Scheme must satisfy the following conditions:

   a. They should be at least 25 years old on the first day of the academic year in which admission is sought
   b. They should have successfully completed senior secondary education
   c. They should have proof of at least five years related work experience
   d. They should pass the prescribed Mature Age Entry Test
   e. Candidates, who, in the opinion of the Faculty, merit further consideration, may be called for an oral interview before the final selection is made.

Essay Writing
An applicant shall be required to submit an essay on a topic or topics so determined by the Committee on Admissions of the School of Medicine. The main objective of an essay so demanded of an applicant, besides evaluating one’s writing skills and ability of formulating thoughts, is to gauge the candidate’s potential as a health service provider to support the sick and disabled. During essay writing all applicants are required to also complete the School of Medicine Health Questionnaire.

Letters of Recommendation
An applicant seeking admission to the School of Medicine shall submit three (3) letters of recommendation from his/her teachers, professors and/or employer(s). A special form is available for this purpose, and all recommendations submitted shall strictly follow the guidelines so provided in the form. It is the responsibility of the applicant to avail the form to his/her teachers/professors or employers and ensure that all recommendations are submitted on time.

Interviews
Eligible applicants shall normally be invited for interviews to be conducted by the Committee on Admissions. Special interviews including the use of video conferencing may be considered for students outside Namibia. All interviews shall be conducted in order to assess the following attributes of the candidates:

   i. Academic standing: An interview shall seek to determine the candidate’s academic competitiveness plus communication skills;

1 "relevant" means any degree requiring the same Grade 12 subjects as the BChD, i.e. Mathematics Higher level, Physical Science Higher level, Biology Ordinary level and English Ordinary level.
ii. **Extra-curricular activity:** An interview shall also look into the candidate's records on extra-curricular activities and, if applicable, in job performances. Extra-curricular engagements in civic and community works shall be examined. Direct patient-care experience can be helpful but not essential.

iii. **General awareness and sense of values:** A candidate's awareness of the community he/she lives in and the sense of values, sensitivities, and concerns he/she might have on social and cultural issues shall be assessed.

iv. **General physical/mental condition of the aspiring student:** The evaluation of candidate's overall physical and mental status will be made without conducting a formal medical examination.

**DURATION OF STUDY**
The minimum duration for the Bachelor of Dental Surgery (BChD) is five (5) years. Candidates must complete the BChD programme within seven (7) years of full-time study.

**ASSESSMENT CRITERIA**
A student will be eligible to write the final examination in each module if they have obtained a Continuous Assessment Mark of at least 50%. The regular UNAM requirement (40%) will apply to the UNAM core modules.

Unless otherwise indicated in the module descriptor, the Continuous Assessment Mark (CA mark) will count 50% towards the final mark while the examination mark will contribute 50%.

A student will pass a module when he/she has obtained a final mark of at least 50%.

A student may qualify for a supplementary examination in a module if he/she obtained a final mark of 45%-49%. A student who qualifies for a supplementary examination in a clinical module, should undergo a remedial clinical training period of minimum four weeks per module before the supplementary examination.

From the 2nd year dental subject modules will be given in block with exams at the end of each block.

Four separate competence tests will be arranged from third year onwards where students are tested to have acquired adequate competence to treat patients. A student must pass competence tests to prove that he/she has adequate knowledge and clinical skills to perform selected oral health procedures before being allowed to start treating patients with such oral health problems.

Additionally, two integrated examinations will be arranged during the last two years of studies to supplement module exams. In integrated exams students prove to have the ability to combine the knowledge obtained from different dental disciplines and is able to form comprehensive diagnosis and treatment plan.

For detailed examination and promotion rules see the General Information and Regulations Prospectus.

**MINIMUM REQUIREMENTS FOR RE-ADMISSION INTO THE PROGRAMME**
A student will not be re-admitted into the programme if she/he has not earned:

1. At least 84 credits by the end of the first year of registration
2. At least 166 credits by the end of the second year of registration
3. At least 256 credits by the end of the third year of registration and required competence tests
4. At least 361 credits by the end of the fourth year of registration and required competence tests
5. At least 528 credits by the end of the fifth year of registration and required competence tests
6. At least 696 credits by the end of the sixth year of registration and required competence tests

In addition to the above regulations, a student will only be allowed to repeat a particular module twice – failure to clear any module after the third registration of the particular module, will result in termination of studies.

ACADEMIC ADVANCEMENT AND PROGRESSION RULES

First Year to Second Year of Dentistry

A student who has passed at least 112 credits of the first year, will proceed to second year of study. A student who has passed at least 84 but less than 112 credits will be allowed to register for a maximum of 56 second year credits, provided that all pre-requisites are met and the maximum number of credits is not exceeded.

Second Year to Third Year of Dentistry

A student who has passed all first year modules and at least 108 credits of the second year, will be allowed to register third year modules, provided that all pre-requisites are met and the maximum number of credits is not exceeded. The student has to pass third year competence tests before being allowed to start third year clinical service provision.

Third Year to Fourth Year of Dentistry

A student who has passed all first and second year modules and at least 110 credits of the third year, will be allowed to register for non-rotation modules, provided that all pre-requisites are met and the maximum number of credits is not exceeded. The student has to pass fourth year Competence tests before being allowed to start fourth year clinical service provision.
Fourth Year to Fifth Year of Dentistry

A student must pass all the fourth year modules in order to advance to the final year.

Students repeating a year

A student who is repeating a year may be allowed to take non-conflicting modules from
the next academic year, subject to the above requirements and the section 20.

MAXIMUM NUMBER OF CREDITS PER YEAR
Year 1: 168 credits
Years 2-5: A student will be allowed to register for a maximum of 32
credits more than the total credits of the particular curriculum year.

REQUIREMENTS FOR QUALIFICATION AWARD
A student can graduate with the BChD upon completion of the prescribed number of
credits (811) in the curriculum. Following graduation, graduates will be required to
successfully proceed into a possible internship in Namibia as per national requirements
at the time of graduation.

CAREER OPPORTUNITIES
BChD holders enjoy a wide spectrum of career opportunities nationally and
internationally. As a dental practitioner, the graduate may be employed in the public
sector usually at the state run hospital or be employed as a General Practitioner in the
private sector. Once registered, the dental practitioner has also the option of being self-
employed in his/her own dental clinic.
Part B: STRUCTURE OF THE DEGREE

Bachelor of Oral Health and Dental Surgery

CURRICULUM STRUCTURE

Breakdown by year of study:

YEAR 1
The first year introduces the students to study skills, before embarking on the biomedical sciences at University level. This will include all the relevant basics for a foundation in applied sciences as applicable to dentistry. Therefore, the first year includes a mix of University taught modules that orientate the student to studies at tertiary level, biomedical sciences such as biochemistry, physiology and anatomy that build on knowledge acquired in secondary level education, and an introduction to dentistry through tailored modules. This will furnish the student with a good foundation for entry into the second year.

YEAR 2
The second year bridges the biomedical sciences taught in the first year with areas of general health and with specific relevance to dentistry. For example, anatomy, physiology and biochemistry lead into pharmacology, whereas the general introduction to dentistry leads into clinical, public health, and professional aspects of the profession. A number of pre-clinical modules are taught during the course of the year. At the end of the academic year exposure to clinical work starts through observation.

YEAR 3
In the third year the modules will transit from biomedical sciences introducing and preparing the student to clinical practise. Several preclinical modules will be undertaken such as clinical periodontology and dental prosthetics. The student will be introduced to the clinical setting in a number of areas of practise. The third year involves and precedes a number of practise rotations (field attachments) in the rural and community settings, giving also exposure to the varying needs of preventive and health promotion actions in the country. The third year includes increased exposure to clinical work, also through self-performed clinical procedures.

YEAR 4
In the fourth year, emphasis on clinical training is strengthened and aligned with the elective attachments. Students may also undertake a field attachment of their choice in an area of interest or relevance. Students are given exposure to a number of sub-specialties including clinical treatment of relevant and suitable patient cases. Students perform also comprehensive treatment planning and provide both curative and preventive services according to the comprehensive plans, as directed by The National Oral Health Policy.

YEAR 5
A final year of preparation for practise has strong emphasis on strengthening the student's ability to observe and determine community level oral health problems and to plan and implement oral health services and health promotion activities on individual and community levels. The final years of study also give the students the opportunity to develop research skills by undertaking a research project. Alongside this, taught modules continue to give students exposure to clinical and specialty areas.
The curriculum of the BChD is made up of the following components:

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Code</th>
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**SEMESTER CREDITS** 84

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**SEMESTER CREDITS** 72

### PRACTICUM I

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*Note: SEMESTER CREDITS may vary depending on the institution's specific requirements. Total hours may differ as indicated in the table.
### YEAR 4

#### SEMESTER I

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#### SEMESTER CREDITS 85

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#### SEMESTER CREDITS 84

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Hours are on-call. The actual work load will depend on patient cases that will need attention and treatment during these on-call hours.

** The actual work load will depend on the elective studies the student and the instructor determine.

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* Hours are on-call. The actual work load will depend on patient cases that will need attention and treatment during these on-call hours.

** The actual work load will depend on the elective studies the student and the instructor determine.
Module Title: English for Academic Purpose

Code: ULEA3519
NQF level: 5
Notional hours: 160
Contact Hours: 4 hours per week for 14 weeks
NQF Credits: 16
Pre-requisite: LCE3419
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Course Description:
This module develops a student's understanding and competencies regarding academic conventions such as academic reading, writing, listening and oral presentation skills for academic purposes. Students are required to produce a referenced and researched essay written in formal academic style within the context of their university studies. Students are also required to do oral presentations based on their essays. The reading component of the course deals with academic level texts. This involves students in a detailed critical analysis of such texts. The main aim is therefore, to develop academic literacy in English.

Assessment Strategies
Continuous Assessment: 60 %
Examination: 40 % (1 x 3 hours paper).
Module Title: Contemporary Social Issues

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</table>

**Assessment strategies:** This is a 100% continuous assessment module with a variety of assessments which evaluate and test the students' individual learning and mastering of the course content (subject knowledge) through quizzes, tests, Moodle assignments, journal entries, reflections as well as service and experiential learning projects.

**Course Content:** The module, *Contemporary Social Issues (CSI3580)*, is designed to encourage behavioral change among UNAM students and inculcate the primacy of moral reasoning in their social relations and their academic lives. In providing students with critical and analytical thinking the module enables students to grow and develop into well rounded citizens, capable of solving contemporary social challenges experienced in their communities and societies. The teaching of the module takes three dimensions: the intellectual, the professional and the personal dimensions. The intellectual dimension is fostered through engaging students with subject knowledge, independent learning and module assessment. The professional dimension, on the other hand, is fostered through exposing students to real life situations of case studies and practical exercises that draws attention to social issues that attract ongoing political, public and media attention and/or debate. Finally, the professional dimension is fostered through group work and online discussions.
**Module Title: Computer Literacy**

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<td>NQF level:</td>
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</tr>
<tr>
<td>Semester offered:</td>
<td>1st year semester 1</td>
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**Module Content:**

**Understanding computer systems and technology:** The problem-solving approach. Structure and components of a modern computer - processor, memory, hard drives, disk drives, interfaces. The Windows environment.

**Principles of information processing:** word-processing, spreadsheets, presentations, databases, nature and use of software. **Practical exercises:** Use of MS Word, Excel, PowerPoint. Communication using email. Overview of Internet.

**Assessment:** Continuous 100%
Module Title: Embryology and Introduction to Anatomy

Code: ATM3511

NQF level: 5

Notional hours: 160

Contact Hours: 3 +4P hours per week for 16 weeks

NQF Credits: 16

Pre-requisite: None

Compulsory/Electives: Compulsory

Semester offered: 1st year semester 1

Module Aims
This module aims to provide a background to master certain principles of cell biology, histology, human embryology and introduction to anatomy. This module will establish the foundation for systems Anatomy.

Module Content
The module provides building blocks to master the following topics i) man’s place in the environment. ii) basic embryological concepts. iii) histological structure and function of the primary tissues in the body. iv) terminology and definitions in anatomy. The module includes an introduction to microscopy and methods in histology. Introduction to all the systems of the body with demonstrations in the dissection hall.

The module consists of four entities:

1) Introduction to anatomy including topics: Organismic kingdom, evolution, humans and their environment, history of anatomy, anatomical concept and terms. Introduction to all eleven body systems (neurology-, cardiovascular-, respiratory-, digestive- and urogenital systems etc).

2) Cell biology, consisting of structure and function of cells and cell organelles and biological communication.

3) Embryology, consisting of principles in basic anatomy and physiology of reproduction, fertilization, implantation, the placenta, and development of the embryo till trilaminar disc stage.

4) Introduction to human histology including histology of the basic tissues, namely epithelial tissue, connective tissues, muscle tissue and nervous tissue, and introduction to hematology and immunology.

Assessment Strategies
Continuous assessment mark: 60%

Examination mark: One 3-hour examination paper.

Final mark: 40% of exam mark and 60% of Continuous assessment mark.
Module Title: English for Academic Purpose

Code: LEA3519
NQF level: 5
Notional hours: 160
Contact Hours: 4 hours per week for 14 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Aims
This module develops a student's understanding and competencies regarding academic conventions such as academic reading, writing, listening and oral presentation skills for academic purposes. Students are required to produce a referenced and researched essay written in formal academic style within the context of their university studies. Students are also required to do oral presentations based on their essays. The reading component of the course deals with academic level texts. This involves students in a detailed critical analysis of such texts. The main aim is therefore, to develop academic literacy in English.

Assessment Strategies
Continuous Assessment: 60 %
Examination: 40 % (1 x 3 hours paper).
Module Title: Medical Physics

Code: PLG 3501
NQF level: 5
Notional Hours: 80
Contact Hours: 2 hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Aims
This module aims to equip the students with the concepts and principles of physics that have direct relevance in the learning and practice of dentistry.

