Purpose of the handbook

The primary function of a University is to educate students and carry out appropriate research. The purpose of our administrative processes is to support these primary functions and help them to be carried out more efficiently.

The quality assurance systems described in this handbook are designed to improve the quality our teaching and ensure that our assessments are fair, consistent and of the appropriate international standard.

The purpose of this handbook is to provide EVERYONE at PNG-UNRE with a definitive guide to the Administrative Processes which regulate our teaching and the education related quality assurance systems.

The handbook is accompanied by other key information:

The New Student Orientation Booklet.
The University Calendar: This document contains The University of Vudal Act 1997, The University Statutes, and Rules of the University.

Contacts

General enquires should be addressed to:

Student Administration

Senior Assistant Registrar
The Papua New Guinea University of Natural Resources & Environment, Private Mail Bag, Kokopo East New Britain Province
Phone: (675) 983 9249; Fax (675) 983 9166 (ENBP)
SECTION A: INTRODUCTION

Welcome to PNG-UNRE from the Vice Chancellor.

Papua New Guinea is endowed with abundant renewable resources that is vastly untapped. In line with the country’s MTDP III emphasis on development in the natural resources sector, an education at PNG UNRE equips graduates to manage and utilise these natural resources for income generation in a sustainable manner without exhaustion and is available for the later generations to use.

Portraying its core activities in preservation of sustainable natural resources and environment, the university has a Nature Reserve nestled in the heart of the Vudal campus. It is a safe haven to many of the New Britain Island’s indigenous flora and fauna, and is regularly used by migratory birds as resting place. All Flora and Fauna in the campus are protected and the destruction of plants, killing of wild animals and birds or pouching is a chargeable offence under university laws. Carrying of weapons like a slingshot is an offence under university rules.

The university is host to four Schools, one existing and three newly established. The school of Natural Resources has the four Departments of Sustainable Agriculture, Sustainable Fish and Marine Resources, and Sustainable Forest Management Sustainable Animal Sciences. The new School of Resource Management and Business Studies hosts the Department Sustainable International Tourism and Hospitality from 2019 while other departments are being created. The School of Environment and Climate Change will host departments dealing with Environmental and climate issues. The School of Postgraduate and Research Studies will host apart from other departments, the Department of Management Studies under which the Masters in Management Studies (MMS) started in 2009 is being run.

James Yoko (PhD)

Vice Chancellor

About the University

PNG UNRE has developed from the Vudal Agricultural College, which was first established in 1965 as a male only college, with the first female students admitted ten years later. The college became the University of Vudal in 1997. The name was changed to PNG-UNRE to signal the start of the process to become a multidiscipline University, and the University now offers undergraduate courses in Agriculture, Fisheries, Forestry and Animal Science and Tourism. The University also offers a Graduate Certificate, and Masters Degree in Management Studies.

In its aspirations to be a modern university and the centre of excellence in Natural Resources and Environment, three more new schools and together with the existing School of Natural Resources will each host a number of departments.

Location

PNG-UNRE is located in East New Britain Province, on the Kerevat plateau, about 40 km from Kokopo. The lush tropical surroundings make the campus an ideal setting for the University’s natural resources and environment focus.

Undergraduate Courses

The University currently offers Fifteen undergraduate courses, with a Diploma, Advanced Diploma, and Degrees in Sustainable Tropical Agriculture, Sustainable Fisheries and Marine Resources, Sustainable Tropical Forestry, Animal Science and Sustainable International Tourism and Hospitality.

Farm Operations and Forestry Plantations

The farm occupies 150 hectares for crop and livestock production, with forestry plantations covering a further 30 hectares. Cocoa, vegetables and root crops are grown, while livestock include cattle, goats, pigs and poultry. The forestry plantations comprise around 30 hectares of balsa and a further 10 hectares of
Courses handbook 2019

teak, mahogany, canarium (galip) and other native species. The forestry department is also responsible for a 28 hectare nature reserve. In addition to providing food for local consumption and generating income for the University, the farm and forestry plantations are the main teaching resources for practical agriculture and horticulture. They also provide financial and management data for teaching and research purposes.

Outreach and Extension Programmes

Kairak Vudal Resource Training Centre (KVRTC)

A further resource which students and staff are encouraged to visit is the Kairak Vudal Resource Training Centre (KVRTC). Essentially a dynamic field laboratory, this provides valuable farmer training to rural communities through the Integrated Agriculture Training Programme (IATP). The training centre acts as the industry partner for a number of students during their industry project, and provides employment for many of our graduates.

Department of Self Education (DOSE)

DOSE is a conduit giving a second chance to school leavers unable to make the grades to enter national or secondary high school/it also provides an opportunity for grade 12 leavers wanting to upgrade marks in specific subjects enabling them to apply for tertiary colleges. This service is provided as part of the university’s obligation towards the community.

SECTION B: KEY INFORMATION

Academic

The core business of the university is to provide education in a number of science and social science related areas in a number of undergraduate programmes.

Attendance

The University requires students to attend all timetabled activities. All the evidence points to a clear correlation between good attendance at classes and success in your studies. Relying on your friend’s lecture notes or your previous knowledge of the subject will not be enough to get the marks you are capable of achieving. Students who consistently fail to attend classes or have missed more than 3 weeks of lectures will be prevented from sitting the final examination.

Computer facilities are provided for research and academic purposes. Rules for their proper use are outlined in the student rule book (Section H of this handbook).

Employability

We are committed to helping you develop skills as competent scientists, technocrats and esteemed professionals and aspiring entrepreneurs so that you graduate with a degree that you can be proud of. However, we also recognise that a qualification is just part of preparing you for what we hope will be a fulfilling future career. In order for you to obtain employment or opportunities for further study on completion of your degree there are other skills that you will need. Keep a record of any extra-curricular activities and take time to reflect on your own learning, performance and achievements to help you to play to your strengths and plan your academic, personal and career development.

Personal Attire

Part of this is to make it your business to secure a suitable employment through first impression to a prospecting employer. Employers can be very picky in personal attire and appearance. So little things go a long way towards you getting that job as compared to the other graduate. Employers look for tidiness, so little things like, dreadlocks hairs, heavy beards, beetle nut stains or heavy smell of tobacco can be detrimental towards your prospects of getting a job. As such lecturers are strict on such habits in a lecture rooms as UNRE moulds students to be the employable graduates. Other issues that UNRE encourages students to become a practice is regular shower daily and wearing of clean clothes due to the humid conditions of Vudal.
Fees  Students will not be enrolled or entitled to attend lectures, tutorials, seminars etc. if they have not paid the prescribed fees by the census date. The university will not accept guarantee letters from sponsors and students are expected to have paid the compulsory fees which is the tuition and bond fee enabling them to a non-residential status. Residential status is only given to students paying the required cost for accommodation or a 50% upfront payment that must be settled at the start of Semester two.

Registration  All students must register annually for their courses. Candidates may be permitted to register on a part-time basis provided that the combined contact hours of the modules do not exceed one third of the total contact hours.

Readmission  Students who have withdrawn, discontinued, or were suspended and wish to return to studies must apply for readmission by completing a Non-School Leaver Application Form. These forms are available from the Academic and Student Administration Office. This is also available online and can be accessed through the PNG UNRE website. Completed forms must be submitted by September 30th of each year. Suspended students can only be readmitted to the University after serving their full suspension period.

Withdrawal  Students withdrawing from a course or cancelling their registration in full must notify the Vice-Chancellor in writing. Fees will accrue until such notification has been received unless he agrees otherwise. When notification is received within four weeks from the date of registration a full refund of all tuition fees paid for the semester will be made. Reasons must be given for withdrawal. Students who leave after the deadline will be deemed to have failed the modules enrolled for that semester. Special consideration for late withdrawal may be given to students for medical reasons. This must be supported by a medical certificate. Partial refunds may be processed for students who withdraw on medical grounds.

Success at PNG-UNRE  You are among the privileged few of our population to receive a University education. We recognise that you are investing a significant amount of your time, money and energy on your studies. We offer you access to excellent learning support and facilities to enable you to achieve your potential, but to a large extent your success will depend on what you put into your studies. The more time you invest in your studies the better the chances of your success and brighter future.

TESAS Scholarships (AES, HECAS)  A registered student must achieve a Grade Point Average (GPA) of 3.6 in the two semesters in one academic year to qualify for AES. To qualify for HECAS, a student must have a GPA of 2.3 and above in the same period.

Library  The Library holds approximately 25,000 volumes of books and pamphlets. It also has a small reference collection of about 1000 volumes as well as selected databases including the PNG Agricultural Bibliographic Database, and others on CD ROM. Internet access is available and students can use this service to search for information for academic and research purposes. The library has a seating capacity of over 100 study chairs, and can accommodate 10 readers in the reading area. The library provides a lending service for all registered students free of charge. The library provides free access to all resources for all categories of users and duty librarians are available at all times to provide assistance. The library can also order reference material through the Inter-Library Loans service. All users are expected to abide by the rules of the library (Section H of this handbook).

Opening hours
During Semester
Monday to Thursday 8:00 am – 9:00 pm
Friday 8:00 am – 4:00 pm
Saturday CLOSED
Sunday 2:00 pm – 5:00 pm
During Vacation
Monday to Friday 8:00 am – 4:00 pm
Saturday CLOSED
Sunday CLOSED

Photocopying and Printing: The library provides a photocopying service at a cost, and undergraduate students are not permitted to use photocopiers located in Departments. The ICT service provides a limited printing service to students, allowing them to print copies of assessed work.

Text-books and course notes Owing to the cost of books there are currently only a few prescribed texts, which are essential to purchase. However, there are number of key books relevant to each module, which are placed on the prescribed reading list. Full details will be provided by the lecturer. The library coordinates issue of stationary items to students in receipt of a scholarship (AES, HECAS, or Corporate) according to the value allowed by their sponsor.

Student Support
Accommodation Room allocation and furnishings are coordinated by Student Support Services (SSS). Changes to allocated rooms can only be made on the authorisation of the SSS director. The rules governing the use of the Universities halls of residences are outlined in the student rule book (Section H of this handbook), and it is important that all students are familiar with them. Students must respect all University property and ensure rooms and surrounding areas are kept clean and hygienic. Regular room inspections are made by staff to ensure this is the case.

Church Services Most denominations have local churches within the community or worship in classrooms. Students are encouraged to attend. A chapel is being proposed

Messing and Catering Services Meals are prepared and served at the student mess. The menu varies from PNG to Western style dishes.

The dining hall can cater for up to 250 students at any one time, and it is important that students adhere to meal times. Catering orders for functions can be placed with mess staff.

Public relations You are encouraged to inform the Public Relations Office of activities you are involved in such as field trips, seminars, research projects, club, church, community, sports activities or even an interesting lecture. Articles developed from these events will be used in the University newsletter Campus Voice, and sent to the mainstream print and electronic media for publication or broadcast. The Public Relations Office also sells University souvenir items.

Sports and Recreation facilities include; rugby and soccer fields, basketball courts, and netball courts. Students are encouraged to participate in sports for physical fitness.

Student Support Services. The student Support Services Office is open on Monday to Friday from 7:45 am to 4:06 pm each working day. If there is an urgent problem, it may be possible to see one of the staff outside of the above times. Student Support Services provide information, help and advice for a wide range of personal and study related problems, including accommodation, spiritual encouragement, withdrawal from studies, etc. This service is free and confidential.

Health and Safety Alcohol and Illicit drugs are not permitted on campus, and their possession, trafficking or use can result in disciplinary action or criminal prosecution as outlined in the student rule book (Section H of this handbook).

Emergency Procedures Earthquake Many of you will have come from areas of the country not affected by earthquakes, but here in East New Britain Province, earthquakes are a common occurrence. Take advice from local students as to whether an earthquake is a cause for concern. In the case of a major earthquake you will reduce your chance of injury if you:
• **If in a building**, observe where you are, get onto your hands and knees. This position protects you from being knocked down and also allows you to stay low and crawl under a table or shelter if nearby to prevent things falling on you. Otherwise, if a study table or desk is nearby, crawl underneath it for shelter. If no shelter is nearby, crawl next to an interior wall (away from windows). Stay on your knees; bend over to protect vital organs. Avoid exterior walls, windows, hanging objects, mirrors, tall furniture, large appliances, and kitchen cabinets with heavy objects or glass. However, do not try to move more than 1-2 meters before getting on the ground. If indoors and the shaking is intense, you must leave the building safely.

• **If outdoors**, move to a clear area if you can safely do so, away from buildings, trees, power lines and vehicles. Then Drop, Cover, and Hold On. This protects you from any objects that may be thrown from the side, even if nothing is directly above you. COVER your head and neck with one arm and hand.

• **HOLD ON** until shaking stops.

**Fire:** If you can easily extinguish the fire, then do so. If not call for help from the building firewarden for their instruction on what to do. You can raise the alarm and evacuate the building. Dial the emergency number. Given.

**Incident Reporting** All incidents, whether accidents, ill health, near misses, damage to equipment, property or vehicles should be reported immediately. Near misses are just as important as accidents as the cause and the actions put in place to prevent reoccurrence will be the same as if an accident had occurred.

**Health Issues and Field Work**
If we are to look after the health and welfare of our students it is important that we are aware of their current health status, before they are allowed to carry out certain activities such as field work. It is the students’ responsibility to bring any known significant health issues to the attention of the module leader at the start of the module. If these issues are of a personal nature, the student may communicate with the Head of the UNRE Ethics Committee.

The students are expected to comply with safety rules for both the laboratory and farm workshop areas and must wear safety goggles and other safety equipment as requested by the lecturers, instructors and demonstrators for the practical class.

**Laboratory work** No person shall smoke, eat, drink or chew beetle nut in classrooms, the science laboratories, the computer lab and other areas where computer terminals are installed at any time. For laboratory and practical classes students are expected to wear appropriate laboratory coats and shoes, which adequately protect the feet, the eyes or hands. Students are also expected to wear safety gloves and masks when handling dangerous chemicals including pesticides, herbicides and must dispose of toxic wastes in appropriate containers so as not to pollute the soil or waterways.

**Medical Services** All students are required to complete a compulsory medical checks at the beginning of the year during orientation and registration week. The fieldwork components of the courses are very physically demanding and not appropriate during pregnancy, so the check includes a pregnancy test for female students. If you feel unwell you should provide your personal health record and current ID card at the clinic reception for assessment. Most cases will be treated at the clinic, but if necessary you will be referred to hospital for further diagnosis. PNG-UNRE Vudal clinic is a recognized VCCT HIV/AIDS & STI site and students can make use of the facility for HIV & STI counselling and testing. In emergency or after hours cases contact security services.
Security Services are available 24 hours a day to provide security for staff, students and their property. They are able to attend to emergency situations faced by staff and students.

Student Rule Book Rules governing student conduct are essential for the safe, efficient and fair running of the University and to ensure UNRE is a pleasant place to live and study. The rules, disciplinary procedures, and penalties, are outlined in the Student Rule Book (Every new student is given a copy). Every student must make it their business to read and understand the rules and defaults upon whom a penalty has been imposed. Offenders summoned before the disciplinary committee and charged can appeal to the Vice-Chancellor in writing not later than three days after the student has been informed of the penalty imposed.

Transport is provided to take students on field visits, and it is important to obey traffic laws for your own safety, and the safety of others. Passengers must not stand or sit on the sides of an open back vehicle, or have any part of their body hanging out when the vehicle is moving. Smoking or chewing betel nut is not allowed in a university vehicle.

SECTION C: STAFF

Governance
Acting Chancellor Associate Professor Dr Andrew Master MMedSci, PhD
Council Members:
Professor Kenneth Sumbuk
Mr Martin Maden
Mrs. Sandra Lau
Dr. Justin Ondopa (PhD)

Administration
Vice Chancellor James Yoko, PhD (UNE,Au), Med, (Uni Canberra) BSc (UPNG))

Pro Vice Chancellor (Academic) Associate Professor Aisak Pue, PhD. Medicine, (UQ), M. Eng. Biotech (University of Yamanashi, Japan), PGD Chemistry (UPNG), BSc. Food Tech (PNGUNITECH).

Pro Vice Chancellor (Planning and Development) Pongi Kichwen, PhD (Univ London, UK), MSc (Reading, UK), BSc (UPNG)

Registrar
Jennifer T Poppat (Mrs)

Senior Assistant Registrar (Academic and Student Administration) Ms Gali Ibos

Bursar Mr Edward Laki

Public Relations Ms Lythia Suitawa

Senior Librarian Mr Steven Ule

Information Technology Manager
Mr Russell Deka Harada

Student Support Services Director Mr Erike Sifuma

Catering Supervisor Mr Robert Skeeter

Emergency contacts

Medical Clinic Officer in Charge Mr Elias Wutga Ext 284

Guard house -Ext 230
Office of the Dean of the School  
TBA

Department of Agriculture  
Welcome to the Department of Agriculture. We congratulate all of you in being selected for the programme and take the opportunity to wish you the very best in your studies with us here at Vudal campus in East New Britain Province. The Department of Agriculture comprises enthusiastic individuals who are dedicated to the education of students and the wider rural community. You are expected to focus your energy on achieving your potential when you register with PNGUNRE. One of the main activities of course is learning. You will be expected to participate in workshops and conducting research into the methods and techniques of agricultural production and sustainability relevant to the needs of Papua New Guinea. Annually we look forward to welcoming new students and following graduation watch our graduates embark on a diverse range of interesting and relevant careers. You now have the opportunity to join this group and we hope you will value the assistance and training you will obtain along the way.

The Department of Agriculture has a long history of producing the critical workforce for PNG since it opened its doors in 1967. This legacy continues today with the undergraduate courses leading to the awards of the Diploma in Tropical Agriculture (DTA) and the Bachelor of Tropical Agriculture (BTA). All modules offered combine a foundation in basic sciences with applied agricultural and fisheries sciences, management and business skills, practical work including farm practice and industry experience. The result is an excellent graduate employment outcome and very high student satisfaction levels. To both categories of students, whether new or continuing, it is imperative to note the importance of how you apply and synchronize yourselves as young adults and responsible citizens of this campus and country. Most students take time to settle into University life. A steady work programme gives the best chance of passing and enjoying the social aspects of University life. Our staff are happy to provide advice or assist with problems as they arise. The University also provides counseling through the Students Support Services office.

It gives me great pleasure every year to welcome new students to the Department, to wish you well in your university studies and hope that your time with us will be both stimulating and rewarding.

Peter Navus MSc (Reading)  
Head of Department

Administration Officer Mrs. Linda Roberts, Dip. Public Admin (PNGIPA), Cert. Secretarial (Rabaul Business College), Cert. Teaching (Gaulim Teachers College), Cert. Descriptive Statistics (PNGNUNRE).

Administrative Clerk Mrs Meriba Darius (Cert, PETT, Malaguna Technical College),

Administrative Clerk Mrs Nancy ToRavie, Cert. Secretarial.

Lecturers

Crop Sciences & Land Use Mr Joachim Pitala, M. Sc. Agr (UNE), PGD Agr (PNGUNITECH), B. Sc. Agr. (UPNG).
**Biology/Microbiology** Dr Nason Pue (PhD UQ), Master of Biotech (UQ), BSc.(Microbiology/Biotech)(Victoria Uni. Melbourne), Dip. Tropical Agr. (UoV).

**Animal sciences/Livestock Production** Mr Charles Maika B. Agr (Hons) (UPNG), Grad Dip. Agr. Sc. (UNE), PGD Edu (UOG).


**Plant Protection**

**Soil Science** Mr. James Aipa, M. Sc. (Soil Sc.) South China Agriculture University, B. Sc. (Soils) (UPNG), PGD Agr (Soils) (UPNG).

**Biotechnology** Ms Betty Kenny, Master of Scientific Studies (Newcastle), BSc (UPNG).

**Crop Production** Ms Annette Mwayawa, Master of Agriculture (UQ), B. Tropical Agr. (Hons)(UoV.), (on study leave).


**Management** Mr Peter Navus, M. Sc. (Reading), PGD RSM (UQ), Graduate Cert in Communication for Science and Tech (PNGUNITECH), B. Agri. (UPNG).

**Rural Dev. & Ind. Project** Mr Thomas Suri Taisa, Masters Agr. (Plant Breeding), PGD Agr.(Lincoln), B Agr. Sc. (PNGUNITECH), Cert Scientific Communication (PNGUNITECH), Cert TQM (PNGUNRE).

**Management** Mr Adolf Wellip, MSc Natural Res Studies (UQ), BA (UPNG), Dip. Teaching (UOG).

**Marketing & Projects** Ms Dorothy Worogop. Postgrad Cert. Management (UNRE 2014); Postgrad Cert in commerce (Univ Queensland 2007)

**Post-Harvest Technology** Associate Professor Aisak Pue, PhD. Medicine, (UQ), M. Eng. Biotech (University of Yamanashi, Japan), PGD Chemistry (PNGUNRE), BSc. Food Tech (PNGUNITECH).

**Food Technology** Mr Peter Nguna. MSc. Appropriate TECH (FLEN UNI, Germany), B.Sc. Food Tech (PNGUNITECH), PGD Tech (Massey Uni, NZ).

**Communications** Ms Stephanie Tringin, B. Trop. Agr. (PNGUNRE), Dip. Tropical Agri. (PNGUNRE).

**Year Coordinators**

**Year 1 Coordinator** Mr Nason Pue.

**Year 2 Coordinator** Mr James Aipa.

**Year 3 Coordinator** Mrs Kathleen Diapong Patak.

**Year 4 Coordinator** Ms Betty Kenny.

**Year 3 Industry & Community Attachment Coordinators** Ms. Naomi Mayawa/Mr. Inia Bunsa

**Technical Instructors**

Mr Inia Bunsa, B. Trop Agr. (PNGUNRE), Dip Trop Agr. (UOV), Cert. Environmentally Friendly Fertilizer Production, Demonstration & Application for Developing Countries (South China Agricultural Uni).

Mrs Kathleen Diapong Patak B. Tropical Agr. (PNGUNRE).
Ms Stephanie Tringin, *B. Trop. Agr. (PNGUNRE), Dip. Tropical Agri. (PNGUNRE).*

Mrs Gloria Tenga, Graduate Dip. Agr. (Uni. of Sydney), B. Sc (UPNG).

**Technical Staff**

**Senior Technical Officer (Lab. Calibration)** Mr Clement Nelson, *Dip Tropical Agri. (UoV).*

**Technical Instructor (Rural Technology)**

**Technical Officer (Crop Demonstration):** Mr Sombo Mangupe, *Dip Tropical Agr. (PNGUNRE), Cert. Rice Cultivation Technique Development (JICA, Japan), Cert. Insect Diagnostic Workshop (NARI), Cert. Descriptive Statistics (PNGUNRE).*

**Laboratory Attendant:** Ms Wendy Wanio, Cert. Laboratory Techniques in Analytical and in organic Chemistry level 1 (PNGUNITECH), Cert.