Module Content
In the context of dental application, the following topics will be covered: Units (standards, SI system, converting units, order of magnitude); Motion (displacement, velocity, acceleration, falling objects); Vectors (representation, adding, subtracting scalar product, vector product); Force (Newton’s 1st on 3rd laws, mass, weight); Equilibrium (statics, equilibrium, elasticity); Fluids (density, specific gravity, pressure, Pascal’s principle, measurement, flow, Bernoulli’s Principle, viscosity, surface tension, pumps); Waves (wave motion, types of waves, energy, amplitude and frequency, reflection and interference, resource, refraction and diffraction); Temperature (atomic theory, temperature and thermometers, thermal expansion, thermal stress, diffusion); Electricity (change, field, potential, currents, basic circuits; Magnetism (magnetic fields, electric currents, force, electric charge, ampere and out coulomb, Ampere’s Law, torque); Electromagnetism (electromagnetic induction, transformers, transmission of power, production of electromagnetic waves, light and electromagnetic spectrum); Light (wave versus particles, diffraction, refraction, visible spectrum and dispersion); Molecules and Solids (binding in molecules, weak bounds); Radioactivity (structure and properties of nucleus, binding energy and nuclear forces, radioactivity, alpha, beta, and gamma decay, half-life and rate of decay, radioactive dating).

Assessment strategies
Continuous assessment: 60%
Final Examination: 40%
Module Title: Organic Chemistry

Code: BCM3501
NQF level: 5
Notional hours: 80
Contact Hours: 2+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Aims
This module introduces students commencing studies in health sciences to the concepts of general, physical and organic chemistry which are foundational for the understanding of biochemical and physiological processes.

Module Content
The materials covered in this module are: Periodic table and electronegativity scale, acid base properties of solutions, thermodynamics, nomenclature of hydrocarbons, basic reactions of organic compounds, introductory spectroscopy, preparation of solution, principles of laboratory safety and laboratory procedures.

Assessment Strategies
The continuous assessment (CA): 40%
Examination: 60% Examination (1 x 3 hours written paper + 1½ h practical examination)
Module Title: Systemic Physiology I

Code: PLG3511
NQF level: 5
Notional hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1

Module Aims
The Systems Physiology Course is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The course lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures, and debriefing of problem-solving skills.

Module Content
The study of physiology encompasses a number of fields of study; from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilization of energy, signaling and cellular dynamics. Building upon this we will stress the importance of cellular and tissue compartmentation, and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance. By the end of the course students will also be familiar with the components and mechanics of the:

1. Basic Cell Processes including cells and tissues, energy and cellular metabolism, membrane dynamics and finally, communication, integration, and homeostasis.
2. The cellular and network properties of neurons and how they function within the context of the central and peripheral nervous systems.
3. The Muscular Skeletal system in principle and that of head and neck in detail and the control of body movement.
   The principles of the structure and function of following:
4. Endocrine system
5. Digestive System
6. Cardiovascular control including blood flow and the control of blood pressure
7. Respiratory mechanics and gas exchange
8. Blood and blood products
9. Renal function and control including fluid and electrolyte balance
10. Exercise and metabolism
11. Reproduction and development

Assessment Strategies
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 2 hours paper)
Module Title: Introduction to Dentistry and Ethics

Code: PHP3580
NQF level: 5
Notional hours: 80
Contact Hours: 1 hour per week for 32 weeks
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 1 and semester 2

Module Aims
This module introduces students commencing studies in oral health sciences to the principles of dentistry. Different dental specialty areas will be introduced. The principles of medical ethics and their application to dental treatment will be given. This will give the students a background to deal with ethical questions that will be encountered and studied in connection to different clinical disciplines.

Module Content
The module will cover definitions of dentistry overall, different specialty areas in it and descriptions of studies when becoming oral health care professionals. Motivation to dental studies by giving an overview and understanding of the whole variety of disciplines and clinical practice in dentistry. Working environments and principles of provision of oral health care services both in public and private sector. The aims of National Guidelines on Oral Health Service Delivery and actions needed to implement it. Professional conduct and ethics of health care.

Assessment Strategies
100% continuous assessment
Module Title: General Biochemistry I

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<td>Compulsory/Electives:</td>
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<td>Semester offered:</td>
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**Module Aims**

This module has focus on cellular organization, biomolecules and cellular function, cell communication and immune recognition, introductory clinical/medical/dental genetics and bioinformatics. The module will correlate changes in cell division, structure, function, biomolecules and genomes associated with homeostasis or disease state.

**Module Content**

The module will cover the following topics: Principles of Medical Biochemistry; cell structure and function; cell cycle; basic structure, biochemical properties and function of biomolecules in health and disease; glycoconjugates; complex lipids; eicosanoids and their role in inflammation; importance of lipoproteins in health and disease; definition of enzymes and their roles in cell function, therapeutics, diagnostics and inborn metabolic errors; cell signaling and communication; nucleotides and DNA organization; DNA replication, transcription and translation; mechanism of mendelian inheritance; mutations and disease; basic principles of chromosomal aberrations and cytogenetics; basic principles of bioinformatics; techniques in DNA isolation, PCR, sequencing and microarrays; DNA and protein electrophoresis; point of care diagnostics.

**Assessment Strategies**

The continuous assessment (CA): 40%
Examination: 60% (1 x 3 hours written paper + 1½ h practical examination)
Module Title: Sociology of Health and Disease

Code: PCS3512
NQF Level: 5
Notional hours: 160
Contact Hours: 3+4P hour per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 2

Module Aims:
The module aims at equipping students with knowledge and skills necessary to practise in different social-cultural settings. Students will learn about the indirect pathways between sociology and health/disease with emphasis on the role of that beliefs and behaviors play in health and illness. The goal of the module is to acquaint students with the sociological construct of health, illness and disease which takes into account the structural and social factors not necessarily relying on biological and medical explanations of health and disease. The structural discourse will analyse political, economic, and sociocultural elements that foster ill/health as well as the forces that allow or constrain the healthcare system and individual’s responses to illness.

Module Content:
Sociological understanding of health, illness and disease considers the structural and social factors and not largely relies on biological medical explanations of health and disease. The structural emphasis will entail consideration of the political, economic and social cultural elements that foster ill/ health, as well as the forces that allow/ constrain the health care system and individuals’ responses to illness. The module also focuses on the indirect pathway between sociology and health/disease, and emphasizes the role that beliefs and behaviors play in health and illness.

Furthermore, the module will address the sociological definition of disease, explore major theoretical perspectives in health, behavioral science, and sociology, the influence of class, gender and ethnicity on health; global and rural health problems; health promotion and community health services among others. This will enable the students to understand the social determinants of heath, social construction of illness, social meanings of illness, patterns in the distribution of health and illnesses, people health seeking behaviors; interaction between patients and the health provider. The course will also explore medicine as power and social control and the role of alternative medicines.

Students will also examine health-related behaviors and apply theories to specific behaviors, e.g. addictive behaviors and the factors that predict smoking and alcohol consumption as well as dietary and oral health habits that lead to deterioration of oral health.

Assessment Strategies
Continuous Assessment: 60%
Final Examination: 40%
Module Title: Statistics for Health Sciences

Code: RID3512
NQF Level: 5
Notional hours: 160
Contact Hours: 2+2P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 2

Module Aims:
This module aims at teaching the students how to gather and analyze data that can be used to provide honest information about unanswered biomedical questions and health status of populations. The module will aim at equipping the students with technical skills in applied statistics that is concerned with the application of statistical methods to medicine, clinical trials, demography, population estimation, modeling, community diagnosis, surveys and survival analysis.

Module Content
Describing Univariate Data: Central Tendency, Spread, shape and graphs. Describing Bivariate Data: Scatterplots, Introduction to Pearson’s Correlation, Computational formula for Pearson’s Correlation, Example values of r, Effect of linear transformations on Pearson’s Correlation, Spearman’s rho. Introduction to Probability (elementary): Simple probability, Conditional probability, Probability of A and B, Probability of A or B, Binomial distribution. Normal Distribution: What is it? The standard normal distribution: Why is it important? Converting to percentiles and back, Area under portions of the curve, Sampling Distributions. Sampling Distributions: Sampling distribution of the mean, Standard error, Central limit theorem, Area under sampling distribution of the mean, 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, Why the null hypothesis is not accepted, The precise meaning of the p value, At what level is H0 really rejected? 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, Tests of Pearson’s correlation, Differences between correlations, Proportions, Differences between proportions. Chi square: Testing differences between p and π, More than two categories, Chi square test of independence (Introduction, Calculations, Assumptions), Reporting results. Power: Factors affecting power; Size of difference between means, Significance level, Sample size, Variance. Other factors, Estimating power. Measuring effects: Variance explained in ANOVA, Variance explained in correlation, Variance explained in contingency tables.

Assessment Strategies
The continuous assessment (CA): 40%
Examination: 60% (1 x 3 hours written paper)
Module Title: Systemic Anatomy of Head and Neck

Code: ATM3512
NQF level: 5
Notional hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Co-requisite: ATM3511
Compulsory/Electives: Compulsory
Semester offered: 1st year semester 2

Module Aims
This module aims to provide students with detailed knowledge of the anatomy and histology of the head and neck necessary for future practice in dentistry.

Module Content
Regional anatomy and topographical anatomy; organ development and histology of head, neck and brain; nervous system; mucous membranes; skin and musculo-skeletal system; dissections, microscopy and practical sessions. Clinical applications of the anatomical knowledge and clinical cases and clinical examination techniques will be covered.

Assessment Strategies
Continuous assessment mark: 50%

Examination mark: One 3-hour theory examination paper (60%)
One 1.5 hour practical examination paper (40%)

Final mark: 50% of exam mark and 50% of Class mark.
Module Title: Systemic Physiology II

Module Aims
The Physiology course is a two semester module designed to provide an understanding how cells, tissues, organs, and organ systems function together to create one human organism. The course lays the basis for understanding diagnosis and treatment of diseases. Laboratories include presentations of clinical cases, practicing of clinical procedures, and debriefing of problem-solving skills.

Module Content
The study of physiology encompasses a number of fields of study; from molecules to ecosystems. Here we begin with an investigation of basic cell processes. The students will be expected to understand how molecular interactions are integral to the generation, storage and utilization of energy, signalling and cellular dynamics. Building upon this we will stress the importance of cellular and tissue compartmentation, and how information flows within a cellular and mass context. The integration of these systems and how they may impact homeostasis is also of critical importance. By the end of the course students will also be familiar with the components and mechanics of the:

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3. The Muscular Skeletal system in principle and that of head and neck in detail and the control of body movement.

The principles of the structure and function of following:
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5. Digestive System
6. Cardiovascular control including blood flow and the control of blood pressure
7. Respiratory mechanics and gas exchange
8. Blood and blood products
9. Renal function and control including fluid and electrolyte balance
10. Exercise and metabolism
11. Reproduction and development

Assessment Strategies
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 2 hours paper)
Module Title: Dental Morphology and Occlusion

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<td>NQF level</td>
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<td>Semester offered</td>
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**Module Aims**
This module introduces students commencing studies in oral health sciences to the concepts of normal morphology of the dentition, and how they are structured to form an occlusion. These all form the basis for studying the pathophysiology of occlusion.

**Module content**
The materials covered in this module are: Morphology of teeth. How teeth are in connection with each other and how they form a dentition. Movements of the lower jaw and how temporomandibular joint functions in jaw movements. Occlusal relationships of teeth in jaw movements. Masticatory muscle forces. Introduction to physiology of occlusion.

**Assessment strategies**
Continuous assessment of student participation 50%
Practical assignments and reports 50%
Module Title: Community Based Education and Service (COBES)

Code: PHP3601

NQF Level: 6
Notional hours: 80
Contact Hours: 4 hours of integrated learning and family attachment for 16 weeks

NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 1

Module Aims
The aims of this module are to prepare the student to practise in different socio-economic cultural and technological settings in Namibia, the region or internationally. This module integrates core principles of community medicine and family medicine, including oral health and helps the student to gain knowledge and skills essential for evidence based delivery of a continuum healthcare services to an individual patient, family, community or population groups. The module also assists students to internalize the ethical values particularly the tenets of human dignity, social justice, equity and right based healthcare services. The module gives opportunities for the students to address the root causes of health conditions to improve the well-being of the family. The experience gained will help the students to identify resources in the household and leverage this for health in support of health promotion, prevention, control, treatment and rehabilitation. The module also allows students to learn how through the application of principles and practice of Community Based Education leads to transforming of individuals, families and communities into well-informed, self-reliant and empowered society. Dental students will carry out their field exercise together with medical students, but the focus of the dental COBES will be in oral health care issues.

Module Content
The construct of a family; urban household set up; socio-economic and cultural determinants of health at household setting i.e. the basic unit of society; health seeking behavior, access and demand factors as well as culturally mandated disposal of household income and allocation to health; longitudinal follow and observational techniques; health outcomes for disease as well among the elderly or aged persons; primary care elements, health education, health promotion; household resources and resource allocation; the oral health care for people with disabilities and mental illness or other vulnerable groups. In this way a student will apply holistic approach to healthcare delivery. This is also value-based approach that emphasizes on the role of family members in assessing and analyzing their own health problems, allocate resources to health and develop solutions; interaction of household, families, environment and influencing factors; community strengths, resources available at household levels, socio-economic conditions, cultural practices, educational levels, use of information to develop intervention strategies; participatory identification of health problems, identify appropriate tools to sustain programmes developed; application of principles and practice of community based education approach, health promotion theories, integrated health education application.
Assessment strategies
Continuous Assessment of practicals and assignments 100%

Module Title: Dental Materials Sciences

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<td>Semester offered:</td>
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Module Aims
The goal of this module is to equip students with knowledge of materials used in oral health care, their practical applications and limitations in their use. Students will also learn how to handle the materials in dental practice and their chemical and physical characteristics. Students will learn how the behavior of each material is depending on its own physical characteristics and the conditions where it is used, eg. light, humidity, temperature, etc.