**COURSE STRUCTURE**

**BACHELOR OF SUSTAINABLE TROPICAL AGRICULTURE**

**Codes:**
- A = Agriculture
- F = Forestry
- M = Fisheries and Marine
- N = Animal Science
- T = Tourism

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NB: Diploma code modules only in year 3 duplicate degree modules but with different assessments. The first year is common to all courses.

**Courses**

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**Diploma in Tropical Agriculture**

This is a three year full time undergraduate course offered at Vudal Campus. In the first year students study the basic science of biology, chemistry, physics and mathematics, an appreciation of agriculture systems and economy, and obtain on – farm experience. In the second and third year students are introduced to a breadth of disciplines covering crop and animal production, soils, agricultural management, field engineering, rural sociology and obtain off-campus professional experience and communication skills.

**Degree in Tropical Agriculture** This is a four year full time undergraduate course and is taught only at the Vudal Campus. Students are selected for entry into the third year of the Degree program based on their Grades Point Average Marks (GPA) over the previous two years of the Diploma of Tropical Agriculture which must equal to or exceed 2.5. The third and fourth year programs consist of advanced modules in animal and plant production, plant protection, biotechnology, biometrics, farm forestry and agricultural extension. In addition, a whole semester is devoted to conducting an off-campus, industry based project.

**Bachelor of Tropical Agriculture (Bridging)** Students already holding a Diploma in Tropical Agriculture followed by at least 3 years industry experience can apply to enter the Bachelor of Tropical Agriculture bridging program via direct entry into the third year program for the degree. The module is only offered at Vudal Campus and is subject to demand and accommodation space being available. Enrolment is competitive and subject to eligibility conditions.

**Diploma in Animal Science**
Degree in Animal Science

Foundation Year Science in Natural Resources
The Department of Sustainable Agriculture offers a four year programme beginning with a common one year science course for all degree and Diploma programmes. This is a foundation year to ensure all students are prepared well with the appropriate level of science needed to undertake the programme.

Structure of Courses
Sustainable Tropical Agriculture

Year 1 Common first year Degree/Diploma

Semester 1 Modules
A111 Communication Skills
A112 Introduction to Biology
A114 Introduction to Chemistry
A115 Introduction to Agriculture
F111 Introduction to Forestry
M111 Introduction to Fisheries

Semester 2 Modules
A123 Natural Resource Conservation & Utilisation
A126 On Farm Practice
A127 Introduction to Economics & Management
A128 Applied Biology
A129 Physical Science
T121 Introduction to Tourism

Year 2 Tropical Agriculture Diploma/Degree

Semester 1 Modules
A211 ICT for Natural Resources
A212 Applied Mathematics
A213 Health and Safety
A215 Principles of Soil Science
A216 Introduction to Plant Science
N211 Introduction to Animal Science

Semester 2 Modules
A221 Sustainable Land Use and Management
A224 Business and Management
A227 Agriculture Mechanisation
A228 Agricultural Protection
M229 Applied Ecology
N222 Animal Production

Year 3 – Tropical Agriculture Diploma

Semester 1 Modules
AD311 Statistics
AD312 Applied Rural Technology
AD313 Work Experience
Placement between year 2 and 3
AD314 Extension Methods
AD315D Agronomy and Crop Nutrition

Semester 2 Modules
AD322 Research Methods
AD323 Crop Production
AD324 Sustainable Palm Oil
AD325 Applied Entomology
AD326 Farm Business Projects
M321 Aquaculture

Year 3 – Tropical Agriculture Degree

Semester 1 Modules
A311 Statistics
A312 Applied Rural Technology
A313 Work Experience
Placement between year 2 and 3
A314 Extension Methods
A315D Agronomy and Crop Nutrition

Semester 2 Modules
A322 Research Methods
A323 Crop Production
A324 Sustainable Palm Oil
A325 Applied Entomology
A326 Farm Business Projects
M321 Aquaculture

Year 4 – Tropical Agriculture Degree/Honours Degree

Semester 1 Modules
A411D Industry Project or
AH411D Research Project I  
A413 Entrepreneurship  
A414 Resource Management  
A416 Principles of Food Processing  
N411 Principles of Genetics

**Semester 2 Modules**
A422 Plant Breeding and Biotechnology  
A422D Current Issues in Natural Resources or AH422D Individual Project II  
A423 Marketing Management  
A425 Plant Pathology  
N421 Livestock Integrated Systems

**Department of Sustainable Livestock Production**
**Year 1 Common first year**

**Semester 1 Modules**
A111 Communication Skills  
A112 Introduction to Biology  
A114 Introduction to Chemistry  
A115 Introduction to Agriculture  
F111 Introduction to Forestry  
M111 Introduction to Fisheries

**Semester 2 Modules**
A123 Natural Resource Conservation & Utilisation  
A126 On Farm Practice  
A127 Introduction to Economics & Management  
A128 Applied Biology  
A129 Physical Science  
T121 Introduction to Tourism

**Year 2 Animal Science Degree/Diploma**

**Semester 1 Modules**
A211 ICT for Natural Resources  
A212 Applied Mathematics  
A213 Health and Safety at Work  
N211 Introduction to Animal Science  
N213 Anatomy and Physiology of Farmed Animals  
N214 Monogastric Animal Production

**Semester 2 Modules**
A224 Introduction to Business and Management  
A227 Agricultural Mechanization  
M229 Applied Ecology  
N222 Animal Production Practices  
N225 Ruminant Animal Production  
N226 Pasture Production and Management

**Year 3 Animal Science Diploma**

**Semester 1 Modules**
AD311 Statistics  
AD313 Work Experience  
Placement between year 2 & 3  
ND311 Animal Nutrition  
ND312 Feed Analysis & Instruments  
ND313 Animal Health Management  
ND314 Extension Methods

**Semester 2 Modules**
AD322 Research Methods  
AD324 Meat Quality & Assessment  
AD326 Farm Business Project  
MD321 Aquaculture  
ND321 Applied Animal Nutrition  
ND323 Animal Behaviour & Welfare

**Year 3 Animal Science Degree**

**Semester 1 Modules**
A311 Statistics  
A313 Work Experience  
Placement between year 2 & 3  
N311 Animal Nutrition  
N312 Feed Analysis & Instruments  
N313 Animal Health Management  
N314 Extension Methods

**Semester 2 Modules**
A322 Research Methods  
A324 Meat Quality & Assessment  
A326 Farm Business Project  
M321 Aquaculture  
N321 Applied Animal Nutrition  
N323 Animal Behaviour & Welfare
Year 4 Animal Science Degree/Honours Degree

**Semester 1 Modules**
- A411D Industry Project
  - Semester I (Degree)
  - Or AH411D Research Project I
- A413 Entrepreneurship
- A416 Principles of Food Processing
- N411 Principles of Genetics
- N413 Climate Change & Animal Agriculture

**Semester 2 Modules**
- A422D Current Issues in Natural Resources
  - or AH422D Research Project 2
- A423 Marketing Management
- N421 Livestock Integrated Farming System
- N422 Animal Breeding
- N424 Animal Reproduction

**Modules**
Modules are described by code in alphabetical order, then numerical order.

A more detailed description of the module, its learning outcomes, assessments and reading lists will be available in a module handbook at the start of each semester.

**Tropical Agriculture**

**A111 Communication Skills**

*Module coordinator: Ms Stephanie Tringin*

*Module description*
This module provides training in effective interpersonal communications by exploring the four inter-related essential skills of the English language; speaking, listening, reading and writing. Students will be given lecture presentations and activities that will improve their skills in each of these areas in order to improve their ability to comprehend and effectively communicate in the modules taught in university and in the workplace.

Students will also be given instructions in; word processing (Microsoft Word), slideshow presentation using Microsoft PowerPoint, basic mathematical functions, data compilation and the creation of graphs (using Microsoft Excel).

**Learning Outcomes**
By the end of the module students will be able to:
1. Use of Microsoft Office to present seminars, prepare documents and handle data.
2. Demonstrate a confident approach to public speaking.
3. Take effective and meaningful notes in lectures, tutorials and from prescribed reading.
4. Critically read and interpret text and questions and gather appropriate information for assignments.
5. Construct effective scientific reports.
7. Understand what is meant by plagiarism and be aware of the University policy regarding it.

**Module delivery**
100 hours comprising 20 hours lectures, 20 hours tutorials, seminars or practicals and 60 hours self-study.

**Assessment**
Coursework 40%: Final examination 60%

**Essential reading**
Kehatsin, J. (2004), Effective Writing: An Asset for University Students, PNGUNITECH Printer, Lae, PNG.

**Further Reading**
Harber, M., (1993), Manual on Scientific Writing, TAFE Publications RMIT Ltd, Call No. 808.0666 MAN)

**A112 Introduction to Biology**

*Module coordinator: Mr Nason Pue*

**Module description**

This module aims to teach students how single cells and complex multicellular organisms function. Knowledge gained from this module will be vital for more advanced modules such as animal and crop physiology including plant nutrition, genetics and biotechnology. This module will cover: the biological molecules of life; their structures and functions and the role of water. Cell biology; the two main cell types (prokaryotic and eukaryotic cells), the functions of the different cell components, the differences between cells of bacteria, animals and plants, the cell membrane as the principle of cellular organisation, cell division and cell signalling in the formation of multicellular organs and cellular respiration including fermentation. Genetics; basic Mendelian genetics, gene structure, molecular genetics, replication, transcription and translation. Diversity of living things; classification, evolutionary relationships, morphology, anatomy, reproduction and physiology of animals.

**Learning Outcomes**

By the end of the module students will be able to:

1. Describe the chemical structures of the macromolecules, their monomers and functions in the cells of living things.
2. Define the structure and function of a typical eukaryotic and prokaryotic cell.
3. Describe how different substances move in and out of cells via the cell membrane.
4. Describe the process of cell division in somatic and gamete cells in eukaryotic cells in the context of tissue formation and organ formation in processes involved in growth and development of multicellular organisms specifically animals and plants.
5. Describe metabolism in the context of cellular respiration for energy generation.
6. Demonstrate basic principles of genetics in the context of predicting outcomes of crosses, gene mutations and its effect on gene expression.
7. Describe the diversity of living things by way of classification, and be able to write scientific names of organisms using the binomial nomenclature.

**Module delivery**

100 hours comprising 20 hours lectures, 20 hours tutorials, seminars or practicals and 60 hours self-study.

**Assessment**

Coursework 50%: Final Examination 50%

**Essential reading**


**Further Reading**


**A114 Introduction to Chemistry**

*Module coordinator: Dr Aisak Pue/Gloria Tenga*
Module description
An understanding of chemistry is essential to the detailed study of many areas relevant to the study and management of natural resources including oceans, soils, fertilisers, pesticides, herbicides, pollution, food and nutrition. This aim of this module is to ensure that students from different educational backgrounds have the chemical knowledge, and practical expertise required to be successful in their studies. In addition to the subject specific knowledge, this module provides opportunities to develop generic skills, such as communication, team working, numeracy and problem solving. Areas covered include: Atoms, elements, and the periodic table; bonding; chemical calculations; energy and reaction rates; equilibria and acid-base reactions; basic organic chemistry; chemical analysis; biological and geological cycles.

Learning Outcomes
By the end of the module students will be able to:
1. Explain the fundamental chemical principles governing chemical reactions. These principles are described in detail in the module handbook.
2. Apply their knowledge to solve chemical problems.
3. Design experiments to investigate the nature of materials.

Module delivery
100 hours per semester comprising 20 hours lectures, 20 hours workshops and practical activities and 60 hours self-study.

Assessment
Coursework 40% (Practical report): Final Examination 60%

Essential Reading List
Any general chemistry text e.g. Zhumdahl, S. S. 1997, Chemistry McMurray, J 2002, Organic Chemistry

Useful websites:
www.chemguide.co.uk

A115 Introduction to Agriculture
Module coordinator: Mr Adolf Wellip
Module description
This module includes a brief history of agriculture in PNG, crop species and the importance of preserving diversity, major food and cash crops, and their domestic and international market potentials. The performance of PNG’s export crops and strategies for improvement. Fishery, aquaculture and forestry resources of PNG and their importance in sustaining livelihoods. The need to transform PNG’s contemporary agriculture systems to increase productivity, and foster sustainability to meet the challenges of population increase and climate change. Gender equality in agriculture. Food security. E-agriculture and its importance to small holder farmers. Factors that impede agriculture sector’s development and performance in PNG.

Learning Outcomes
By the end of the module students will be able to:
1. Describe the agricultural systems used in PNG.
2. Explain the factors that cause the agricultural sector to perform below expectations.
3. Assess the severity of the effects extreme climate change and devise coping, adaptation and mitigation strategies used in PNG and other parts of the world.
4. Assess the adverse effects of agricultural practices on the agro ecosystem and apply sustainable agricultural best practices to address them.

Module delivery
100 hours per semester comprising 10 hours lectures, 30 hours tutorials and 60 hours self-study.

Assessment
Coursework 50%: Final Examination 50%

Essential Reading
Biodiversity for Food and Agriculture Contributing to Food Security and Sustainability in a Changing World. Published by FAO of UN as the Platform for agro biodiversity research.

Further Reading

A123 Natural Resource Conservation & Utilisation
Module coordinator: Joachim Pitala
Module description
This module covers the important renewable natural resources namely Land, Forestry, Fisheries, Wildlife and Biological Diversity. Topics that relate to the management, conservation and utilisation, and strategies to ensure the sustainability of these renewable natural resources are also covered. Students will investigate the roles and responsibilities of relevant stakeholders - government agencies and institutions, communities, etc. in addressing issues of resource management, utilisation and conservation.

Learning Outcomes
By the end of the module students will be able to:
1. State the important renewable natural resources of the world including Papua New Guinea and their potential benefits to the people.
2. Describe the extent and causes of land degradation in the world and particularly in the Asia/Pacific region including Papua New Guinea.
3. State the importance and current state of the forests, fisheries resources, wildlife resources and biological diversity resources of the world.
4. Describe some of the management and conservation strategies and approaches in relation to the utilisation of land, forestry, fisheries, and wildlife resources.

Module delivery
100 hours per semester comprising 10 hours lectures, 20 hours seminars and tutorials, field visits and self-study.

Assessment
Coursework 40% (test and assignment): Exam 60%

Essential Reading

Further Reading
Weddell, B.J. (2002), Conserving Living Natural Resources: In the context of a
changing world. Cambridge University Press, United Kingdom.

A126 On Farm Practice
Module coordinator: Mr Freddy Gena
Module description
This non-examinable module enables students to visit and work in all sections of the UNRE farm. Through this module the students will recognize, understand and become practically involved with the functions and operations of each section.
Learning Outcomes
By the end of the module students will be able to:
1. Briefly report on the task given by Technical Officers on the farm operation units.
2. Identify and state the benefits of the task given.
3. Explain how the activity engaged in will contribute to their study in the coming years at UNRE.
4. State the significance of the different tasks done in relation to the course offered by the university.
5. Develop an ethical and professional approach and mindset relating to real work on site.
Module delivery
100 hours per semester comprising 5 hours lectures, 95 hours field work and self-study.
Assessment
50% report, 50% supervisor assessment

A127 Introduction to Economics and Management
Module coordinator: Adolf Wellip
Module Delivery
This module provides an introduction to how economic concepts, principles and laws, are applied in agriculture, fisheries, forestry and other disciplines. This module will enable students to comprehend real world problems and make critical decisions on how to use scarce resources, think systematically about economic problems and achieve business objectives. A basic understanding of economics is a useful tool, in forward planning, understanding market forces, creating opportunities for business enterprise and making daily livelihood decisions.
Learning Outcomes
By the end of the module students will be able to:
1. Explain key concepts, facts, laws and principles, in economics and describe basic management processes and functions that include leadership styles and theories.
2. Calculate supply, demand, price and income elasticity, production frontiers, inflation, gross domestic product, unemployment rate and exchange rates and plot them on the graphs,
3. Produce organisational charts and identify the management and leadership styles being used.
3. Compute different elasticities, opportunity costs, production costs, GDP, economic growth, inflation, unemployment rate in the economy. Use the different elasticities to explain the processes of production and marketing decisions.
Module delivery
100 hours per semester comprising 20 hours lectures, 20 hours seminars and tutorials and 60 hours self-study.
Assessment
Coursework 50% (tests and assignment): Exam 50%
Essential Reading List


Further Reading


A128 Applied Biology
Module coordinator Dr. Nason Pue

Module description
This module will enable students to identify the diversity of adaptations of anatomical and physiological traits observed in plants and animals that allow them to live in their diverse habitats. The aim is to help students see plants and animals as efficient systems for gathering resources and producing offspring. The knowledge gained will be useful for advanced studies in animal and plant production systems or for managing wildlife for ecotourism purposes.

The module covers: Plant structure and function; water and sugar transport, soil and plant nutrition, plant reproduction in angiosperms, growth and development and plant sensory systems in response to internal and external signals including infections. Structure and function of the major organ systems in animals; infections, and animal behaviour. Ecology; population ecology, community ecology, ecosystems and biodiversity.

Learning Outcomes
By the end of the module students will be able to:
1. Describe the structure and function of plant roots, stems, leaves and flowers
2. Describe the processes of photosynthesis, internal transport and plant reproduction.
3. Describe sensory mechanisms employed by plants to detect and fight plant infections
4. Describe the growth and development stages in plants and animals.
5. Describe the anatomy and physiology of organs and organ systems in animals and how they work including their functional units.
6. Define ecology and describe ecological interactions.

Module delivery
100 hours per semester comprising 20 hours lectures, 20 hours seminars, tutorials and practicals and 60 hours self-study.

Assessment
Coursework 50% (tests and lab report): Exam 50%

Essential Reading List


Further Reading


A129 Physical Science

Module coordinator: Mr Peter Nguna

Module description
This module will enable students to apply physics in their course and later in their professional careers. It introduces students to the principles of measurements, vectors, force and motion, work, energy and power, properties of matter, fluids, temperature and thermometry.

Learning Outcomes
By the end of the module students will be able to:
1. Describe the main themes of the underlying physical principles of the topics covered in the module.
2. Define the topics outlined in the Module.
3. Explain the basic theories behind the physical principles of the topics covered.
4. Apply physical formulas to calculate unknown physical quantities.
5. Discuss results computed from laboratory practicals.
6. Use worked examples to illustrate basic physical principles and applications.
7. Identify unknown quantities and factors in physical exercises.

Module delivery
100 hours per semester comprising 20 hours lectures, tutorials, practicals and self-study.

Assessment
Coursework 50% (tests and lab report):
Exam 50%

Essential Reading List
S.E. Nonie., A.A. Baimba., 2003, Concise College Physics, Volume 1., CBS Publishers & Distributors, PVT. LTD, India

Further Reading
David Kolkoma, et-al, 2012, Save buk, 12 PHYSICS for PNG Upper Secondary, Oxford University Press, Australia & New Zealand

A211 ICT for Natural resources

Module coordinator: Mr Russell Deka Harada

Module description
This module introduces the importance of ICT for Natural Resources to all second year UNRE students. It will enable students to use ICT as tools for data storage, communication, research and other academic activities. The module is designed to provide an understanding of the basic ICT skills, including; internet literacy and research, e-mail and other online communication/collaboration (SNS), PC trouble-shooting/maintenance, data protection, data manipulation/management.

Learning Outcomes
By the end of the module students will be able to:
1. Download data in a range of formats and use internet search tools.
2. Use a range of software to analyse data.
3. Select appropriate software for range of different tasks.
4. Communicate effectively with individuals and groups using range of digital IT platforms.
5. Use technology effectively in the delivery of instruction, assessment and professional development.

Module delivery
100 hours comprising 10 hours lectures, 30 hours tutorials and practicals, and 60 hours self-study.

Assessment
Coursework 80% (Assignment and practical activity): Final Examination 20%

**Essential Reading**
- https://www.internetsociety.org/sites/default/files/Brief_History_of_the_Internet.pdf
- https://www.forbes.com/sites/gilpress/2013/04/08/a-very-short-history-of-information-technology-it/#6f1c1bde2440

**Cheltenham Office 2010 Courseware**

Further Reading
- https://elearningindustry.com/

**A 212 Applied Mathematics**

*Module coordinator: Mr Nason Pue*

**Module description**
This module aims to teach students how to apply mathematical concepts and relationships to solve real world problems. For example, modelling population growth of microorganisms, animals or plants or the growth of the economy, interest rates, costings in businesses etc. to describe the changes as well as predict expected outcomes for decision making.

**Learning Outcomes**
By the end of the module students will be able to:
1. Describe the relationship between two or more variables or quantities calculated from linear or matrix relationships
2. Calculate costings and break even analysis using linear programming
3. Compute basic financial transactions such as simple and compound interest, instalment loans and annuities.
4. Use probability to determine certainty of random processes.
5. Collect, organize and summarise data using statistical techniques.
6. Use different types of functions to explain or describe relationships between variables.
7. Use calculus to predict the rate at which the nation’s economy is growing.
8. Use integration in real world situations.
9. Predict the decay lifetime of fertilizers, radioactive materials, antibiotics or medicines and the exponential growth of populations.
10. Use least squares and regression analysis.

**Module delivery**
100 hours comprising 20 hours lectures, 20 hours tutorials and seminars and 60 hours self-study.

**Assessment**
Coursework 60% (test and assignment): Examination 40%

**Essential Reading**

https://elearningindustry.com/

**A213 Health and Safety**

*Module coordinator: Mr Aisak Pue*

**Module Description**
The principles and practice of Health and Safety are crucial for anyone working in agriculture, forestry, fisheries or tourism. Agriculture, forestry and fisheries are particularly high risk industries. By the end of this module students will be able to assess risks and work safely in the laboratory, field and workplace. This will enable students to be safety conscious in their current programme and later in their professional careers either as employees or as employers.

This module will enable students to appreciate biological, physical and chemical health and safety risks. How to prevent them and what to do in an emergency situation.

**Learning Outcomes**
By the end of the module students will be able to:
1. Demonstrate an informed opinion on the importance of Health and Safety in the workplace
2. Prepare risk assessments for a variety of different situations.
3. Outline current Health and safety regulations, and consider ethical obligations where regulations do not exist.
4. Carry out basic first aid.
5. Recognise the importance of factors affecting general health such as welfare, nutrition and fitness.
6. Recognise the importance of various items of personal protective equipment (PPE)
7. Describe appropriate procedures for a variety of different emergency situations.