Module content
This module covers topics on dental materials; their chemical content and physical characteristics. How the chemical structure of the materials changes during their management and the stability of this chemical structure in different conditions. Physical properties of the materials, how each material should be managed, how different types of waste should be safely disposed. Criteria for selection of appropriate materials to be used in oral health care and when constructing dental appliances.

Assessment Strategies
Continuous assessment (50%)
Examinations (50%):

1 x 1½ h written paper (25%)
1½ h practical examination (25%)
Module Title: Oral Health Promotion

**Code:** PHP3611  
**NQF level:** 6  
**Notional hours:** 160  
**Contact Hours:** 3+4P hours per week for 16 weeks  
**NQF Credits:** 16  
**Pre-requisite:** None  
**Compulsory/Electives:** Compulsory  
**Semester offered:** 2nd year semester 1

**Module Aims**
The objectives of this module are for students to acquire skills in health promotion and health education which are important strategies for preventing dental and oral disease, controlling disease and maintaining oral health and dental integrity throughout the lifecycle. The focus of this course is in community approach, so that students realize the importance of the involvement of not only individuals but also various stakeholders in order to achieve sustainable results. The roles of peer groups like schools, villages, community organizations, religious communities and others are covered. Global trends and differences in oral health are discussed. The role of oral health habits such as hygiene and diet are discussed in relation to individual and community. Students are helped to develop effective communication techniques and how to effect behavior change.

**Module content**
The module covers the background to, and history of health promotion and health promoting schools; the theory and application of health promotion models; the importance of assessing information for health promotion; the roles of the media and other stakeholders in health promotion; the planning cycle identifying the needs, writing objectives, indicators and development of action plan, project implementation and methods of evaluation; concepts of health and disease; introduction to health education, disease prevention and health promotion; Oral health education, hygiene aids and tooth brushing; dietary habits; outreach visits to schools and other community organizations, community clinics, health education/promotion units.

**Assessment strategies**
Continuous assessment of student participation 50%  
Assignments and tutorials 50%

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Module Title: Oral Radiology I

**Code:** DSG3611  
**NQF level:** 6  
**Notional Hours** 160  
**Contact Hours:** 3+4P hours per week for 16 weeks  
**NQF Credits:** 16  
**Pre-requisite:** ATM3512, PLG3512
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 1

Module Aims
The aim of this module is to equip the students with knowledge and technical skills of radiographic imaging in dentistry. Students will learn about the physics underlying production of radiographs, taking intra-oral radiographs, their interpretation and use in clinical decision making. Furthermore, students will learn about safety precautions in use of radiographs, as well as chemical and physical basics for radiological hazards.

Module Content
Topics to be covered include: Structures of matter; atomic energy levels; electromagnetic radiation, production of radiographic rays; the radiographic tube: the anode, the cathode, transformers, voltage rectification, basic radiographic circuit; physics of production of radiographs: characteristics, energy spectrum and operating characteristics of radiographic devices; interaction of radiation with matter: ionization, photo electric effect, Compton scattering, pair production; production of radiographic images: image formation and contrast; factors affecting the quality of radiographic images, radiographic contrast, scattered radiation, and contrast; radiographic receptors; measurement of absorbed dose: absorbed dose, dose measurements; Radiation protection: patient exposure and protection, personnel exposure and protection; the Radiographic film; intra-oral radiographic techniques; infection control in dental radiography; normal radiographic anatomy, diagnosing normal and pathological processes from radiographic images.

Assessment strategies

Practical work (based on log book) 50%
Final examination (2 hours) 50%
Module Title: Periodontology I

Code: RDT3631
NQF level: 6
Notional hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: ATM3512
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 1

Module Aims
This module aims at giving the student basic knowledge of the biology of a healthy periodontium, structure and function of periodontium. They will learn the pathology and pathological processes involved in periodontal inflammations and infections, the principles of preventing periodontal diseases and maintaining periodontal health. The module will introduce instruments and devices used in diagnoses and treatment of periodontal conditions, and demonstrate their adequate use in clinical dentistry, as well as their maintenance.

Module content
This module covers the following topics; Anatomy, histology, physiology and pathology of periodontium. Methods to maintain oral hygiene. Clinical and histological characteristics of periodontal diseases. Development, diagnostics and treatment of uncomplicated periodontal treatment. Instruments and devices used in periodontal diagnosis and treatment.

Assessment Strategies
Assessment of assignments and practicals 50%
Final examination 50% Examination (1 x 1.5 hours written paper + 1.5 hours practical examination)
Module Title: General Pathology

Code: DSG3682
NQF level: 6
Notional hours: 40
Contact Hours: 1 lecture hour per week for 16 weeks
NQF Credits: 4
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 2

Module Aims
Pathophysiology is the study of disordered physiological processes associated with disease or injury. Pathophysiological processes are studied to explain the dysfunctions of different organs and tissues and how these are macroscopically and microscopically manifested. Pathology constitute an essential element of clinical services through the contribution it makes to the effective prevention, detection, diagnosis, treatment and management of disease.

Module Content
The module contains; the general principles of pathological processes, differentiation of normal from disordered structure on microscopic and macroscopic levels, examination of specific features of diseased tissues and organs. Students will also study samples using microscopes to recognize normal histology and normal variations of common tissue types.

Assessment Strategies
Continuous assessment 50%
Study log book 50%

Module Title: Medical Microbiology

Code: MCB3612
NQF level: 6
Notation: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 2
Module Aims
The module aims to introduce the basic principles and application of medical microbiology and immunology with relevance to clinical disease in the preparation of students to become health care professionals. Also, the module aims to enable students to understand the nature, metabolism, nutrition, growth, pathogenicity, and prevention of bacteria of medical significance and understand their interactions with the human body to cause disease. Furthermore, the module will give insight to students on understanding the basic characteristics and functions of the immune system and its responses to intrusion of pathogens and or foreign bodies into the body and the application of immune factors in the prevention and treatment of disease.

Module Content
This module will cover bacterial nomenclature, structure, growth, nutrition, metabolism, pathogenicity and pathophysiological changes resulting from bacterial infections as well as the immunological responses to infection will be discussed; mechanisms of action of major classes of anti-microbial agents, drug resistance, multidrug resistant organisms and the physical and chemical methods used thereof in the prevention of infectious microorganisms; Basic concepts in immunology, components of the immune system, principles of innate and adaptive immunity, antigen recognition by B and T cells, development, maturation and survival of lymphocytes, adaptive Immunity to infection, failures of Host defense Mechanisms, (tolerance, allergy and hypersensitivity, autoimmunity, immunodeficiency, immunosuppression), tissue transplant, immune-surveillance, tumor immunity, transplant immunology, immunotherapy and immunization.

Assessment strategies
The continuous assessment  50 %
Final Examination  50 % (1 X 3 hours paper and 1 practical paper)
Module Title: Dental Pharmacology

Code: DSG3612
NQF level: 6
Notional Hours: 160
Contact Hours: 4 lecture hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: PLG3512
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 2

Module Aims
Through this module the students will learn about the fundamentals of therapeutics, pharmacokinetics and pharmacodynamics of the commonly used drugs as well as the mechanisms of action, adverse effects and precautions. Students also learn about the side effects of drugs, drug interactions and the treatment of side effects.

Module Content
This module will cover the characteristics of different microbes, and particularly those which are relevant for pharmaceutical products to operate, pharmacodynamics and pharmacokinetics of various pharmacological products in medicine and dentistry, dose-response curves of pharmacological products, possible adverse effects of them and clinical management of these. The physiological effects and effects on pathological processes of each studied pharmacological product.

Assessment strategies
Continuous assessment 60%
Final Examination 40%
Module Title: Occlusal Dysfunction and Pathophysiology

Code DSG3692
NQF level 6
Notional hours: 120
Contact Hours: 2+3P hours per week for 16 weeks
NQF Credits: 12
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 2nd year semester 2

Module Aims
This module introduces the sensory, motoric and autonomous regulation of occlusion and function of masticatory organ. The principles of diagnoses and treatment of typical functional disorders of occlusion and temporomandibular joint are covered. The module aims also to cover the origin, diagnoses and treatment of oro-facial pain.

Module content
The module covers sensory and motoric nervous system of oral tissues, autonomous regulation and function of masticatory organ, typical disorders and functional problems in masticatory organ, their origin, diagnoses and treatment. The module also covers the underlying reasons for dental and oro-facial pain, their diagnoses and treatment options.

Assessment Strategies
Continuous assessment of student performance and assignments: 40%
Final examination: 60%
  30% 1 x 1,5 hours written paper
  30% 1 x 1,5 hours practical examination
Module Title: Facial Growth and Occlusal Development

Code: PHP3612  
NQF level: 6  
Notional hours: 160  
Contact Hours: 3+4P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite: ATM3512  
Co-requisite: RDT3601  
Compulsory/Electives: Compulsory  
Semester offered: 2nd year semester 2

Module Aims  
In this module students will learn about normal development and growth of the head and face, development of the dentition, occlusion, and malocclusions, and developmental disturbances and syndromes of the face. The module also covers the biology of tissues reactions to orthodontic forces. The module establishes the biological foundation for orthodontics and pediatric dentistry.

Module content  
The module will cover the embryonic development of head and face, particularly the normal orofacial development as well as the developmental disturbances and syndromes that originate during the prenatal period. In addition, postnatal facial growth and development, the growth of the facial soft and hard tissues, the internal and external regulation of the growth, and the role of the orofacial functions in the growth regulation. Furthermore, the dental development, timing and stages of tooth eruption, development of normal deciduous and permanent occlusion, characteristics and development of malocclusions, and role of internal and external factors in the etiology of dentoalveolar and skeletal malocclusions.

Assessment Strategies  
Continuous assessment: 40%  
Final examination: 60%  
30% 1 x 1,5 hours written paper  
30% 1 x 1,5 hours practical examination

Module Title: Clinical Dentistry

Code: RDT3612  
NQF level: 6  
Notional Hours: 160  
Contact Hours: 3+4P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite: ATM3512
Compulsory Electives: Compulsory
Semester offered: 2nd year semester 2

Module Aims
In this module students will learn about the daily practise of dentistry and the application of basic sciences in dentistry. Through this module the students learn how to provide safe and effective oral health care to different categories of patients. Students will learn how to encounter patients, their relatives, other health care workers, and collaborating parties in a professional manner. They will learn how to interact and communicate with people when examining and treating them and how to forward key messages to describe patients’ health status and instructions for further treatment. Students gain knowledge and skills in the clinical evaluation of a patient through history taking, examination of the patient, selecting diagnostic procedures and interpreting test results. This module covers also ethical and legal issues related to provision of oral health services to facilitate the students with understanding and knowledge of the requirements set by the surrounding society. They learn to record relevant medical and oral health information accurately. Theory and practise of infiltration and inferior dental block analgesia are taught and practised. Principles of drug prescriptions are covered.

Module Content
This module integrates knowledge and techniques learnt during the first two years of basic sciences; introduction to core of skills in clinical practise which is to be developed throughout the program; early exposure to clinical practise; application of basic skills of patient interviewing, examination and diagnosis; the use of radiographs and other diagnostic techniques in dentistry; and basic life support. Extra-oral physical examination in the extent relevant to dentists; preparation of a treatment plan; actions to avoid infectious contaminations; maintaining high level of hygiene and aseptics; fundamentals of four-handed dental operation; recognizing general medical emergencies; communication of clinical findings with patients, relatives and other health care workers; legal and ethical questions of providing oral health care. The roles of the members of oral health care team; professionalism; ethics and values; codes of dental practise.

Pharmacokinetics of the agents in local anesthesia; Routes for drug administration; Absorption, distribution, and clearance of local analgesic solution; use and prescription of drugs in relation to the practise of dentistry; Detailed knowledge of nerve supply and blood supply to the oral cavity and oral anatomy; safe practise of administrating local infiltration. Analgesia and inferior dental block analgesia; Common problems and medical complications associated with local analgesia; control and licensing of drugs;

Assessment Strategies
Continuous assessment 100%
Course Title: Epidemiology

Code: RID3711

NQF level: 7

Notional hours: 160

Contact Hours: 3 lecture hours + 1 practical hour per week for 14 weeks

NQF Credits: 16

Pre-requisite: None

Compulsory/Electives: Compulsory

Semester offered: 3rd year semester 1

Module Aims
This module aims to introduce students to the principles and methods used in epidemiology as it applies to disease prevention and control in public health practise. Students will learn about the quantitative techniques of measuring health status and investigating underlying factors for the occurrence of diseases and health outcomes.

Module Content
This module covers the following topics: history of epidemiology, definition, functions, and characteristics of epidemiology, Definition, functions, and characteristics of epidemiology, routine data sources and descriptive epidemiology and analytic epidemiology; epidemiological triad, natural history of disease, exposure and outcome, incubation period and disease spread; determinants of health, epidemiology applied to specific areas (social epidemiology, infectious disease epidemiology, epidemiology of HIV/AIDS, Environmental epidemiology, Oral Health Care epidemiology etc.); population health, disease burden and its indicators: incidence, prevalence, measures of morbidity and mortality - morbidity rate, mortality rate, fertility rate, survival rate, life expectancy, proportion, ratio, rate, Measuring of Disease and Exposure; Comparison of health problem between different populations: Standardization of rates and ratio; Association and causality, Relating risk factors to health outcome; Analytic study designs; Causal inference; Sources of error; Multicausality — Confounding; Outbreak investigation; prevention strategies, diagnostics tests and screening: Sensitivity and specificity, Predictive value, Likelihood ratio (LR), Predictive value and prevalence, Stability of the sensitivity and specificity, Clinical case definition, measures of agreement.