**Module Delivery**
100 hours including 20 hours lectures, 10 hours tutorials and practicals and 70 hours self-study.

**Assessment**
Coursework 50% (assignments and first aid competence): Examination 50%.

**Essential Reading**
PNG Industrial Safety, Health and Welfare Act 1961 (Chapter 175).

**Further Reading**

**A215 Principles of Soil Science**
**Module coordinator: Mr James Aipa**
**Module description**
A knowledge of soils is vital for farmers, agronomists, and soil scientists to manage soil resources wisely. Rapid increases in population exert a huge pressure on existing croplands. Croplands are diminishing in size and forest lands are declining due to agricultural expansion. Natural disasters such as floods and earthquakes coupled with anthropogenic activities like agriculture and mining are responsible for degradation of existing croplands. This module introduces students to the importance of soils and the study of soil formation, land use mapping and classification. The latter part of this module deals with the chemistry of soils and plant nutrient management and sustainability of agricultural production in Papua New Guinea.

**Learning Outcomes**
By the end of the module students will be able to:
1. Understand the role of soils and how they are formed and discuss the major soil groups in Papua New Guinea.
2. Discuss key soil physical properties and explain how these properties affect the availability of nutrients to plants in soils.
4. Implement field studies and explain strategies for soil improvement, including crop rotation, land fallows, shifting cultivation, organic matter application, cover cropping, green manuring, mulching, agri-forestry and composting.
5. Identify important soil processes and their influence on soil behaviour, and discuss the key soil chemical properties and explain how these properties affect the availability of nutrients to plants in soils.
6. Carry out soil sampling; take soil samples and perform laboratory tests on soils, interpret results and make appropriate recommendations.
Module delivery
100 hours comprising 20 hours lectures, tutorials, practical activities, field visits and self-study.

Assessment
Coursework 50%: Examination 50%

Essential Reading

Further Reading

A216 Introduction to Plant Science
Module coordinator: Mr Inia Bunsia
Module description
This module is an introduction to the basic principles of plant growth and development in crop production. It is a practically oriented and aims to teach students the correct practices involved in plant or crop production. These factors include; site selection, land clearing and soil cultivation, plant reproductive growth and development, plant propagation techniques, plant establishment, crop management practices, plant maturity, harvesting and storage.

Students are given practical projects in order to increase their understanding of practical applications and to build interest and motivation.

Learning Outcomes
By the end of the module students will be able to:
1. Explain the various factors that influence plant growth and development.
2. Describe the different growth and development stages of plants.
3. Establish suitable crop nurseries for the required type of crop production.
4. Describe the required plant propagation techniques and explain the usefulness of each method.
5. Explain the importance and benefits of crop management practices such as pruning, mulching and shade provision for woody perennials and herbaceous plants.
6. Perform these management practices correctly to suit each crop genotype and in growth and development stages.
7. Describe how crop plants can be assessed in terms of its economic and physiological criteria.
8. Discuss the basics of pre-harvest and post-harvest techniques involved in food and cash crop production.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practical activities and self-study.

Assessment
Coursework 50% (Practical project and report): Examination 50%

Essential Reading

Further Reading
A221 Sustainable Land Use and Management

Module coordinator: Mr James Aipa

Module description
This module explores important natural resources including soils, forests, grasslands, swamps, rivers and lakes, main landforms of PNG and their influences on sustainable land use. The module will challenge students to apply the concepts of sustainability rigorously when considering land management, drawing on examples from the rural environment and land reclamation associated with industrial use or mineral extraction.

Learning Outcomes
By the end of the module students will be able to:
1. Evaluate how enquiry learning can be used to promote the understanding of sustainable agriculture and acknowledge the nature and importance of sustainable land use and management for sustainability of forestry/agricultural systems.
2. Visualise the current practices and issues in agricultural and forestry systems to evaluate the different ways in which different forestry/agricultural practices are carried out that can alter the environment either in a positive or negative way including natural and anthropogenic factors.
3. Analyse examples of forestry/agricultural farming practices and assess land management options so as to utilise site resources considering economic, social, environmental benefits to their maximum potential and to optimise impacts with regard to economic, social and environmental outcomes.
4. Evaluate the negative effects of these processes on forestry/agricultural sustainability and devise suitable strategies to rehabilitate degraded soils using case studies of sustainable land use studies elsewhere around the world.
5. Develop appropriate skills and techniques/strategies for soil improvement including crop rotation, shifting cultivation, mulching, organic matter application, agro-forestry, green manuring, cover cropping, land fallows and composting for agricultural/forest soil management and planning.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits, and self-study.

Assessment
Coursework 50% (assignment, tests, and practical assessment): Examination 50%.

Essential Reading

Further Reading
https://elearningindustry.
A224 Introduction to Business and Management

Module coordinator: Mr Adolf Wellip

Module description
This module introduces students to farm management functions, processes and record keeping systems enabling them to make good financial investment decisions, assess the performances of enterprises and make investment decisions to improve enterprise performance.

Learning Outcomes
By the end of the module students will be able to:
1. Identify, recall and explain key business and management concepts, theories, functions, principles and terms.
2. Assess the business environment and choose the ideal enterprise for the environment and resources available and produce a business plan.
3. Make investment decisions based on the financial statements, evaluate and analyse business management decisions.
4. Use the business plan and produce different financial statements to help choose the most profitable enterprise and make financially sound business investment decisions.

Module delivery
100 hours comprising 20 hours lectures, 20 hours tutorials and 60 hours self-study.

Assessment
Coursework 50% (tests, and project): Examination 50%.

Essential Reading

A227 Agriculture Mechanisation

Module coordinator: Mr Robert Bola

Module description
Current technological advances have given developed nations very sophisticated field equipment which in turn demands a high level of training for managers and operators. UNRE students need the skills to manage imported farm technology. Students must evaluate the limitations of mechanization so they can either employ or modify the design appropriately for
industry and farming in PNG. Students also need to know the different sources of energy required to power agricultural machines. This module will lead students to critically weigh the advantages and disadvantages of mechanization as it impacts PNG as a developing nation. Students are encouraged to investigate advances in technology that are currently employed by big agro-business in the country such as Ramu Sugar Industries, New Britain Palm Oil Limited, PNG Balsa and Hagi Oil Palm Limited.

Learning Outcomes
By the end of the module students will be able to:
1. Describe the sources of energy for farm machines.
2. Describe the functions of parts, devices, units and systems of the tractors internal combustion engine.
3. Describe the functions of power trains and mechanisms.
4. Discuss the tillage action of primary and secondary tillage implements to achieve tillage objectives.
5. Describe crop planting patterns and discuss the operational and functional requirements of planting equipment to achieve these patterns.
6. Describe the operational and functional components of harvesting equipment and fertilizer and pesticide applicators.
7. Discuss the application of precision farming tools in agricultural activities.
8. Demonstrate competency in performing calculations in relation to machinery costs and calibrations.

Module delivery
100 hours comprising 20 hours lectures, 20 hours tutorials and practicals, and 60 hours self-study.

Assessment
Coursework 40% (written and practical tests, and report): Examination 60%.

Essential Reading
Kaul, R.N. and Egbo C.O. 1985 Introduction to Agricultural Mechanization, Machillan
Studman, C.J. 1989 Agricultural and Horticultural Engineering, Butterworth

Further Reading
Ezedinma, A.Y.F.O.C & Onazi O.C. 1986 Introduction to Tropical Agriculture, Longman
Murray, J.R. 1997 Crop Production Equipment The University of Queensland
Khan, M.I. 2007 Industrial Engineering 2nd Ed. New Age International

A228 Agricultural Protection
Module coordinator: TBA
Module description
The world has a growing need for sustainable food production. For many thousands of years humans have been in a struggle to protect our food supply from other species that may also exploit food. All agriculturalists need an understanding of how farmers protect their crops and livestock from disease and other pest species. This module covers both the underlying theory and practice that is vital if we are to increase yields in challenging tropical conditions.

Learning Outcomes
By the end of the module students will be able to:
1. Describe the main ecological features of pest species
2. Compare and contrast the effectiveness of biological and chemical control of agricultural pests
3. Compare and contrast the history of the development of biological and chemical control of agricultural pests.
4. Compare and contrast the environmental impacts associated with biological and chemical control of agricultural pests.
5. Be aware of potential future developments in agricultural protection science.

Module delivery
100 hours comprising 20 hours lectures 15 hours practicals and 65 hours self-study.

Assessment
Coursework 50% (practical report):
Examination 50%

Essential reading

Year 3 Diploma/Degree Tropical Agriculture
In the third year, students follow a common lecture programme but the modules have different assessments.

A(D)311 – Statistics
Module coordinator: Betty Kenny
Module description
This module will teach students how statistics can be applied in biological sciences in order to design experiments, collect and collate data in a systematic way, analyse and interpret the results, understand their limitations and be critical of published science reports.
The module includes recognising data, collecting, sorting, organising, summarising and analysing data and using spread sheets. Formulating hypotheses, sampling techniques and making inferences or drawing conclusions.

Learning Outcomes
By the end of the module students will be able to:
1. Demonstrate an advanced understanding of the principles of statistics, and their applications in agriculture, forestry and fisheries to summarize data.
2. Compare and contrast different data sets, experimental designs and sampling techniques that are applied in data collection.
3. Analyse data sets and interpret the results.
4. Critically evaluate applications of these statistical techniques in agriculture, forestry, and fisheries journals.

Module delivery
100 hours comprising 10 hours lectures, 10 hours tutorials, 20 hours practicals and 60 hours self-study.

Assessment
Coursework 40% (assignments, tests and practical reports): Exam 60%

Essential Reading

Further Reading

A(D)312 – Applied Rural Technology
Module coordinator: Robert Bola
Module Description
This module teaches students to develop functional, low-cost rural structures using a maximum of locally available building materials and skills. Students will learn how to orientate farmstead structures to suit
local environmental conditions. The module teaches traditional surveying techniques, drawing and mapping skills and familiarizes students with the use of satellite technology and computers in the planning phase of projects. Students will be taught the basic principles for selection of equipment, structural design and construction of agricultural structures, and how to modify building environments to suit agricultural food storage, postharvest processing activities and animal husbandry.

Learning Outcomes
By the end of the module students will be able to:
1. Outline the steps for planning and construction of structures for farming purposes.
2. Apply GPS, GIS and RS in agriculture field management and planning.
3. Develop building enclosures for storage, drying or cooling of produce and for animal husbandry.
4. Determine water requirements for farming.
5. Determine electricity requirements for farm buildings.

Module delivery
100 hours comprising 10 hours lectures, 20 hours tutorials and practicals and 70 hours self-study.

Assessment
Coursework 40% (assignments, tests, reports and presentations): Exam 60%

Essential Reading

Further Reading
Studman, C.J, 1990, Agriculture and Horticultural Engineering.
Roth, L.O. & Field, H.L., 1998), Introduction to Agricultural Engineering, 2nd edn, CBS Publishing Distributors, New Delhi, India
Agricultural Building Design Guide
Pearce, A., 1994, Farm Welding, Farm Press, UK,

A(D)313 Work Experience
Module coordinator: Inia Bunsa
Module delivery
In this module students develop industrial skills and workplace experience before graduating and going into the real working environment in organizations and industries. Students learn by practical application and involvement in all activities within the organisation or industry they are engaged with. They are sent out to various organizations and industries for a period of six weeks to experience the working environment during the break between years two and three.

Learning Outcomes
By the end of the module students will be able to:
1. Gain experience of the working environment
2. Develop industry and organizational Skills
3. Learn good working ethics by abiding with industrial and organizational policies and guidelines.
4. Develop research and presentation skills.
5. Write job applications.
6. Become good candidates for future job opportunities through field supervisors assessments and reports.
Module delivery
5 hours lectures, 6 weeks work experience and self-study.

Assessment
Coursework 100% (Report and field supervisor’s assessment)

Essential Reading
https://www.thebalance.com – Application Tips, How to write a Job Application.
www.wikihow.com/Make a Resume - How to Make a Resume – Complete Guide.

A(D)314 Extension Methods
Module coordinator: Mr Suri Thomas Taisa

Module delivery
Transfer of scientifically proven knowledge to the farming community is very important in any research and development program. This module identifies knowledge gaps and delivers basic principles and concepts of delivering correct information to the farming community to improve and expand farming systems, increase food production and sustain livelihood. Students will be taught specific approaches and information delivery methods to enrich farming practices that will impact on farmers’ standard of living, food security and economy. The module covers defining agricultural extension, evolution of agriculture extension & rural development, ethics in farming and extension, extension methods/concepts, planning extension programmes, extension assessment & evaluation, farmer participation, and managing extension programmes.

Learning Outcomes
By the end of the module students will be able to:
1. Understand needs of farmers and extension advisors.
2. Describe six ways of delivering farm information.
3. Plan and manage extension programs.

Module delivery
100 hours comprising 20 hours lectures, 20 hours tutorials and 60 hours self-study.

Assessment
Coursework 40% (assignments, tests, essays): Exam 60%

Essential Reading
Call N0: 630.715 Van cp.7 – PNGUNRE Library Collection

Further Reading

October, 2005. Queensland University of Technology

A(D)315D Crop Nutrition and Agronomy

Module coordinator: Joachim Pitala

Module description
Providing essential nutrients to increase yields is important in the management of food and export crops.

This module covers factors controlling the growth of plants such as light, air, water and nutrition, and different nutrient x environmental interactions, nutrients movements from soil to roots, such as mass-flow and diffusion, and factors affecting nutrients availability to plants, ion absorption by plants, passive and active ion uptake in plants, nutrients movement in the xylem and phloem systems, circulation and remobilization of mineral nutrients in plants. The module also covers the 17 essential individual plant nutrients, their availability and effects on plant growth and development. The module looks at current world trends in relation to fertiliser demand and use in food production, their impacts on the environment and their proper use in terms of sustainability.

Learning Outcomes
By the end of the module students will be able to:
1. Explain the major factors and interactions influencing plant growth and development.
2. Describe the main processes of nutrient movements to plant roots.
3. Describe the factors affecting the availability and supply of nutrients in the soil.
4. Describe the processes of ion uptake into the root system, nutrient pathways to the root, xylem and phloem systems.
5. Describe and explain the macro- and micro-plant nutrients, their different forms in soils and plants, and the principal functions they perform in plants.
6. Calculate fertiliser rates and nutrient requirements for crops.
7. Explain the importance of the proper use of fertilisers.

Module delivery
200 hours comprising 40 hours lectures, 30 hours tutorials, and field visits and 130 hours self-study.

Assessment
Coursework 50%: Exam 50%

Essential Reading


A322 Research Methods

Module coordinator: Assoc Prof. Aisak Pue

Module description
It is vital that all science graduates have an understanding of experimental design and their limitations. This enables them to be critical of published science and reports. This module is designed to prepare all UNRE graduates to successfully complete a research project in their final year. The module covers the basics of experimental design including: framing answerable research questions, the need for replication, the use of blocks, Latin squares and split plots, controlling variables, dealing with variation in data sets, the need for good experimental techniques, confounding, pseudo-replication, repeat measures, first
and second order errors, bias and double blind trials.

**Learning Outcomes**

By the end of the module students will be able to:
1. Write clear answerable research questions.
2. Produce a critique of good and bad research designs.
3. Produce a review of the literature to inform a research project.
4. Carry out a literature review to answer a research question.
5. Design an original research project.

**Module delivery**

100 hours comprising 5 hours lectures, 5 hours seminars, 5 hours supervisor meetings, project fair and self-study.

**Assessment**

Coursework 100%: Critique of scientific papers (30%), Literature review and research proposal (70%).

**Essential Reading**

Montgomery, D.C. 2001, Design and analysis of experiments, John Wiley & Sons (Call No. 001.434)

Clarke, G.M., 1994, Statistics and experimental design; an introduction for biologists and biochemists, John Wiley & Sons (Call No. 519.02)


Further Reading / useful webpages

http://www.le.ac.uk/oerresources/ssds/writingskills/page_79.htm

https://www.topuniversities.com/blog/how-do-research-project-6-steps

**A(D)323 Crop Production**

*Module coordinator: Mr Inia Bunsa, Mr James Aipa*

Agriculture is the mainstay of rural people’s livelihood and the country’s economy, supporting 80% of the population. This module introduces students to the vulnerability of local food production. It includes agronomy and correct production practices of all the staple food crops grown in PNG (root and tuber crops, grains, legumes, brassicas, cucurbits and solanaceous crops). Also agronomy and production of the major perennial (cash) crops grown in PNG (cocoa, coffee, tea, rubber, oil palm and coconut).

**Learning Outcomes**

By the end of the module students will be able to:
1. State and discuss the major social, economic and production constraints limiting production of field (food) and cash crops in PNG.
2. Describe the cultural and management principles used in the production of field and cash crops, including origin and distribution, botanical characteristics, climatic and soil requirements, propagation, field/cultural management (nursery to field, fertilisation, control of weeds, pests and diseases), maturity and harvesting, processing and storage, and future prospects in PNG.
3. Describe the effects of climate change under different scenarios, i.e. field and cash crop production under current management systems and develop suitable strategies to improve production of a crop species.

**Module delivery**

100 hours comprising 10 lectures, tutorials, practical activities, field visits and self-study.

**Assessment**

Coursework 50% assignment, fieldwork report, and tests): Exam 50%

**Essential Reading**


Further Reading

A(D)323 Sustainable Palm Oil
Module Coordinator: Mr Leo Dawson

Module Description
Deforestation due to commercial palm oil is the single biggest threat to the natural forests of PNG. Similarly, weak land tenure and complex economic and social arrangements present a major obstacle to sustainable development in the tropics. In this context, this module gives students a sound induction into the opportunities for sustainable production of this resource, alternatives to the current means of production, marketing, and certification. The module covers global significance of the oil palm industry and uses of the product.


Learning Outcomes
By the end of the module students will be able to:
1. Describe the global market for conventional oil palm products from production to consumption.
2. Identify the common environmental impacts of conventional oil palm production.
3. Compare and contrast the complex social and economic impacts of oil palm production.
4. Identify the threats, limitations, and opportunities from certification in the oil palm industry.
5. Present a clear and concise argument for supporting sustainable palm oil production; identifying the major challenges and opportunities for producers from smallholder to commercial plantation.

Module delivery
100 hours comprising 20 hours lectures, 15 hours practicals, and self-study

Assessment
Coursework 75% (assignment, presentation and tests): Exam 25%

Essential Reading
Palm Oil, Production, Processing, Characterization, and Uses Edited by: Oi-
A(D)325 Applied Entomology

Module coordinator: TBA

Module description
Insects have a major impact on the ecology and economy of the world. The great diversity of insect form and function means their impact on human populations and activities can be beneficial or detrimental. During this module the student will explore the complex interactions between insects and humans. For example insect pollinators provide an important service to plants, which in turn results in fruit, nuts and seed of vital nutritional importance to humans. On the other hand, insect pests of crops and livestock can significantly reduce food production, and insect vectors of disease play an important role in spread of pathogens.

Learning Outcomes
By the end of the module students will be able to:
1. Illustrate the diversity of insect function.
2. Describe how insects interact with humans in a variety of beneficial and detrimental ways.
3. Explain how insects are monitored and managed in a human-dominated environment.
4. Describe the principles of insect ecology and evolution.

Module delivery
100 hours comprising 20 hours lectures, 15 hours practicals, and self-study

Assessment
Coursework 60%: Exam 40%

Essential Reading

Further Reading

A(D)326 Farm Business Projects

Module coordinator: Mr Peter Navus

Module description
This module will be delivered by a lecturer assisted by mentors. This project covers two semesters. Each student will become a member of a small business group. Each group will establish and manage a small agricultural business within a given timeframe. The module allows students to plan, organize and manage their business in the real farming environment. The resources provided to each group by the University include plot of land, capital (loan), labour, information, management skills and time.

Learning Outcomes
By the end of the module students will be able to:
1. Plan and establish a small agricultural business involving a small group of interested business members.
2. Draw up weekly and daily programmes for implementation of the plans.
3. Discuss and organize the operation of a small farm business, from production through to marketing.
4. Design and explain a loan drawing schedule and a repayment plan over the term of business.
5. Write up a detailed report on the annual operations of the business and the profit (loss) that was earned that include the sharing of the profits (if any).

Module delivery
100 hours comprising 10 hours lectures, 20 hours tutorials and self-study

Assessment
Degree: Coursework 60%: Exam 40%
Diploma: Coursework 100%

Essential Reading

Further Reading
Business projects
www.netcrawler.com/business/projects,
www.store.com/business/projects
Successful whole farm management books
www.Business.webcrawler.com
Funding small businesses
www.cashbloom.com

Year 4 Tropical Agriculture
Degree/Honours Degree
Students attaining an agreed level in year three will be able to proceed to the Honours Degree which includes a research project rather than an industry project.

A411 Industry Project (Degree)
Module coordinator: Naomi Mayava
Module description
This module is based around relevant work experience between years three and four followed by reflection and analysis of the work placement on return to University in year four. Lecture material covers, writing a Curriculum Vitae, applying for jobs, realistic aspirations, preparing for interviews, time management, workplace discipline, giving and receiving clear instructions and problem solving in the work environment. Students are given an opportunity to apply knowledge in the field. They learn research skills, gain industry experience and understand work ethics.

Learning Outcomes
By the end of the module students will be able to:
1. Produce an attractive accurate Curriculum vitae.
2. Complete an application for an appropriate job in a relevant industry.
3. Reflect on the workplace experience and identify strengths and weaknesses.
4. Produce a report on an industry related project.

Module delivery
200 hours comprising lectures tutorials, work experience and self-study

Assessment
Coursework 100% (Job application, employment report and employer’s assessment).

Essential Reading
Ultimate graduate guide: Essential knowhow for securing graduate program jobs Psych Recruitment Solutions. 2016
Turbo Graduate Applying for work. 2015 J, Kelsey.

AH417 Special Projects 1
Module coordinator: Lloyd Werry/Thomas Suri
Module description
The purpose of science is to answer questions, and this is done through research. This module builds on the third year research methods module, and enables students to carry out their own project...
based, where possible, on their proposals from year three. The focus of this module is on the practicalities of managing a small research project. This will involve problem solving, data collection, analysis and project management. The module deals with the data collection, storage and analyses for an individual research project and will lead to the writing of a research report dissertation in part 2.

**Learning Outcomes.**
By the end of the module students will be able to:
1. Carry out independent research work in natural resources
2. Demonstrate research management skills
3. Deliver a public oral presentation to the university based on their research

**Module delivery**
200 hours comprising two lectures, supervisions and independent research.

**Assessment**
Coursework 100% (Lab book reviews, public seminar).

**Essential Reading**
Montgomery, D.C, 2001, Design and analysis of experiments, John Wiley & Sons (Call No. 001.434)
Clarke, G.M., 1994, Statistics and experimental design; an introduction for biologists and biochemists, John Wiley & Sons (Call No. 519.02)
How to Do Your Research Project (2013) G. Thomas,
Sage Publications Ltd.
ISBN-10: 1446258874

**Further Reading**
http://www.le.ac.uk/oerresources/ssds/writingskillspage_79.htm
https://www.topuniversities.com/blog/how-do-research-project-6-steps

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**A413 Entrepreneurship**
*Module coordinator: Inia Bunsa*

**Module description**
It is important that students recognize the importance of creating jobs and businesses in PNG as the current job market may not be able to employ all students upon graduation. This module aims to introduce students to the concept of entrepreneurship. It will explore entrepreneurial behaviour, successful initiatives and entrepreneurship frameworks. The content will encompass the Small Medium Enterprises Act as the PNG Governments vehicle for wealth creation. It will be delivered via a series of presentations by guest lecturers featuring current entrepreneurs from PNG. These will include starting up and registering a business in PNG, sourcing credit, entrepreneurial behaviour and leadership qualities and social responsibilities of entrepreneurs.