Assessment Strategies
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)
Course Title: Research Methods and Proposal Writing

Code: CRS3740
NQF level: 7
Notional hours: 160
Contact Hours: 1+2P hours per week for 28 weeks
NQF Credits: 8
Pre-requisite: RID3512
Compulsory/Electives: Compulsory
Semester offered: 3rd year semesters 1 and 2

Module Aims
This module aims to equip the students with principles, skills and methods to conduct scientific research and analysis required on any matter within the domain of health, with special emphasis on oral health. Students will learn about the quantitative and qualitative methods.

Module Content
This module covers the following topics: Introduction to Quantitative research and Qualitative research, 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 different study designs.
Sampling Methods: Non-probability sampling, Probabilistic or random sampling; sample size determination. Study population, Specification of 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 and Research proposal development.

Assessment Strategies
The continuous assessment (CA): 50 %
Examination: 50 % (1 X 3 hours paper)
Module Title: Oral Microbiology

**Code:**   DSG3711

**NQF level:**  7

**Notation**  160

**Contact Hours:**  3+4P hours per week for 16 weeks

**NQF Credits:**  16

**Pre-requisite:**  MCB3612

**Compulsory/Electives:**  Compulsory

**Semester offered:**  3rd year semester 1

**Module Aims**

The aim of this module is to introduce the basic principles and application of microorganisms to clinical disease with relevance to oral health. This module will give a student the means to develop both knowledge and diagnostic skills in medical microbiology so that they can apply this in clinical oral health care setting. The module will enable students understand the nature, metabolism, nutrition, growth, life cycles, pathogenicity, and prevention of microbial pathogens of oral health care significance and understand their interactions with the human body to cause disease, particularly those with oral manifestations. Special emphasis will be on microbes commonly encountered in oral cavity and surrounding tissues.

**Module Content**

This module will give an overview of microorganisms in oral cavum which commonly cause diseases. Special focus will be in oral microorganisms that are common in Namibia and in the region. Microorganisms which cause manifestations in oral cavity, particularly those which have relevance to clinical dentistry. Classification, geographical distribution, habitat, morphology, life cycle, pathogenicity (mode of infection, pathogenesis and pathology), immune response to parasitic invasion and escape mechanism, as well as laboratory diagnosis and prevention and control of microorganisms relevant to oral health care.

**Assessment Strategies**

The continuous assessment of student performance in practicals and assignments: 50%

Final examination: 50% (1 x 3 hours)
Module Title: Oral Medicine and Oral Pathology

Code: DSG3731
NQF level: 7
Notional hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: ATM3512
Compulsory/Electives: Compulsory
Semester offered: 3\(^{rd}\) year semester 1

Module Aims
This module aims to enable the student to gain knowledge and skills in the diagnosis of medical or surgical conditions of clinical importance to dentistry. The student will learn about the pathological processes and the clinical signs, symptoms of medical and surgical diseases, their management and their impact on the oral health care of the affected patient. Diagnostics and treatment of bacterial, fungal and viral infections, as well as cysts and tumors in maxillo-facial area are covered together with their radiological and histological representations. This module will also give students the basic skills of managing patients with medical or surgical diseases, and teach them how to detect such patients' needs for oral health care. Furthermore, the students will learn the signs and symptoms that general medical and surgical diseases produce in oral cavity and to diagnose these for referral to relevant medical professionals for more detailed diagnoses and treatment. Etiology, diagnoses and classification of oral cancers and oral manifestations of HIV and AIDS are systematically covered.

Module Content
The module will cover: patho-physiological basis of oral medicine as it is related to general medicine and/or surgery. Etiology, histology, radiology, diagnosis, prevention and treatment of pathological processes in hard and soft tissues of maxilla-facial area. Prevention and early detection of oral cancers. Manifestations of HIV and AIDS in maxilla-facial area. Obtaining medical information in connection with recording oral health status. Oral manifestations of the whole variety of medical and surgical diseases and conditions. Identification of patients whose oral manifestations may be due to general medical or surgery conditions. Complications that may be associated with use of oral health care medication or oral health care therapy as result of complex medical condition. Principles and practise of patient referral from dental office to medical professionals. Oral health care services that are commonly required for patients entering general medical and/or surgical treatment.

Assessment strategies
Continuous Assessment of assignments and practicals 60%
Final Examination 40% (1 x 3 hours)
Module Title: Restorative Dentistry I

Code: RDT3711
NQF level: 7
Notional Hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 1

Module Aims
The aim of this module is to give students thorough knowledge of the biology of a healthy dental tissue, pathology of dental caries, its origin, development process and factors affecting these. Also the students will gain thorough knowledge of contemporary methods for preventing and stopping the caries process. Together with these skills the students will learn the necessary skills in aseptics and ergonomy as well as the basics of four-handed working in dentistry. Students will learn about principles of dental material application.

Module Content

Assessment strategies
Continuous assessment 60%
Final Examination 40% (1 x 3 hours)
Module Title: Acute care

Code: RDT3781
NQF level: 7
Notional hours: 40
Contact Hours: 1+1P hours per week for 16 weeks
NQF Credits: 4
Pre-requisite: RDT3612
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 1

Module Aims
In this module, just before entering dental clinic to provide clinical care to patients the students rehearse the basic practical skills which will enable them to provide first aid emergency services. Through this module the students will obtain necessary knowledge and competent to alleviate pain with medications and anesthesia, perform simple extractions of erupted teeth, control bleeding of extraction cavity as well as wounds on skin and mucous membranes, and suture wounds. Through practical competence tests the student’s ability to provide CPR and other life supporting procedures are ensured.

Module Content
This module contains elementary training for practical emergency and acute care. Students will train the skills with phantom heads and other simulation materials. Comparison the speed and effect of different pain control methods, indications and limitations of their use. Extractions of different types of erupted teeth. Practical training of suturing and removing sutures. Methods for control of bleeding.

Assessment strategies
Continuous assessment of practicals 100%

Module Title: Clinical Practise I

Code: RDT3791
NQF level: 7
Notional hours: 120
Contact Hours: 120 total hours
NQF Credits: 12
Pre-requisite: Competence test
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 1
**Module Aims**
Through this module, students learn how to use the theoretical knowledge they have acquired in mutual understanding with the patients, to produce appropriate clinical outcomes in a safe manner. After the students have proved in competence test that they are able to manage patients with selected oral health problems, they will receive their first patients. These patients are chosen so that they do not have such oral health problems or diseases which would require more knowledge or higher skills than what the students at this stage of their studies have acquired.

**Module Content**
This module contains practical patient care which students provide in dental department clinic under supervision by qualified dentists. Based on their experiences from clinical work the students will prepare case reports which will be discussed in small groups.

**Assessment Strategies**
Continuous assessment 100%
Module Title: Oral Radiology II

Code: DSG3702
NQF level: 7
Notional Hours: 80
Contact Hours: 2+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: DSG 3611
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 2

Module Aims
The aim of this module is to equip the students with deeper knowledge and advanced technical skills of imaging in dentistry. Students will learn about both intra- and extra-oral manifestations of the effects of radiation, their diagnostics, care and cure. Strong emphasis will be on increasing students’ ability to make diagnoses from radiographic images. The course will give in-depth knowledge of managing and diagnosing orthopantomogram and cephalometric images. Use of ultrasound and other advanced imaging techniques will be introduced. Students will learn the principles of interpretation of the findings of advanced imaging techniques and their use in clinical decision making. Furthermore, students will learn about safety precautions in use of advanced imaging techniques, as well as chemical and physical basics for radiological hazards. Principles of forensic dentistry and techniques used by dentists in forensic examinations are covered.

Module content
Topics to be covered include: physical and technological characteristics of advanced imaging methods, like ultrasound, computerized tomography and magnetic resonance images. Pathological processes producing various radiological images. Theoretical knowledge, and practical skills to manage and diagnose occlusal, orthopantomogram and cephalometric imaging. Safety issues related to advanced imaging techniques. Necessary precautions to be considered and taken care of when using advanced imaging. Comparison of radiologic findings and dental records for person identification.

Assessment strategies
Continuous assessment 60%
Final Examination 40% (1 x 3 hours)

Module Title: Restorative Dentistry II and Endodontics

Code: RDT3712
NQF level: 7
Notional hours: 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Co-requisite: RDT3711
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 2
**Module Aims**
This module will provide students with knowledge of pulpal biology and pathology, and practical skills to diagnose deep caries lesions and pulpal infections. The module gives them ability to provide restorative treatment which aims at stopping progression of deep caries lesions and to evaluate when this treatment option is not feasible and endodontic treatment is required. The students will learn how to control bacterial growth using both local and systemic medications together with mechanical preparation of root canals. Maxillo-facial manifestations of advanced and/or untreated pulpal infections will be covered. The use of different mechanical preparation instruments with relevant chemical components will be taught.

**Module Content**
The module includes lectures on the biological and clinical aspects of endodontics and practical training in phantom laboratory. The biologic aspect lectures include: discussions of pulp and peri-apical diseases; diagnostic and treatment procedures; selection of patients; and medications in endodontics. Various instruments used for preparing and filling root canals; technical management of deep caries lesion and root canal treatment; materials used; restoration of endodontically treated teeth.

**Strategies of student assessment:**
Continuous assessment  60%
Final Examination 40% (1 x 3 hours)
Module Title: Periodontology II

Code: RDT3702
NQF level: 7
Notional Hours: 80
Contact Hours: 2+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: RDT3631
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 2

Module Aims
This module prepares students to provide integrated care for patients who have diseased gingiva, and/or periodontal and supporting tissues around teeth. Through the module the students will get in depth understanding of the development of gingival and periodontal infection, how to characterize their variations and how to make a comprehensive treatment plan and to implement it for various types of patient cases. Local and systemic medications in periodontal treatment are studied.

Module Content
Etiology, classification, epidemiology, prevention, diagnosis, and management of periodontal diseases.

Assessment strategies
Continuous assessment: 100%
Module Title: Orthodontics

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**Module Aims**

In this module students will learn to perform a comprehensive orthodontic examination, make diagnosis, formulate treatment plan, select treatment procedures for developing malocclusions, and to manage treatment of selected cases. Students are introduced to materials, components and properties of orthodontic appliances, and to biomechanical principles governing orthodontic tooth movement and growth modification.

**Module Content**

This module will introduce the students to clinical management of orthodontic patients, including examination, collection of records and patient history, motivation of patients and caregivers, and management of treatment procedures under supervision. Assessment of patient records, making diagnoses, formulation of treatment plans and selection of appliances. Screening children for malocclusions, selecting between treatment modalities and performing preventive and interceptive procedures. Introduction to construction and activation of various orthodontic appliances, materials used in the appliances, mechanical properties of the appliances, and biomechanics of orthodontic tooth movement. Special attention is given to early orthodontic treatment and orthodontic growth modification. The module will also introduce the students to the role of orthodontists in a multidisciplinary team.

**Assessment strategies**

Continuous assessment  60%
Final Examination 40% (1 x 3 hours)
Module Title: Dental Prosthetics I

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Module Aims
The module will equip students with knowledge and technical skills necessary for managing oral health care patients receiving complete dentures. Students will learn the chemical, physical and technical characteristics of typical impression materials used for modelling edentulous dental arches. Also the clinical relationships of upper and lower jaw will be covered. The students will take impressions and construct models based on the impressions. Different types of impression trays are studied, and articulation techniques to produce occlusal relationship study models are included. Students will learn how to prepare and fit complete dentures, how to provide oral hygiene and dietary instructions to complete denture wearing patients and how to teach denture maintenance to them. Techniques for repairing broken complete removable dentures will be included in this module.

Module Content
The module covers chemical, physical and technical characteristics of impression materials, plasters, acrylics and other materials commonly used to produce models that are used for removable complete denture treatment planning and preparation. Handling and construction of models; construction of individual impression trays, producing plaster models and fitting the models into articulator for studying and repairing removable complete dentures.

Assessment strategies
Continuous Assessment 100%
Module Title: Dental Prosthetics II

Code: RDT3742
NQF level: 7
Notional Hours: 80
Contact Hours: 2+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: RDT3611
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 2

Module Aims
The module will cover the theoretical and practical training for diagnosing removable denture needs for shortened dental arches and evaluation of alternative denture constructions to be considered for treatment. The course will provide students with knowledge and technical skills necessary for managing oral health care patients receiving partial removable dentures. Partial acrylic and partial alloy based removable dentures for shortened dental arches will be covered. Students will learn how to prepare and fit these types of dentures, how to provide oral hygiene and dietary instructions to denture wearing patients and how to teach denture maintenance to them. Dental, periodontal and oral mucous membrane problems commonly encountered with the use of different types of removable partial dentures are covered, as well as repairing and relining removable partial dentures.

Module Content
This module will cover the following topics: Indications for various types of removable partial dentures; indications for limiting or preventing preparation of different types of removable partial dentures; treatment planning for removable partial denture treatment; construction of acrylic and alloy based partial dentures; identification and treatment of health problems encountered with the use of removable partial dentures; oral hygiene, dietary and denture maintenance instructions; repairing and relining broken and/or unfitting removable partial dentures.

Assessment strategies
Continuous Assessment 100%
Module Title: Clinical Practise II

Code: RDT3782
NQF level: 7
Notional hours: 120
Contact Hours: 120 total hours
NQF Credits: 12
Pre-requisite: Competence test
Compulsory/Electives: Compulsory
Semester offered: 3rd year semester 2

Module Aims
Through this module, students learn how to use the theoretical knowledge they have acquired in mutual understanding with the patients, to produce appropriate clinical outcomes in safe manner. After passing relevant competence and integrated tests, students have been assigned patients whose oral health problems are suitable to treat with students’ acquired knowledge and skills. After the second semester with exposure to clinical patient treatment, the students are more capable to make diagnoses and treatment decisions and they have reached higher level of clinical knowledge and practical skills.

Module Content
This module contains practical patient care which students provide both in inpatient and outpatient circumstances, under supervision by qualified dentists. Based on their experiences from clinical work the students will prepare case reports which will be discussed in small groups.

Assessment strategies
Continuous assessment 100%
Module Title: District Hospital Dentistry I

Code: DSG3789
NQF level: 7
Notional Hours: 40
Contact Hours: 200 total hours clinical practice in District Hospital setting
NQF Credits: 4
Pre-requisite: RDT3612, Competence test
Compulsory/Electives: Compulsory
Semester offered: After 3rd year semester 2

Module Aims
This module allows students to learn and practise dentistry at district hospital facilities. At this stage of their studies, they will assist in-house dental officers in general patient management, diagnostics, provide simple curative treatment and whole variety of preventive services. In these circumstances oral health services are in many occasions provided with minimal specialist back up and with modest diagnostic facilities. Students will be assisted to gain experience of working in a variety of clinical settings, leading to gain skills to provide comprehensive care at the level of future practise.

Module Content
Examination and diagnosis, leading to the investigations and preventive treatment options; clinical skills of local anesthesia; simple restorations for adult patients; occlusion malfunctions; working with members of the dental team. Communication with patients, and provision of preventive services, including health education.

Assessment strategies
Continuous assessment 100%
Module Title: Community Practise I

Code: RDT3789  
NQF level: 7  
Notional Hours: 40  
Contact Hours: 200 total hours clinical practice in Community setting  
NQF Credits: 4  
Pre-requisite: RDT3612, Competence test  
Compulsory/Electives: Compulsory  
Semester offered: After 3rd year semester 2

Module Aims
Through this module, students learn to practice dentistry at a primary care level often with minimal diagnostic facilities. Primary health care principles are emphasized.

Module Content
Areas to be covered include: History taking, clinical examination, investigation, diagnosis; treatment planning; Restorative and periodontal services; Simple tooth extraction; Consent and referral; Decision-making in relation to non-operative cases.

Assessment strategies
Continuous assessment 100%

Course Title: Research Project

Code: RPT3810  
NQF level: 8  
Notional hours: 320  
Contact Hours: 4 hours per week for 32 weeks  
NQF Credits: 32  
Pre-requisite: CRS3740  
Compulsory/Electives: Compulsory  
Semester offered: 4th year semesters 1 and 2, and 5th year semesters 1 and 2

Module Aims
The aim of the module is to enable student to: develop and apply the knowledge and skills required in identifying and prioritizing oral health problems essential to Namibian oral health care, and systematically investigating them with the view to finding practical answers. By carrying out a modest research project and producing a report in this module, students are provided the opportunity to consolidate the various research methods, basic science, clinical, statistical and epidemiological techniques and other public health theoretical lessons they studied in the previous years.

Module Content
Data collection and analysis: The student focuses on writing the proposal and data collection during the first semester of the fourth year as a longitudinal module from primary or secondary sources. According to the proposal, the data can be from the clinics, hospital, City Council, Ministry of Health and Social Services or its institutions or from the community.
The student will apply the skills of research methodology to clean and process the data. At the end, the student will make a presentation detailing the results of the work. Feedback from the student seminar assists the student to review the analytical framework and finalize the data analysis. The conference presentation rating will constitute the continuous assessment for the semester. The student can then proceed to write the thesis using the UNAM format. Optionally, students can write a scientific paper to be submitted in refereed journal.

Writing and presentation of thesis: This final stage is for the student to write the Thesis with regular advise from the Faculty mentor. The student will be able to make revisions using advise from the mentor aiming at producing the final revised copy. The Thesis will be graded by two faculty appointed evaluators. The student will also make a presentation of the research study at the final student conference to be held before graduation. The mentor will assist a student who requests to prepare a manuscript for publication in a referred scientific journal.

**Assessment strategies:**
Continuous Assessment 100%
Module Title: Oral & Maxillo-facial surgery I

Code: DSG3811
NQF level: 8
Notional Hours 160
Contact Hours: 3+4P hours per week for 16 weeks
NQF Credits: 16
Pre-requisite: DSG 3731
Compulsory/Electives: Compulsory
Semester offered: 4th year semester 1

Module Aims
Students will learn about the principles of oral surgery with knowledge and skills for managing soft and hard tissues of oral cavity, interpretation of the findings of imaging, biopsy taking and the diagnosis and management of oral mucosal disease.

Module Content
Development of skills in relevant history-taking and interpretation of the anamnestic findings; preparation of different surgical patients for operation; use and interpretation of radiographs; biopsy taking; operative extractions and apectomies; indications and contraindications for different types of pain management; more advanced knowledge and preparedness for CPR; introduction to mucosal disease and oral manifestations of systemic disease,

Strategies of assessment:
Continuous assessment 60%
Final Examination 40% (1 x 3 hours)

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Module Title: Dental Prosthetics III

Code: RDT3881
NQF level: 8
Notional Hours 120
Contact Hours: 2+3P hours per week for 16 weeks
NQF Credits: 12
Pre-requisite: RDT3611
Compulsory/Electives: Compulsory
Semester offered: 4th year semester 1

Module Aims
This module focuses on the provision of fixed prosthodontics as restorations prepared inside or outside mouth, single tooth crowns and short bridges. The student will learn how to design and construct a variety of short fixed tooth replacement solutions in a range of materials.

Module Content
The module will contain determination of need and possibilities for preparation of restorations manufactured both inside or outside oral cavity, single tooth replacements and short bridges. Single fillings, crown and short bridges prepared for restorations, manufactured
outside oral cavity, cooperation with technicians in charge of technical work; and fitting fixed solutions.

**Assessment strategies**
Continuous Assessment 100%

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<table>
<thead>
<tr>
<th>Module Title: Leadership and Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code:</strong> PHP3801</td>
</tr>
<tr>
<td><strong>NQF level:</strong> 8</td>
</tr>
<tr>
<td><strong>Notional Hours:</strong> 80</td>
</tr>
<tr>
<td><strong>Contact Hours:</strong> 1+2P hours per week for 16 weeks</td>
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<tr>
<td><strong>NQF Credits:</strong> 8</td>
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<tr>
<td><strong>Pre-requisite:</strong> None</td>
</tr>
<tr>
<td><strong>Compulsory/Electives:</strong> Compulsory</td>
</tr>
<tr>
<td><strong>Semester offered:</strong> 4th year semester 1</td>
</tr>
</tbody>
</table>

**Module Aims**
Through this module, students learn the general principles and concepts of health systems management and leadership in general, and in dentistry. Students will learn how management and leadership philosophies have changed during the previous decades and how these are approached today. Students will apply the concepts of different management models to oral health care settings and critically discuss their applicability. They will get a thorough understanding of planning, monitoring and evaluation, medical audit, quality assurance, resources and assets management, cost-effective and rational use of resources including logistics management, with strong emphasis in Namibian health care setting.

**Module Content**
This module will cover the health information and health care management systems which will include 1) clear measurement strategy including data collection, synthesis of data from different sources and estimation, 2) developing indicators and management systems, 3) integration of monitoring of health systems and their performance into health information systems, 4) concepts of healthcare financing and health economics, application of economics to decision making process, with concept of equity, public private mix. The emphasis will be on the ability to detect changes and to show improvement in health care system.

**Assessment strategies**
Continuous assessment 100%
Module Title: Gerodontics and Special needs

<table>
<thead>
<tr>
<th>Code:</th>
<th>RDT3801</th>
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<tbody>
<tr>
<td>NQF level:</td>
<td>8</td>
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<tr>
<td>Notional Hours:</td>
<td>80</td>
</tr>
<tr>
<td>Contact Hours:</td>
<td>1+2P hours per week for 16 weeks</td>
</tr>
<tr>
<td>NQF Credits:</td>
<td>8</td>
</tr>
<tr>
<td>Pre-requisite:</td>
<td>RDT3611</td>
</tr>
<tr>
<td>Compulsory/Electives:</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester offered:</td>
<td>4th year semester 1</td>
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</tbody>
</table>

Module Aims
The module is designed to help students prepare for the evaluation and management of the elderly patient and other population groups with special needs. It stresses the need for compassion and understanding as well as the medical and oral health aspects of providing emergency and comprehensive oral health care. This module concentrates on the aging process and how special population groups like people having strong dental fear or anxiety, mental and/or physical handicaps, should be approached and managed. The purpose of this module is to provide the students with an overview of the challenges facing oral health practitioners in society with emphasis on providing oral health care for all patients safely and effectively, and without discrimination. The module provides an understanding of the multidisciplinary needs of adults with special needs and the role of oral health care professionals in providing care to these populations. The module addresses physical and psychological changes associated with aging, as well as with handicapped patients, and identification and management of common oral conditions encountered in these population groups. Pharmacological special requirements in treatment of the aged patients are covered. Also this module will equip students with knowledge and skills of the safe use of local anesthetic agents, intravenous, inhalational anesthesia.

Module Content
Anatomical, biological and physiological changes during aging process; Control and management of pain and anxiety: Requirements in the clinical arrangements to enable treatment of patients with special needs; Multi-disciplinary approach to oral health care management of patients with special needs; Safe use of different types of pain management and anesthetics.

Assessment strategies
Continuous Assessment  100%
<table>
<thead>
<tr>
<th><strong>Module Title:</strong> Clinical Practise III</th>
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<tbody>
<tr>
<td><strong>Code:</strong> RDT3891</td>
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<tr>
<td><strong>NQF level:</strong> 8</td>
</tr>
<tr>
<td><strong>Notional hours:</strong> 250</td>
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<td><strong>Contact Hours:</strong> 250 total hours clinical service</td>
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<td><strong>NQF Credits:</strong> 25</td>
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<tr>
<td><strong>Pre-requisite:</strong> Competence test</td>
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<tr>
<td><strong>Compulsory/Electives:</strong> Compulsory</td>
</tr>
<tr>
<td><strong>Semester offered:</strong> 4th year semester 1</td>
</tr>
</tbody>
</table>

**Module Aims**

Through this module, students learn how to use the theoretical knowledge they have acquired in mutual understanding with the patients, to produce appropriate clinical outcomes in a safe manner. After passing further competence and integrated tests, students have been assigned patients whose oral health problems are suitable to treat with students’ acquired knowledge and skills. After the third semester with exposure to clinical patient treatment, the students are more capable to make diagnoses and treatment decisions and they have reached higher level of clinical knowledge and practical skills.

**Module Content**

This module contains practical patient care which students provide both in inpatient and outpatient circumstances, under supervision by qualified dentists. Based on their experiences from clinical work the students will prepare case reports which will be discussed in small groups.

**Assessment strategies**

Continuous assessment 100%
Module Title: Dental Prosthetics IV

<table>
<thead>
<tr>
<th>Code: RDT3802</th>
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<tbody>
<tr>
<td>NQF level: 8</td>
</tr>
<tr>
<td>Notional Hours: 80</td>
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<tr>
<td>Contact Hours: 1+2P hours per week for 16 weeks</td>
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<tr>
<td>NQF Credits: 8</td>
</tr>
<tr>
<td>Co-requisite: RDT3881</td>
</tr>
<tr>
<td>Compulsory/Electives: Compulsory</td>
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<tr>
<td>Semester offered: 4th year semester 2</td>
</tr>
</tbody>
</table>

Module Aims
Students will gain theoretical knowledge and clinical skills to effectively manage oral health care patients who need combined prosthetic structures and more complicated prosthetic appliances. In this module the focus will be in different types of combination prosthesis, fixed bridge work that will replace more than single missing teeth, and also indications and preparations of attachment retained prosthesis. The student will gain the skills required to consider on alternative solutions in the form of precision attachments. The student will learn to analyze the cost implications and quality assurance measures when choosing materials for these appliances.

Module Content
The module covers theoretical basis for treating patients with complicated prosthetic solutions, like longer bridges with several attachment units and attachment retained prosthesis. Different types of bridge constructions; their indications and contraindications; attachment retained prosthesis; their indications and contraindications; requirements for remaining teeth and periodontium for combined prosthetic or complicated longer fixed prosthesis; treatment to return and retain the condition of remaining dentition; preparation and fitting of complex prosthetic constructions; managing patients receiving complicated prosthesis structures and instructing their self-care and maintenance of the appliance to retain good oral health.

Methods of student assessment
Continuous Assessment 100%
Module Title: Pediatric dentistry

Code: PHP3882  
NQF level: 8  
Notional Hours: 120  
Contact Hours: 2+3P hours per week for 16 weeks  
NQF Credits: 12  
Pre-requisite: PHP3702  
Compulsory/Electives: Compulsory  
Semester offered: 4th year semester 2

Module Aims
In this module will focus on special knowledge and skills that are required in the oral health care of children. Students will learn management of prevention and treatment of oral diseases of infants, children and adolescents, including those with special health care needs.

Module Content
This module will cover etiology, prevention and clinical management of oral diseases in infants, children and adolescents; caries prevention and treatment of decayed primary teeth including strip crown restorations, stainless steel crowns and intra coronal restorations; clinical management of pediatric patients including children with high dental anxiety and fear, or special health care needs; use local anesthesia, performing extractions of primary teeth and management of dental traumas in children and adolescents; identification and management of problems of tooth eruption, construction and insertion of appliances for space maintenance.

Assessment strategies
Continuous assessment 60%  
Final Examination 40% (1 x 3 hours)
Module Title: Dental Practise Management

Code: PHP3802
NQF level: 8
Notional Hours: 80
Contact Hours: 1+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 4th year semester 2

Module Aims
The aim of this module is to equip students with knowledge and skills to manage and administer a dental practise.

Module Content
Management and administrative skills to enable a dentist to run a successful practise; how to take into consideration all professional groups, their roles and human resources management; administration and finances; assets management; material logistics, time management in clinical practise; reporting and record keeping; evidence based practise, continuous professional development.