**Learning Outcomes.**
By the end of this module students will be able to:
1. Develop a business proposal, apply for a business loan and acquire tax identification for a business
2. Analyse and reflect on their own entrepreneurial qualities.
3. Discuss the skills and mindsets of successful entrepreneurs
4. Plan a business enterprise

**Module delivery**
100 hours comprising lectures, tutorials and self-study.

**Assessment**
Coursework 100%

**Essential Reading**
A414 Resource Management
Module coordinator: Peter Navus
Module description
This module covers the management of resources in PNG. It teaches students to make sound decisions based on management skills and policy information linked with investments of capital, land and human resources. It covers the policies that are critical in relation to natural resource based business as guided by; gender, environment, HIV/AIDS and the uniqueness of PNG society. Visits to business organizations representatives and agents will be used to complement the activities provided by the University farm

Learning Outcomes.
By the end of this module students will be able to:
1. Apply principles of sound decision making based on good policy.
2. Use models, policy and technology effectively in the delivery of instruction, assessment, and professional development.
3. Evaluate the need for resources and the correct management skills and tools needed to make decisions.
4. Articulate cultural and socioeconomic differences and the significance of these differences for instructional planning in managing their resources.

Module delivery
100 hours comprising 20 hours lectures, 20 hours tutorials and 60 hours self-study.

Assessment
Coursework 40%: Exam 60%

Essential Reading
Gray A (1998), Legal Studies in Action, John Wily & Sons Book 1 and Book 2 (UOV Call No. 349.94)

Further Reading
Tabul C, Bannerman, (1994), customary land: ownership, control & management (UOV call No 333.320)
Peter Lamour, (1991) customary land tenure: registration & decentralization in PNG (UOV call No 333.309953)

A416 Principles of food processing
Module coordinator: Mr Peter Nguna
Module description
Losses along the food chain can be minimised through food processing. In this module students learn and practice the principles of processing, preservation and quality control of agricultural produce to alleviate food security problems and loss of agricultural produce.

Learning Outcomes.
By the end of this module students will be able to:
1. Define postharvest technology and identify different food nutrients.
2. Describe different food production systems.
3. Relate various harvesting technologies to different food produce.
4. Apply postharvest technology to safeguard food quality in fresh produce.
5. Illustrate the importance of food hygiene and sanitation in food processing and preparation.
6. Relate the behaviours of plants to the causes affecting food quality postharvest
7. Explain biochemical changes affecting meat quality during slaughtering of animals and harvesting of fish food products.
8. Discuss different food processing technologies to preserve and prevent food losses postharvest.
9. Apply basic heating and drying principles in processing food products.
10. Perform basic food quality analysis.
11. Evaluate food processing facilities.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50%: Exam 50%

Essential Reading

Further Reading
1. A.I. Ihekoronye and P.O. Ngoddy., 1985., Integrated Food Science and Technology for the Tropics

A421D Current Issues in Natural Resources
Module coordinator: Ms Dorothy Worogop/ Ms Naomi Mayawa
Module description
This module is designed to introduce students to rapidly changing and possibly controversial aspects of their degree subjects. It is designed to ensure that they are up to date with their discipline area. The exact content will be degree subject specific. Students will be taught techniques for data searching and identifying reliable sources, but also to think critically.

Learning Outcomes.
By the end of this module students will be able to:
1. Identify relevant recent sources of information.
2. Critically review the literature.
3. Express views and discuss issues in an appropriate writing style.
4. Synthesise complex topics to produce a balanced summary of current thinking.

Module delivery
200 hours comprising 10 hours lectures, 20 hours tutorials and self-study.

Assessment
Coursework 100%

Essential Reading
Materials will be recommended/provided by supervisor based on the topic and will include the most recent online journal publications.

AH427 Special Projects II
Module coordinator: Mr Suri Thomas Taisa/Mr Lloyd Werry
Module description
The production of a final year individual research based dissertation is the mark of an honours graduate. This module is therefore a must pass module for all honours graduates in all our subject areas. The module continues from AH417 Special Project I of first semester and involves conducting a research experiment including data collection, summarising, and analysing. Results are reported and documented in a research report – Dissertation.
Learning Outcomes.
By the end of this module students will be able to:
1. Manage a research project.
2. Summarise and analyse data.
3. Interpret results and discuss their wider implications.
4. Produce research report in a dissertation format.

Module delivery
200 hours comprising 10 hours lectures, 10 hours individual supervision meeting, self-study.

Assessment
Coursework 100% (20% supervisors report, 80% dissertation).

Essential Reading


A422 Plant Breeding Biotechnology
Module coordinator: Ms Betty Kenny

Module description
This module teaches the principles of plant breeding and the relationship between plant reproductive biology and commercial opportunity for varieties. The module is designed to provide a solid grounding in the concepts and principles of genetics, molecular genetics, quantitative genetics, population and evolutionary genetics; and how these can be applied to the theory and practice of modern breeding including applications in biotechnology and genetic resource conservation.

Learning Outcomes.
By the end of this module students will be able to:
1. Demonstrate an advanced understanding of the principles of plant breeding and the relationship between plant reproductive biology and commercial opportunity for varieties.
2. Compare and contrast the way varieties are produced in crop species that differ in reproductive biology.
3. Analyse a progeny trait dataset and explain the decision making processes for progeny selection.
4. Critically evaluate different breeding systems or present a rationalised plan for commencement of a new breeding system.

Module delivery
100 hours comprising 20 hours lectures, 10 hours tutorials, practicals and self-study.

Assessment
Coursework 40%: Exam 60%

Essential Reading

Further Reading
Falcconer.D.(1989). Introduction to quantitative genetics, Agriculture research council, Unity of animal genetics, University of Edingburgh

A423 Marketing Management
Module coordinator: Ms Millicent Rova

Module description
This module covers topics in Agriculture and Fisheries marketing and management as well as business. It aims to teach students to explain key marketing issues and concerns, and provides an understanding of economic concepts that can be employed for analysing issues in marketing.

Learning Outcomes.
By the end of this module students will be able to:
1. Critically review the functions performed by the marketing system.
2. Apply the marketing principles, concepts and practices as well as relevance in agricultural marketing and business, including animal products.
3. Discuss and describe the basic economic concepts, analyse market forces that affect prices and understand and describe efficient, profitable operation in the market place.
4. Compare and contrast the dynamics of Forestry & Tourism marketing and to be able to have an understanding of current trends and issues in the marketing of natural resource products.
5. Use marketing theory and practice to view current organisational processes in an increasingly dynamic and changing environment.
6. Apply marketing concepts and principles in marketing of seafood and agricultural products both in the domestic and international markets.

Module delivery
100 hours comprising 20 hours lectures, tutorials, field trips and self-study.

Assessment
Coursework 40%: Exam 60%

Essential Reading

A425 Plant Pathology
Module coordinator: Mr. Kari Iamba
Module description
Pathogens are responsible for causing serious economic losses to crops throughout the world. This module aims to provide information about the biology of major groups of disease causing organisms, to introduce the processes that control infection development and to review the control options available to farmers and growers.

The module considers both the basic and applied aspects of plant pathology. It introduces plant diseases, then considers how pathogens attack plants, how plants resist attack, how disease epidemics develop and how they can be described quantitatively and predicted, and how diseases are controlled. It shows how our current knowledge of plant pathology has drawn upon a wide range of research methods from disparate disciplines.

Learning Outcomes.
Students will be able to:
1. Describe the biology and life cycles of plant-pathogenic viruses, bacteria, fungi, oomycetes and nematodes and plant-feeding insects.
2. Illustrate the morphology, classification, reproduction, mode of dispersal, growth, and development of the various pathogens and pest organisms.
3. Assess the potential positive and negative effects of disease and pest control measures; be able to recognize disease symptoms and to assign the causal agent on plants, based on macroscopic and microscopic observations.

5. Recognize the most important diseases and pests in crops.

6. Plan a pathogen control strategy

Module delivery
100 hours comprising 20 hours lectures, 15 hours practicals and self-study.

Assessment
Coursework 50%: Exam 50%

Essential Reading
Virus Diseases of Tropical and Subtropical Crop (CABI Plant Protection Series) 2015
https://link.springer.com/journal/40858

Department of Animal Sciences

N211 Introduction to Animal Science 1
Module coordinator: Mr Charles Maika
Module description
This module teaches the importance of farm animals to humans and society, their by-products, food and non-food items as well as an overview of the livestock and poultry industries. The module covers the various production systems from large scale to small scale intensive and semi intensive systems of production. It then focuses on the applied sciences in animal production (livestock classification, animal behaviour, reproduction, nutrition, growth and development, animal health and welfare). The module also provides opportunities to investigate contemporary and emerging issues affecting animal agriculture at large. Animal science and production concepts are covered including the various animal body systems, organs and structural arrangements.

Learning Outcomes.
By the end of the module students will be able to:
1. Describe the importance of animals to society.
2. Demonstrate a clear understanding of classification, nutrition, health, breeding and selection, welfare and behaviour.
3. Compare and explain the advantages and disadvantages of different livestock production systems.
4. Apply scientific skills and knowledge to solve problems in animal science.
5. Compare and contrast different animal systems, anatomical structures and shapes, physiological and biochemical processes.

Module delivery
100 hours comprising 20 hours lectures, 20 hours tutorials, 20 hours practicals and self-study.

Assessment
Coursework 40% (tests and practical assignment): Exam 60%

Essential Reading

N213 Anatomy and Physiology of Farmed Animals
Module coordinator: Mr. Charles Maika

Module description
This module covers the principles of mammalian physiology and applied anatomy in relation to farm animals. The integration and control of all major organ systems, including endocrine, nervous, musculoskeletal, digestive, cardiovascular,
respiratory, renal and immune systems will be studied, from the micro anatomical level, through to gross anatomy and normal physiology. In addition, students will learn about the importance of blood, cellular communication and the principles of thermoregulation. Central to this subject is the focus on homeostasis and the linkages between each of the organ systems in maintaining homeostasis. Examples from a variety of farm animals are used to demonstrate and assimilate concepts in lectures and practical classes. Students are required to study different organs and systems of an animal’s body (i.e. ruminant or non-ruminant).

Learning Outcomes.
By the end of the module students will be able to:
1. Understand and use anatomical terms.
2. Locate and identify the anatomical components of the integument, skeleton, gastro-intestinal tract, liver and kidney.
3. Compare and contrast the normal anatomy and physiology of the major organs and systems of various species.
4. Demonstrate a clear understanding of the nine systems operating in an animal body.
5. Understand the importance of the cellular environment and the cell membrane, cellular communication and the integration of cellular responses.
6. Understand the function of various physiological systems in animals including the integument, skeleton, digestive system and renal systems.
7. Describe major physical (mechanical) and chemical events in movement, digestion and absorption of food.
8. Relate the anatomy and physiology of animals to the maintenance of homeostasis.

Module delivery
100 hours comprising 20 hours lectures, 15 hours practicals, and self-study.