Assessment strategies
Continuous Assessment 100%
Module Title: Clinical Practise IV

Code: RDT3882
NQF level: 8
Notional hours: 400
Contact Hours: 400 total hours clinical service
NQF Credits: 40
Pre-requisite: Competence test
Compulsory/Electives: Compulsory
Semester offered: 4th year semester 2

Module Aims
Through this module, students learn how to use the theoretical knowledge they have acquired in mutual understanding with the patients, to produce appropriate clinical outcomes in safe manner. After passing further competence and integrated tests, students have been assigned patients whose oral health problems are suitable to treat with students’ acquired knowledge and skills. After the fourth semester with exposure to clinical patient treatment, the students are more capable to make diagnoses and treatment decisions and they have reached higher level of clinical knowledge and practical skills.

Module Content
This module contains practical patient care which students provide both in inpatient and outpatient circumstances, under supervision by qualified dentists. Based on their experiences from clinical work the students will prepare case reports which will be discussed in small groups.

Assessment strategies
Continuous assessment 100%
Module Title: Elective Attachment

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<tr>
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<td>Compulsory/Electives:</td>
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</tr>
<tr>
<td>Semester offered:</td>
<td>4th year semesters 1 and 2, and 5th year semesters 1 and 2</td>
</tr>
</tbody>
</table>

**Module Aims**

This module gives the student opportunity to obtain deeper knowledge, understanding and skills in dental specialty area(s) the student finds most interesting. During the fourth and fifth years of studies, the students will work in one, or in some cases in two dental specialty disciplines to gain more in-depth understanding and knowledge of the selected area. It is advisable, although not compulsory that students choose an elective specialty which supports their research project, so that these two study elements form a comprehensive whole.

**Module Content**

Elective studies on the selected discipline(s) will be carried out during the fourth and fifth years of studies. This will allow students to gain deeper knowledge, understanding and skills in dental specialty which the student finds particularly interesting.

**Assessment Strategies**

Continuous Assessment  100%
Module Title: Oral & Maxillo-facial Surgery II

Code: DSG3831  
NQF level: 8  
Notional Hours: 160  
Contact Hours: 3+4P hours per week for 16 weeks  
NQF Credits: 16  
Pre-requisite: DSG3881  
Compulsory/Electives: Compulsory  
Semester offered: 5th year semester 1

Module Aims
The aims of this module are to prepare students to be able to diagnose dental and maxillo-facial trauma, evaluate treatment options and provide adequate care. The students will gain more skills to perform more demanding procedures and operations. Introduction, indications and contraindications of different sedation methods for dentistry are taught. They will also learn to estimate the difficulty of possible operations and to refer patients to special care when patient cases are that demanding.

Module Content
Practice of oral surgery; evaluation and management of surgical oral/dental patients; management of the acute demanding cases; preparedness for life-supporting procedures; further knowledge of pain management; sedation techniques; dento-alveolar, pre-prosthetic and orthodontic surgery, dental and maxillo-facial trauma diagnostics and treatment.

Assessment Strategies
Continuous Assessment 100%
Module Title: Restorative Dentistry III

Code: RDT3821
NQF level: 8
Notional Hours: 80
Contact Hours: 2+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: RDT3712
Compulsory/Electives: Compulsory
Semester offered: 5th year semester 1

Module Aims
The aim of this module is to give students more advanced knowledge and skills in restoring teeth. The module will include etiology, pathology, prevention and treatment of dental abrasions and erosions, give more detailed knowledge of the materials and techniques used in their treatment. Also this module will include etiology, diagnosis and treatment of dry mouth syndrome. The chemical composition of oral hygiene products and their indications and contraindications for use are covered, together with the materials patients and professionals may use for whitening teeth.

Module Content
Etiology, prevention and treatment of dental erosions, abrasions and dry mouth syndrome. Chemical, physiological and pathological characteristics of different prophylactic oral health care products, and self-care products obtained over-the-counter by consumers/patients. Risk evaluation of caries, erosion and abrasion for individual patients and for various populations.

Assessment strategies
Continuous Assessment 100%
Module Title: Periodontology III

Code: RDN3801
NQF level: 8
Notional Hours: 80
Contact Hours: 2+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: RDT3702
Compulsory/Electives: Compulsory
Semester offered: 5th year semester 1

Module Aims
This module gives the students theoretical knowledge and practical skills to diagnose, plan and provide advanced periodontal treatment and to systematically follow-up and maintain the positive results. The module will focus on advanced periodontal problems; their pathophysiology, medical, conservative and operative treatment and rehabilitation of occlusion when periodontal status has already been compromised.

Module content
This module will cover diagnostics and treatment of advanced periodontal cases, and the role of genetics, systemic diseases and conditions in periodontal pathogenesis.

Assessment strategies
Continuous Assessment 100%
Module Title: Clinical Practise V

Code: RDN3881
NQF level: 8
Notional hours: 450
Contact Hours: 450 total hours clinical service
NQF Credits: 45
Pre-requisite: Competence test
Compulsory/Electives: Compulsory
Semester offered: 5th year semester 1

Module Aims
Through this module, students learn how to use the theoretical knowledge they have acquired in mutual understanding with the patients, to produce appropriate clinical outcomes in safe manner. The students have been assigned patients whose oral health problems are suitable to treat with students’ acquired knowledge and skills. At this stage of their studies the students are already prepared to provide whole variety of treatment and their clinical training concentrates on comprehensive rehabilitation of patients’ oral health. After the fifth semester with exposure to clinical patient treatment, the students are capable to make diagnoses and treatment decisions where they consider all patients’ health conditions simultaneously, and they have reached higher level of clinical knowledge and practical skills.

Module Content
This module contains practical patient care which students provide both in inpatient and outpatient circumstances, under supervision by qualified dentists. Based on their experiences from clinical work the students will prepare case reports which will be discussed in small groups.

Assessment strategies
Continuous assessment 100%
Module Title: District Hospital Dentistry II

Code: DSG3819  
NQF level: 8  
Notional Hours: 40  
Contact Hours: 200 total hours clinical practise in District Hospital setting  
NQF Credits: 4  
Pre-requisite: DSG 3789  
Compulsory/Electives: Compulsory  
Semester offered: 5th year semester 1

Module Aims  
This module allows students to learn and practise dentistry more independently at district hospital facilities. In this second district hospital practise the students are already equipped with knowledge and skills to provide oral health care services independently to variety of patient cases. They will work in general patient management, diagnostics, provide whole variety of curative treatment and preventive services. Their treatment plans are approved by qualified dentists, and these will be tutoring the work, be available for consultation and help. The students will learn the principles of practical management of district hospital clinics.

Module Content  
Examination and diagnosis, comprehensive treatment planning; provision of required treatment with continuous opportunity for consultation and help from qualified dentist. Work as a leading professional of a dental team.

Assessment strategies  
Continuous assessment 100%
Module Title: Public Health Dentistry

Code: PHP3892
NQF level: 8
Notional hours: 80
Contact Hours: 1+2P hours per week for 16 weeks
NQF Credits: 8
Pre-requisite: None
Compulsory/Electives: Compulsory
Semester offered: 5th year semester 2

Module Aims
The objectives of this module are to facilitate students with ability to study, compare and assess alternative organizational systems for oral health care provision. The strengths, weaknesses, opportunities and threats of private practices, public clinics, third party charity clinics and other organizational alternatives are presented and evaluated. The students are directed to approach organizational settings both from national health policy perspective and from practicing clinician’s perspective.

Module Content
The module covers the history and present state of oral health care services in Namibia; the theory and practical examples of dental health economics; economic consequences of alternative systems to produce oral health services; evaluation of different organizational settings to produce oral health care services, and the issues of inequality and unmet treatment need in relation to them.

Assessment strategies
Continuous Assessment 100%
<table>
<thead>
<tr>
<th>Module Title: Dental Prosthetics V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code:</strong> RDT3892</td>
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<tr>
<td><strong>NQF level:</strong> 8</td>
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<tr>
<td><strong>Notional Hours:</strong> 40</td>
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<td><strong>Contact Hours:</strong> 1 lecture hour per week for 16 weeks</td>
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<td><strong>NQF Credits:</strong> 4</td>
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<td><strong>Pre-requisite:</strong> RDT3802</td>
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<td><strong>Compulsory/Electives:</strong> Compulsory</td>
</tr>
<tr>
<td><strong>Semester offered:</strong> 5th year semester 2</td>
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</tbody>
</table>

**Module Aims**
Students will gain knowledge of dental implants, their indications, contra-indications and the requirements of oral structures for treatment with implants. Critical evaluation of contemporary issues of evolving prosthetic treatment are taught.

**Module Content**
The module covers the requirements of oral health and oral cavity structures for implant treatment; principles of examining patients for implant treatment; process of implant therapy; preoperative assessment of intra- and extra-oral conditions; principles of surgical procedures for implant placement; maintenance of rehabilitative constructions with implants.

**Assessment strategies**
Continuous Assessment 100%
Module Title: Clinical Practise VI

Code: RDN3882
NQF level: 8
Notional hours: 450
Contact Hours: 450 total hours clinical service
NQF Credits: 45
Pre-requisite: Competence test
Compulsory/Electives: Compulsory
Semester offered: 5th year semester 2

Module Aims
Through this module, students learn how to use the theoretical knowledge they have acquired in mutual understanding with the patients, to produce appropriate clinical outcomes in a safe manner. The students need to have passed competence and integrated tests before being assigned patients whose oral health problems are suitable to treat with students’ acquired knowledge and skills. At this stage of their studies the students are already prepared to provide whole variety of treatment and their clinical training concentrates on comprehensive rehabilitation of patients’ oral health. During the fifth year of studies the students will finalize comprehensive oral health care rehabilitation treatments they have started earlier and they will provide various types of treatment so that their clinical training contains enough different types of oral health care treatments.

Module Content
This module contains practical patient care which students provide both in inpatient and outpatient circumstances, under supervision by qualified dentists. Based on their experiences from clinical work the students will prepare case reports which will be discussed in small groups.

Assessment strategies
Continuous Assessment 100%
Module Title: Community Practise II

Code: RDT3889
NQF level: 8
Notional Hours: 40
Contact Hours: 200 total hours clinical practice in community setting
NQF Credits: 4
Pre-requisite: RDT3789
Compulsory/Electives: Compulsory
Semester offered: 5th year semester 2

Module Aims
Through this module, students learn to practise dentistry at a primary care level often with minimal diagnostic facilities. They will work in general patient management, diagnostics, provide whole variety of curative treatment and preventive services. Their treatment plans are approved by qualified dentists, and these will be tutoring the work, be available for consultation and help. The students will observe, study and evaluate the oral health needs in the community and learn the principles of daily management of a community clinic.

Module Content
History taking, clinical examination, investigation, diagnosis; treatment planning; provision of treatment; studying and evaluating oral health needs in the community.

Assessment strategies
Continuous assessment 100%
PROGRAMME

Master of Medicine (Anaesthesiology, Critical Care and Pain Management) 15MANA

Purpose and Rationale of the Qualification

The purpose of the MMed in Anaesthesiology, Critical Care and Pain Management is to equip Medical Practitioners with appropriate knowledge and clinical skill for safe, effective administration of anaesthesia, adequate control of pain and optimal provision of critical care services as specialist Anaesthesiologists.

The rationale of this qualification emanates from the paucity of qualified Anaesthesiologists in most hospitals in Namibia resulting in unmet surgical and anaesthetic service. The Ministry of Health and Social Services is unsuccessfully trying to recruit Anaesthesiologists beyond the borders of Namibia. Currently, there is no in-country training of Anaesthesiologists to improve the number of specialists in this field.

In Namibia, one of the pillars of the Harambee Prosperity Plan is the reduction of Maternal and Infant mortality rates. The University of Namibia would contribute enormously to this aspect of the plan by training this cadre of anaesthesiologists.

Exit Outcomes

Holders of this qualification will be able to:

- Demonstrate analytical, interpretational, scientific writing, problem solving, managerial, planning, integration, and evaluation and presentation skills.
- Exhibit and apply in clinical practice the knowledge required of a Specialist Anaesthesiologist.
- Exhibit and practice clinically the skills required of a Specialist Anaesthesiologist in an Intensive Therapy Unit.
- Exhibit and practice the application of the attitudes and competences required of a professional Anaesthesiologist (including organizational, management and leadership skills as well as applying strategies for health promotion, prevention of ill-health and co-morbidities).
- Practice regional, local and general anaesthesia in complex situations
- Teach, train and supervise trainees in Anaesthesiology.
- Appraise clinical research critically and conduct clinical audits/high impact research.

Criteria for Admission

- Prospective students must be in possession of a level 8 UNAM MBChB degree or equivalent from any other accredited institution with an average mark of at least 60% and must have completed 30 months of clinical practice that must include at least 24 months in a recognised supervised internship programme.
- A prospective student must be registered with the Health Professions Council of Namibia (HPCNA) as a Medical Practitioner.
Prospective students whose medical education was not in English shall provide proof of proficiency in spoken and written English e.g. TOEFL ($\geq 75$) or IELTS academic version only (overall score of at least 7.5), not more than 2 years old at the time of application.

Successful completion of the UNAM Level 8 Postgraduate Diploma in Anesthesiology and registration with Health Professions Council of Namibia (HPCNA) and employment by the Ministry of Health & Social Services of Namibia (MoHSS) or supernumerary employment with the MoHSS, will be an advantage.

All prospective students will be interviewed by the Postgraduate Admissions Committee of the School of Medicine. (Proof of practice in Anaesthetic unit/department for at least six months will be desirable).

**MODE OF DELIVERY**
The MMed (Anaesthesiology, Critical Care and Pain Management) is a full-time programme with a modern integrated spiral curriculum. This competency based programme will combine intensive teaching blocks with simulations, clinical training, webinars and research. Furthermore, intensive Anaesthesiology (coupled with Surgery) camps will provide opportunities for students to collect the required number of cases, while it will simultaneously assist the Ministry of Health and Social Services to alleviate the pressing needs in the field.

Teaching will take place at designated teaching hospitals and the Health Sciences Campus of the University of Namibia.

The delivery is mostly based on adult learning principles with training spread over a period of 48 months. Modules are staggered with each module providing the basis for the next module.

While students will be allowed to start with the subsequent module without having passed the previous one, the module must be passed before the student will be allowed to take the examination of the subsequent module. Students must pass the first integrated Part I examination before embarking on the second 24 month training period.

By definition, a spiral curriculum is a flexible model where the exact length of each individual module will be determined by the availability of cases and training opportunities. A particular module may thus span more than one calendar year.

**DURATION OF STUDY**
The programme cannot be completed in less than 4 years. The maximum duration of the programme is 5 years.

**ASSESSMENT CRITERIA**
Being a competency based programme, the final mark of each module will consist of continuous assessment (60%) and a module examination (40%). Continuous assessment will include amongst others, an externally moderated student portfolio, case logbooks and tests. A minimum continuous assessment mark of 50% will be required to qualify for each module examination. In addition, all previous modules must be passed before the student is allowed to take the modular examination in any given module.
For all modules, a pass mark of 50% as well as a subminimum mark of 50% for the module examination is required. Students will qualify for a supplementary if they fail the module examination irrespective of their mark in this examination.

Two integrated Part I and Part II examinations will take place – the first after completion of the first seven modules, and the second after completion of all the modules.

A minimum mark of 50% is required to pass these final integrated Part I and Part II examinations consisting of theory papers, OSCE's and semi-structured oral assessments.

Students who fail to obtain this pass mark, will be allowed to take a supplementary examination after a remedial period of at least one month. The supplementary examination will consist of all components of the regular examination irrespective of the performance of the student in the individual components during the regular examination.

**MINIMUM REQUIREMENTS FOR RE-ADMISSION INTO THE PROGRAM.**
A student will not be readmitted into the MMed if she/he has failed the respective integrated Part I examinations on third attempt (i.e. three attempts to clear both examinations, not three attempts per examination). Please note that the regular examination and supplementary examination is considered as one attempt.

**ADVANCEMENT AND PROGRESSION RULES**
A student will advance to the second part (year 3) of the MMed only after passing the first integrated Part I examination. Other than this, there is no year to year advancement as modules in a spiral curriculum are flexible and could span a calendar year.

**MAXIMUM NUMBER OF CREDITS PER YEAR**
Not applicable – see above.

**REQUIREMENTS FOR QUALIFICATION AWARD**
The MMed (Anaesthesiology, Critical Care and Pain Management) will be awarded to the candidate who has successfully passed all the prescribed modules (694 credits), the two integrated examinations and has completed the one year extended clinical training in anaesthesiology (both core and electives).

**CAREER OPPORTUNITIES**
- The MMed (Anaesthesiology, Critical Care and Pain Management) is registrable as a specialist qualification by the Health Professions Council of Namibia (HPCNA).
- Graduates could work as specialists in various areas of anaesthesiology, critical care and pain medicine in public and private hospitals
- Graduates will further be equipped to become researchers in the field of anaesthesiology, critical care and pain medicine
- Graduates could be employed as academic staff in the School of Medicine

Summary Table for all Modules in the Programme:

<table>
<thead>
<tr>
<th>Module code</th>
<th>Module name</th>
<th>NQF level</th>
<th>Credits</th>
<th>Total hours</th>
</tr>
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<tbody>
<tr>
<td>PART 1</td>
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<tr>
<td>ASB5989</td>
<td>Basic Concepts and Practice of Anaesthesiology</td>
<td>9</td>
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<tr>
<td>ASM5989</td>
<td>Anaesthesiology and Trauma</td>
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<tr>
<td>ASA5989</td>
<td>Comorbidities and Peri-operative Care</td>
<td>9</td>
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<tr>
<td>ASH5989</td>
<td>Pathophysiology and Higher Care of Sick Patients</td>
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<td>45</td>
<td>450</td>
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<tr>
<td>ASP5989</td>
<td>Anaesthesiology in Pregnancy</td>
<td>9</td>
<td>45</td>
<td>450</td>
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<tr>
<td>ASC5989</td>
<td>Anaesthesiology and the Child</td>
<td>9</td>
<td>45</td>
<td>450</td>
</tr>
<tr>
<td>ASH5999</td>
<td>Clinical Research Methodology</td>
<td>9</td>
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<tr>
<td></td>
<td><strong>TOTAL PART 1</strong></td>
<td></td>
<td></td>
<td><strong>290</strong></td>
</tr>
</tbody>
</table>

| PART 2      |                                                  |           |         |             |
| UAE 5819    | Academic Writing for Postgraduate Students.      | 8         | (24)*   | 4h/week for 14 weeks |
| ASA5999     | Advanced Anaesthesiology I                       | 9         | 60      | 600         |
| ASP5999     | Pain in Clinical practice.                       | 9         | 60      | 600         |
| ASM5999     | Management in Anaesthesiology Practice           | 9         | 40      | 400         |
| ASC5999     | Clinical Training Core                           | 9         | 30      | 300         |
|             | Advanced Anaesthesiology II                      |           |         |             |
| ASB5999     | Clinical Training Elective                       | 9         | 30      | 300         |
| AST5999     | MMed (Anaesthesiology) Thesis                    | 9         | 120     | 1200        |
|             | **TOTAL PART 2**                                 |           |         | **380**     |
| **TOTAL**   |                                                  |           |         | **694**     |
Module Title: Basic Concepts and Practice of Anaesthesiology

Module Code: ASB5989
NQF Level: 9
Notional Hours: 450

Contact hours: 70 hours of lectures in total + 380 hours of supervised clinical work (normally over a 12 week period)

NQF Credits: 45
(Co-requisites) Prerequisite: None

Compulsory/Elective: Compulsory
Semester Offered: N/A

Module Aims

Module aims to:

- provide an introduction to the basic principles of safe general and regional anaesthesia in overview.
- provide training in the management of basic anaesthetic emergencies
- provide a thorough understanding of the basic, key science concepts underlying anaesthesia

Learning Outcomes

On successful completion of this module, students will be able to:

1. explain how to assess a patient pre-operatively for simple basic general and regional anaesthesia, including airway assessment;
2. communicate their findings to a senior colleague;
3. describe and demonstrate rapid sequence induction;
4. describe, recall and critique the use of induction agents and analgesics;
5. describe and recall the neuromuscular junction and describe, recall and critique the use of muscle relaxants;
6. manage anaesthetic emergencies and CPR;
7. discuss the physics of the anaesthetic machine and anaesthetic monitoring critically.

Module Content

The curriculum consists of the following topics: Pre-operative assessment, including scoring systems; Basic principles of general anaesthesia, simple spontaneous anaesthesia; The principles underlying a Rapid Sequence Induction; Basic airway management and choice of airway; Basic principles of regional anaesthesia, including anatomy, physiology (including the autonomic nervous system), practice of regional anaesthesia and complications and their management; Introduction to the pharmacology of core anaesthetic drugs: induction agents (propofol, thiopentone, ketamine and etomidate) and analgesics (morphine, fentanyl and pethidine); Physiology and Pharmacology of the Neuromuscular Junction and pharmacology of suxamethonium; Management of core anaesthetic emergencies and adult CPR; Physics: The anaesthetics machine and checking the machine; anaesthetic monitoring.

Assessment Strategies

Continuous assessment (60%):

Module Examination (40%): theory paper, OSCE and semi-structured oral assessment
**Learning Outcomes/Specific Outcomes**

On successful completion of this module, students will be able to:

1. discuss the pathophysiology of the conditions described in this module description critically;
2. manage the conditions described in this module professionally;
3. explain the implications of these conditions for patients in trauma and emergency situations;
4. describe and implement strategies for the safe transfer of sick patients;
5. describe and discuss the dynamics of team working and leadership and implement their learning in simulated and real clinical situations.

**Module Content**

The curriculum consists of the following topics: Definitions of urgency of surgery; Trauma pathophysiology and trauma anaesthesiology; Pathophysiology of haemorrhage and
dehydration; Principles of pre-operative resuscitation; Signs of an adequately resuscitated patient including clinical, cardiovascular and biochemical; Massive blood transfusion; Gastric emptying; Principles of emergency anaesthesiology including advanced monitoring; Safe transfer of patients between sites; Physics of advanced monitoring; Team dynamics and leadership models

**Assessment Strategies**

Continuous assessment (60%):

Module Examination (40%): theory paper, OSCE and semi-structured oral assessment

---

**Module Title: Comorbidities and Peri-operative Care**

**Module Code**

ASA5989

**NQF Level**

9

**Notional Hours**

450

**Contact hours**

70 hours of lectures in total + 380 hours of supervised clinical work (normally over a 12 week period)

**NQF Credits**

45

**Prerequisite**

Compulsory

**Compulsory/ Elective**

Compulsory

**Semester Offered**

N/A

**Module Aims**

This module aims to:

- provide an understanding of the pathophysiology of comorbidities frequently encountered peri-operatively;
- enable students to understand the implications of comorbidities for patients and their care;
- acquaint trainees with knowledge of strategies to promote wellness and lifestyle modification to prevent ill health and co-morbidities;
- enable students to apply their knowledge to manage these clinical situations safely and efficiently;
- provide an understanding of scoring systems in Anaesthesia and their use in communicating patient morbidity to clinical colleagues.
Learning Outcomes/Specific Outcomes

On successful completion of this module, students will be able to:

1. describe the pathophysiology of the conditions described in the module description critically;
2. describe the implications of these condition for patients with associated comorbidities critically
3. develop and participate in managing interventions for promoting and maintaining health, preventing comorbidities as well as optimizing the patients’ health condition
4. manage patients with comorbidities safely

Module Content
The module to consist of: pathophysiology, general clinical management and clinical perioperative management of the following conditions – diabetes and other core endocrine conditions, epilepsy, respiratory disease, heart disease, infectious diseases and HIV/AIDS, haematological derangements and disease, as well as neurological conditions; scoring systems and their use in patients with significant comorbidities

Assessment Strategies
Continuous assessment (60%):

Module Examination (40%): theory paper, OSCE and semi-structured oral assessment
Learning Outcomes/Specific Outcomes

On successful completion of this module, students will be able to:

1. explain phenomena in the altered physiology and pharmacology of patients with significant acute illness involving the respiratory, cardiovascular and renal systems and sepsis associated with acute severe infections.
2. manage patients with significant acute illnesses and/or co-existing altered physiology and pharmacology;
3. manage patient ventilation and respiratory support;
4. manage sedation for critically ill patients;
5. manage fluid management and renal support;
6. use inotropes for cardiovascular support in the critically ill.

Module Content

The curriculum will consist of the following: Respiratory System (Respiratory failure, causes and management; Principles of ventilation of the ill patient; Core topics in respiratory physiology); Cardiovascular System (Cardiovascular collapse, causes and management; Core topics in cardiovascular physiology); Sepsis (the septic patient: definition, causes, management and physiology); Renal System (Fluid Management; renal failure and support; principles of pharmacology and physiology); Supporting the critically ill patient (pharmacology of drugs used in long term
sedation); Physics (importance of humidity and principles and methods of humidification in short and long term patient ventilation)

Assessment Strategies
Continuous assessment (60%):
Module Examination (40%): theory paper, OSCE and semi-structured oral assessment

**PART B: MODULE DESCRIPTOR:**

<table>
<thead>
<tr>
<th>Module Title: Anaesthesiology in Pregnancy</th>
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<tbody>
<tr>
<td>Module Code</td>
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<tr>
<td>NQF Level</td>
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<tr>
<td>Notional Hours</td>
</tr>
<tr>
<td>Contact hours</td>
</tr>
<tr>
<td>NQF Credits</td>
</tr>
<tr>
<td>Prerequisite</td>
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<tr>
<td>Compulsory/Elective</td>
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<tr>
<td>Semester Offered</td>
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<tr>
<td>Module Aims</td>
</tr>
</tbody>
</table>

This module aims to:
- broaden the students’ knowledge of the range of possibilities of general anaesthesiology;
- develop an understanding of the differences between the pregnant and non-pregnant patient and their implications for anaesthesiology;
- provide an introduction to the basic principles of safe general and regional anaesthesia for the pregnant patient;
- develop an understanding of obstetric comorbidities and obstetric emergencies such as prolonged/obstructed labour, pre-eclampsia/eclampsia, haemorrhages, etc and their implications for anaesthesiology;
- develop an understanding into acute pain management for labouring parturients and postoperative delivery;
- further extend the students’ knowledge of the fundamental science underlying anaesthesiology.

**Learning Outcomes/Specific Outcomes**

On successful completion of this module, the student will be able to:

1. describe the different ways of maintaining the airway in a range of patients and provide a critique to justify their choice;
2. describe the anatomy and physiology of the pregnant patient;
3. describe, and justify how anaesthetic interventions, both general anaesthesia and regional [spinal, epidural and combined spinal epidural] anaesthesia, in the pregnant patient are different from the non-pregnant patient;
4. manage obstetric and anaesthetic emergencies and CPR in the pregnant patient;
5. manage labour pains in parturients using non-pharmacological, pharmacological and various neuraxial interventions such as spinal, epidural and combined spinal epidurals;
6. provide professional care in anaesthesiology and pain management as a member of health team
7. discuss the core physical concepts important to anaesthesiology critically.

**Module Content**
The module consists of the following topics: Further principles of general anaesthesia, including spontaneous breathing anaesthesia and inductive choice of airway; Pre-operative assessment of the pregnant patient; anatomy and physiology of pregnancy; Rapid Sequence Induction for Caesarean Section; Principles of regional anaesthesia, including anatomy, practice, complications relating to pregnancy; Anaesthetic drugs and their pharmacology in pregnancy, including the pharmacology of drugs for gastric acid control; The Neuromuscular Junction and the use of non-depolarising muscle relaxants; Management of CPR in pregnancy and other emergencies of pregnancy obstetric comorbidities and obstetric emergencies such as prolonged/obstructed labour, pre-eclampsia/eclampsia, haemorrhages, etc and their implications for anaesthesiology; Physics: the physics of anaesthetic gases, pressure and flow, pulse oximetry, blood pressure measurement, the ECG and gas analysis.

**Assessment Strategies**
Continuous assessment (60%):
Module Examination (40%): theory paper, OSCE and semi-structured oral assessment
Learning Outcomes/Specific Outcomes
On successful completion of this module, students will be able to:

1. explain the differences in physiology and pharmacology between the child (including neonates) and the adult and its implications for anaesthesiology;
2. discuss and justify how general anaesthetic interventions in the child patient are different from the adult patient;
3. manage fluids and analgesia in children (including neonates) effectively;
4. manage anaesthetic emergencies and CPR in children (including neonates);
5. recall and apply further physical concepts important to anaesthesia with respect to children (including neonates).

Module Content
The module consists of the following topics (with a child defined as a person from birth to age 16 years): Principles of general anaesthesia in children; Pre-operative assessment of children and scoring systems; anatomy and physiology of children; Spontaneously breathing anaesthesia in children; Rapid Sequence Induction in children; Anaesthetic drugs and their pharmacology in children; Fluid management in children; Analgesia and nerve blocks in children to include necessary anatomy; Management of CPR and other emergencies in children; Physics: breathing systems and their selection and clinical use in adults and children.

The student will resuscitate, anaesthetise and provide emergency care to children (including neonates) as they present in routine practice irrespective of age, but with appropriate senior support as necessary. These will be entered into the log book and represent a record demonstrating increasing competency. However, the student will not be considered proficient enough to be considered a specialist paediatric anaesthetist.
**Assessment Strategies**

Continuous assessment (60%):

Module Examination (40%): theory paper, OSCE and semi-structured oral assessment

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**Module Title : Clinical Research Methodology**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>ASH5999</th>
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<tbody>
<tr>
<td>NQF Level</td>
<td>9</td>
</tr>
<tr>
<td>Notional hours</td>
<td>200</td>
</tr>
<tr>
<td>Contact hours</td>
<td>200 hours of integrated lectures and practicals</td>
</tr>
<tr>
<td>NQF Credits</td>
<td>20</td>
</tr>
<tr>
<td>Pre-requisites</td>
<td>None</td>
</tr>
<tr>
<td>Compulsory/Elective</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester Offered</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Module aims to:**

The aim of this module is to prepare students to be able to critically appraise research papers, conduct research as an individual or member of a research team. It will also develop student skills in using a methodical approach to develop research ideas and bring them to fruition. Furthermore, it will provide students with bio-statistical skills and application of methodologies related to research in Anesthesiology.

**Learning Outcomes:**

Upon successful completion of the module, students will be able to:

- apply the principles behind quality, useful, and robust research;
- apply appropriate research methodologies and statistical tools for data analysis;
- carry out research leading to evidence that may influence further research and future healthcare practice;
- design and conduct autonomously and independently, an audit using appropriate method which draws on relevant evidence from the medical literature;
- present research findings in a format suitable for publication.

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**Module Content**

This module consists of the following topics: Research design; project planning, Proposal writing; problem analysis; Research questions formulation; quantitative and qualitative Bio statistical methods of data analysis in Anesthesiology; research ethical responsibilities.

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**Assessment Strategies**

Continuous assessment 50%, Examination 50% (1 x 3 hour paper)
Learning Outcomes/Specific Outcomes
On successful completion of this module, students will be able to:

1. describe and implement the various clinical demands of anaesthesia for neurosurgery, neuroradiology and neurocritical care;
2. describe and implement the various clinical demands of cardiothoracic anaesthesia and cardiothoracic critical care;
3. describe and implement the various clinical demands of paediatric (including neonatal) anaesthesia and paediatric critical care;
4. explain and apply physical/scientific concepts important to anaesthesia with respect to general and regional anaesthesiology.

Module Content
The module consists of the following topics: Anatomy, physiology and pharmacology relevant to neuroanaesthesia, cardiothoracic anaesthesia and paediatric (including neonatal) anaesthesia, Anaesthesia for neurosurgery, neuroradiology and neurocritical care; Cardiothoracic anaesthesia and cardiothoracic critical care; Paediatric (including neonatal) anaesthesia and paediatric critical care, principles of advanced airway management; Anatomy and pathophysiology of the airway; Scoring systems; Managing the difficult airway, including difficult airway trolley, failed intubation drill, specific airway rescue techniques; Regional anaesthesia other than spinals - Pharmacology of local anaesthetics; Anatomy relevant to relevant regional blocks and performance of blocks including upper and lower
extremity blocks, trunk blocks, fascia iliaca, hemia blocks, caudal anaesthesia, penile block, local single nerve blocks and eye blocks; introduction to epidural anaesthesia; Introduction to anaesthesia for surgical subspecialties - Burns and plastics; Ear Nose and Throat; Ophthalmology.

The trainees will be involved in the care of these complex cases under supervision and must keep logbook to demonstrate exposure and increasing competency.

**Assessment Strategies**
Continuous assessment (60%):
Module Examination (40%): theory paper, OSCE and semi-structured oral assessment

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<table>
<thead>
<tr>
<th><strong>Module Title:</strong></th>
<th>Pain in Clinical Practice</th>
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<tbody>
<tr>
<td><strong>Module Code</strong></td>
<td>ASP5999</td>
</tr>
<tr>
<td><strong>NQF Level</strong></td>
<td>9</td>
</tr>
<tr>
<td><strong>Notional Hours</strong></td>
<td>600</td>
</tr>
<tr>
<td><strong>Contact hours</strong></td>
<td>70 hours of lectures in total + 530 hours of supervised clinical work (normally over a 12 week period)</td>
</tr>
<tr>
<td><strong>NQF Credits</strong></td>
<td>60</td>
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<tr>
<td><strong>Prerequisite</strong></td>
<td>First integrated Part I examination</td>
</tr>
<tr>
<td><strong>Compulsory/Elective</strong></td>
<td>Compulsory</td>
</tr>
<tr>
<td><strong>Semester Offered</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Module Aims</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• provide an understanding to acute pain, its pathophysiology and management;</td>
</tr>
<tr>
<td></td>
<td>• provide an introduction to the pathophysiology and management of chronic pain</td>
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<td></td>
<td>• understand symptom control in the management of pain.</td>
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</tbody>
</table>

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**Learning Outcomes/Specific Outcomes**
On successful completion of this module, students will be able to:

1. describe the pathophysiology of acute pain;
2. describe simple, safe and effective strategies for the management of acute pain;
3. outline the pathophysiology of chronic pain
4. explain the relationship between acute and chronic pain and describe basic management of chronic pain;
5. describe the side effects inherent in acute and chronic pain management and have simple basic strategies for their management.
Module Content
The module consists of the following topics: Acute Pain (Anatomy of pain pathways; Pathophysiology of acute pain; Acute pain assessment including pain scores; Principles of acute pain management including WHO ladder and multimodal analgesia; Pharmacology of specific analgesics including side effects); Chronic Pain (Pathophysiology of chronic pain; Chronic pain assessment; Principles of chronic pain management, including management in end of life and palliative care); Symptom Control including Nausea and Vomiting (Side effects of pain management techniques; Physiology of nausea and vomiting; Management of nausea and vomiting)

Assessment Strategies
Continuous assessment (60%):
Module Examination (40%): theory paper, OSCE and semi-structured oral assessment

<table>
<thead>
<tr>
<th>Module Title:</th>
<th>Management in Anaesthesiology Practice</th>
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<tbody>
<tr>
<td>Module Code</td>
<td>ASP5999</td>
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<tr>
<td>NQF Level</td>
<td>9</td>
</tr>
<tr>
<td>Notional Hours</td>
<td>400</td>
</tr>
<tr>
<td>Contact hours</td>
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<tr>
<td>NQF Credits</td>
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<tr>
<td>Prerequisite</td>
<td>First integrated Part I examination</td>
</tr>
<tr>
<td>Compulsory/Elective</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester Offered</td>
<td>N/A</td>
</tr>
<tr>
<td>Module Aims</td>
<td>This module aims to:</td>
</tr>
<tr>
<td></td>
<td>• inculcate the student as to their professional responsibility to ensure patient safety; provide the student with a structure in which to operate with respect to patient safety;</td>
</tr>
<tr>
<td></td>
<td>• instil in the student the need for life-long learning and the concept of continuous professional development;</td>
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<td></td>
<td>• further provide the intellectual tools to enable lifelong academic learning and its application;</td>
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<td></td>
<td>• provide a structure and insight to enable the student to effectively explore anaesthetic, intensive care and pain academic literature.</td>
</tr>
</tbody>
</table>
Learning Outcomes/Specific Outcomes
On successful completion of this module, students will be able to:

1. describe and apply the principles of critical incident reporting, adverse incident management and learning from errors;
2. explain how different people learn and teach and apply styles to different situations and its relevance to personal professional development;
3. carry out a critical appraisal of a topic relevant to Anaesthesiology, Intensive Care or Pain Medicine.

Module Content
The module consists of the following topics: Principles of critical incident reporting, adverse incident management and learning from errors; Critical incident reporting; Adverse incident management; Learning from errors; Critical appraisal of anaesthesiology and critical care literature, continuing professional development (CPD) and further preparation for academic writing/dissertation (Appraisal of literature; CPD and lifelong learning: learning and teaching styles; Academic writing; Making the most of library facilities and e-learning)

Assessment Strategies
Continuous assessment (60%):
Module Examination (40%): theory paper, OSCE and semi-structured oral assessment

<table>
<thead>
<tr>
<th>Module Title:</th>
<th>Clinical Training Core</th>
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<tr>
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<tr>
<td>Contact hours</td>
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<td>Compulsory/ Elective</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester Offered</td>
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</tr>
</tbody>
</table>

Module Aim:
The aim of this module is for the student to develop extensive case load in core anaesthesia cases.

Learning Outcomes/Specific Outcomes
On successful completion of this module, students will be able to:

1. manage anaesthesiology patients with confidence and expertly

Module Content
The module covers clinical exposure to core anaesthesiology cases
Assessment Strategies
Continuous assessment (100%):

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Advanced Anaesthesiology II</th>
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<tbody>
<tr>
<td>Module Code</td>
<td>ASA5999</td>
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<tr>
<td>NQF Level</td>
<td>9</td>
</tr>
<tr>
<td>Notional Hours</td>
<td>600</td>
</tr>
<tr>
<td>Contact hours</td>
<td>70 hours of lectures in total + 530 hours of supervised clinical work (normally over a 12 week period)</td>
</tr>
<tr>
<td>NQFCredits</td>
<td>60</td>
</tr>
<tr>
<td>(Co-requisites) Prerequisite</td>
<td>First integrated Part I examination</td>
</tr>
<tr>
<td>Compulsory/Elective</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Semester Offered</td>
<td>N/A</td>
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</tbody>
</table>

Module Aims
This module aims to:
- further expose the trainees to the challenges of neuroanaesthesia/neuroradiology and neurocritical care;
- further expose the trainee to the challenges of cardiothoracic anaesthesia and cardiothoracic critical care;
- further expose students to the practice of paediatric (including neonatal) anaesthesia and paediatric critical care.

Learning Outcomes/Specific Outcomes
On successful completion of this module, students will be able to:
1. describe and implement the various clinical demands of anaesthesia for neurosurgery, neuroradiology and neurocritical care;
2. describe and implement the various clinical demands of cardiothoracic anaesthesia and cardiothoracic critical care;
3. describe and implement the various clinical demands of paediatric (including neonatal) anaesthesia and paediatric critical care.
4. recall and apply physical/scientific concepts important to anaesthesia with respect to general and regional anaesthesia.

Module Content
The module consists of the following topics: Principles of advanced airway management; Anatomy and pathophysiology of the airway; Scoring systems; Managing the difficult airway, including difficult airway trolley, failed intubation drill, specific airway rescue techniques; Regional anaesthesia other than spinals - Pharmacology of local anaesthetics; Anatomy relevant to relevant regional blocks and performance of blocks including upper and lower extremity blocks, trunk blocks, fascia iliaca, hemia blocks, caudal anaesthesia, penile block, local single nerve blocks and eye blocks; introduction to epidural anaesthesia; Introduction to anaesthesia for surgical subspecialties - Burns and plastics; Ear Nose and Throat; Ophthalmology; Anaesthesia for neurosurgery, neuroradiology and neurocritical care; Cardiothoracic anaesthesia and cardiothoracic critical care; paediatric (including neonatal) anaesthesia and paediatric critical care.

The trainees will be involved in the care of these complex cases under supervision and must keep logbook to demonstrate exposure and increasing competency. However, the student will only be considered proficient enough as a generalist-specialist anaesthetist.

**Assessment Strategies**
Continuous assessment (60%):

Module Examination (40%): theory paper, OSCE and semi-structured oral assessment
Learning Outcomes/Specific Outcomes
On successful completion of this module, students will be able to:

1. manage anaesthesiology patients in one or more subspecialties of anaesthesiology with confidence and expertly

Module Content
The module covers clinical exposure to selected subspecialties of anaesthesiology as agreed between student and trainer.

Assessment Strategies
Continuous assessment (100%):

Module Title: MMed (Anaesthesiology) Thesis
Module Code: AST5999
NQF Level: 9
Notional Hours: 1200
Contact hours: 1200 hours of integrated learning
NQF Credits: 120
Prerequisite: First integrated Part I examination
Compulsory/Elective: Compulsory
Semester Offered: N/A

Module Aim:
The aim of this module is to demonstrate the student’s understanding and ability to identify an impact research topic, formulate a well-structured proposal and conduct research elucidating significant results and conclusions with relevant remarks in the background of succinct literature review of the subject.

Learning Outcomes/Specific 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

Module Content
Supervised research in a relevant area
Assessment Strategies
Continuous assessment (100%): thesis (in accordance with UNAM post-graduate regulations)