Assessment
Coursework 40% (tests, presentation and assignment): Exam 60%

Essential Reading

Further Reading

N214 Mono-gastric Animal Production
Module coordinator: Mr Limai Lan

Module description
This module introduces students to mono-gastric animals including swine and poultry. It teaches students how these animals can be raised using limited land area, with low cost. The module includes: the characteristics of mono-gastric animals, breeds of pigs and poultry, enterprise development, breeding stock management, housing and equipment, nutritional requirements and feed formulation, diseases and parasites.

Learning Outcomes,
By the end of the module students will be able to:
1. Differentiate swine and poultry production systems.
2. Develop enterprise skills in swine and poultry production.
3. Describe swine reproduction and management of breeds.
4. Differentiate between broiler and layer rearing systems.
5. Practice the importance of swine and poultry nutrition.
6. Identify diseases and parasites of swine and poultry.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, farm visits and self-study.

Assessment
Coursework 40% (tests, assignment and practical report): Exam 60%

Essential Reading
Poultry


Pig Production
Chicken & Pig

N222 Animal Production
Module coordinator: Mr. Charles Maika

Module description
This module provides students with a scientific understanding of animal production practices and systems. The increasing demand for livestock products underpinned by high population growth and increased income levels give rise to the need to produce more using different systems of husbandry and with varying degree of intensiveness. This module is designed to cover husbandry and management practices of the major livestock animals including; sheep, goat,
cattle, rabbit, pigs, ducks and chickens. Students will appreciate potential benefits of science and technology to the improvement of animal husbandry.

**Learning Outcomes**
By the end of the module students will be able to:
1. Demonstrate understanding of the scientific knowledge required for the care and management of farm animals.
2. Explain the advantages and disadvantages of different facilities and structural designs for various livestock species and their production and management systems.
3. Recommend corrective measures to optimise animal performance under adverse environmental conditions.
4. Demonstrate competency in the care of young animals until they reach market age.
5. Provide plans for adjustment of existing practices and application of better technologies to improve future production of farm animals.

**Module delivery**
100 hours comprising 20 hours lectures, tutorials, practicals, and self-study.

**Assessment**
Coursework 40%: Exam 60%

**Essential Reading**

**N225 Ruminant Animal Production**
*Module coordinator: Ms Kathleen Diapong Patak*

**Module description**
The Ruminant Animal Production module provides students with a general understanding of the husbandry and management principles of ruminant animals for production purposes. The fundamental concepts of animal behaviour, breeding, nutrition and feeding, health and welfare as well as a range of field or management practices for cattle, goats, sheep and buffalo are covered.

**Learning Outcomes.**
By the end of the module students will be able to:
1. Describe the roles and socio-economic importance of cattle, buffalo, sheep and goat production in PNG.
2. Explain the management principles involved in the rearing of ruminant animals. The age at puberty, sexing ratio, care of the young ruminants, reproductive cycle etc.
3. Compare and contrast the anatomical structure of the gastro-intestinal tract of ruminant animals.
4. Differentiate the housing types for the different classes of ruminant animals.
5. Evaluate suitable farming systems for each species including housing, feeding, breeding, rearing, health and day-to-day management.

**Module delivery**
100 hours comprising 20 hours lectures and tutorials, practicals and self-study.

**Assessment**
Coursework 50% (tests, essays, and seminar/poster presentation): Exam 50%

**Essential Reading**

N226 Pasture production and management
Module coordinator: Ms Kathleen Diapong Patak

Module description
This module teaches students the fundamentals of pasture production and management. It includes terminology, requisite practices and applications to equip them to make sound pasture management decisions and to be sensitive to the need for maximizing the use of forages for a profitable ruminant enterprise.

Learning Outcomes.
By the end of the module students will be able to:
1. Identify characteristics of a pasture plant which are relevant to both making an identification, and to considering its value as a pasture species.
2. Determine criteria for selecting appropriate varieties of plants for a pasture.
3. Explain the procedures used in managing the establishment of pastures.
4. Explain the techniques used in managing established pasture.
5. Assess the commercial and nutritional value of pasture species in the context of farm animal feed, and determine appropriate ways of managing stock.
6. Develop an appropriate work program for the management of pasture by a farmer.

Module delivery
100 hours comprising 20 hours lectures and tutorials, 10 hours practicals, and self-study.

Assessment
Coursework 40% (practical and field assessment): Exam 60%

Essential Reading

Further Reading
Taonao N.J, 2005, Convert Grass into Meat. PNGUNRE Supplementary Reading Book, PNGUNRE

N(D)311 Animal Nutrition
Module coordinator: Ms Kathleen Diapong Patak

Module description
The module covers the basics of ruminant and non-ruminant nutrition in the tropics. It deals with the components of foods - the animal and its food, water, dry matter and its components, analysis and characterisation of foods, classification and functions of nutrients, nutrient sources and uses, deficiency symptoms, the digestion and metabolism of nutrients, digestive processes, nutrient requirements of animals, characterization of feedstuff and feed formulation techniques.
Learning Outcomes.
By the end of the module students will be able to:
1. Describe the components of food and their functions in animals.
2. Determine the essential nutrients and nutrient requirements of agriculture animals.
3. Quantify the composition of nutrients and the absorption of food in the digestive system of animals.
4. List key nutrients for animals and outline how carbohydrates, lipids and proteins can be categorized.
5. Describe the functions of minerals and vitamins in nutrition of animals and list the sources as well as clinical signs associated with a deficiency symptoms of these nutrients.
6. Formulate rations to meet the nutrient requirements of agriculture animals.

Module delivery
100 hours comprising lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 40% (practical reports and exercises): Exam 60%

Essential Reading

(ND)312 Feed Analysis & Instruments
Module coordinator: Mr Freddy Gena

Module description
This module provides theoretical and practical experience of how to collect and prepare samples using different analytical equipment. The knowledge and skills acquired through this module will prepare students for future employment opportunities in laboratories, feed industries, animal production and allied Industries.

Learning Outcomes.
By the end of the module students will be able to:
1. Define and apply the different terms used in animal nutrition.
2. Identify and state the functions of different equipment and reagents used in the laboratory.
3. Identify and apply standard laboratory procedures and safety rules
4. Determine nitrogen and crude protein of ingredients by Kjedahl Method
5. Handle and operate centrifuge, electrical pH meter, litmus paper, vernier caliper and yolk fan.
6. Research modern feed analysis equipment and compare with the old/currently used equipment.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 40% (practical report and presentation): Exam 60%

Essential Reading

Further Reading
http://people.umass.edu/-mcclemen/581Sampling.html
http://people.umass.edu/-mcclemen/581ash&Minerals.html
http://www.fao.org/docrep/014/i2441e/i2441e00.pdf
**N(D)313 Animal Health Management**  
*Module coordinator:* Mr Charles Maika  

**Module description**  
This module teaches students to recognize and prevent diseases in farm animals. It includes: animals and their environment, nutrition and animal health, sanitation and disease control, disinfection and disinfectants, vaccination and immunization, quarantine in disease control, animal housing and health, hereditary factors and abnormalities, animal health and disease surveillance, miscellaneous diseases of farm animals (metabolic and deficiency diseases, plant and chemical poisonings), parasites and their control.

**Learning Outcomes.**  
By the end of the module students will be able to:  
1. Demonstrate a clear understanding of the importance of animal health and quarantine, disease recognition, reporting and prevention.  
2. Explain the definitions of different disease terms (exotic, endemic, infectious, and zoonotic) and infectious agents which cause disease.  
3. Demonstrate the knowledge and skills to conduct necropsies on farm animals.  
4. Understand the effects of internal and external parasites on farm animals.  
5. Make recommendations on best management practices to help farmers and livestock owners avoid diseases and production losses.  
6. Identify abnormalities in cell, tissue and organ functions.

**Module delivery**  
100 hours comprising 20 hours lectures, 20 hours tutorials, 20 hours practicals, and self-study.

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**Assessment**  
Coursework 60% (assignment, presentation and test): Exam 40%

**Essential Reading**  

**Further Reading**  

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**ND321 Applied Animal Nutrition**  
*Module coordinator:* Ms Kathleen Diapong Patak  

**Module description**  
This module covers practical applications of animal nutrition; feedstuff and their properties, feeding behaviour and water requirements, feed manufacturing and feeding and nutrition of livestock and quantifying the nutrient content of foods. It will start with the basic principles of nutrition: digestion and metabolism of nutrients, and progress on to how these can be applied to the feeding of farm animals. The module will develop the principles of nutrient requirements, the need for feed evaluation systems and formulation of rations for the different production stages of these species, such as growth, lactation or egg production. The consequences of inadequate nutrition on health, welfare and productivity will also be outlined.
Learning Outcomes.
By the end of the module students will be able to:
1. Evaluate formulated feeds and measure their effect on growth performance or production stage of farm animals through improved feeding systems.
2. Account for recent developments in mono-gastric and ruminant nutrition within the context of food security in Papua New Guinea and the Pacific.
3. Demonstrate the practical application of science to animal feeds.
4. Develop research concepts applicable to the development of the livestock feed industry.

Module delivery
100 hours comprising lectures, tutorials, practicals, farm and field visits and self-study.

Assessment
Coursework 40% (report and seminar presentation): Exam 60%

Essential Reading
Further Reading
Naseri Alimuddin, (undated), Animal Nutrition Training Manual, AFK Kabul, Afghanistan

ND323 Animal Behaviour and Welfare
Module coordinator: Mr Limai Lan
Module description
This module describes the history of the study of animal behaviour. It explains how animal behaviour is best measured. Theories of motivation and learning are critically examined. The module establishes behavioural concepts and their ecological basis. Consideration is given to more complex behaviours including the appraisal of social behaviour and communication, as well as the adaptiveness, genetics and evolution of behaviour. The module finishes by looking at how animal behaviour techniques can be applied to improve animal welfare and animal conservation.

Learning Outcomes.
By the end of the module students will be able to:
1. Describe and explain the basic concepts of animal behaviour using two approaches – ethology and behavioural ecology.
2. Design and conduct experiments in animal behaviour using appropriate behavioural measurement techniques.
3. Present a written coherent argument using data to support their arguments.
4. Observe the ethical procedures of animal behaviour and their applications in the scientific area.
5. Research and establish a range of scientific indicators of stress, welfare and suffering in animal production systems including factors like housing and management.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 40% (assignment, practical report and seminar presentation): Exam 60%

Essential Reading
ND324 Meat Quality and Assessment

Module coordinator: Mr Limai Lan

Module description
This module provides students with the fundamentals of quality meat processing and packaging. It includes: abattoir practice, red meat inspection, slaughter and dressing, anatomy, pathology, diseases and conditions, meat inspections, meat hygiene, quality assurance.

Learning Outcomes.
By the end of the module students will be able to:

1. Outline the quality assessment of a meat processing plant and standard requirements under red meat industry regulations.
2. Participate in the slaughter and processing of various farm animals.
3. Conduct good hygiene practices during anti-mortem and post-mortem inspections of various farm animals.
4. Perform lab microbial analysis on processed red meat.
5. Outline the waste handling and disposal practices of processing plant sites.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field trip and self-study.

Assessment
Coursework 40% (assignment, practical report and presentation): Exam 60%

Essential Reading

Further Reading
N411 Principles of Genetics
Module coordinator: Limai Lan

Module description
This module will provide students with an understanding of the genetic principles which govern animal breeding. They will learn how these principles can be used to improve traits of economic importance. The module includes Mendelian genetics, chromosomes, genes, principles of population genetics, introduction to quantitative traits, probability and genetic hypothesis test.

By the end of this module students will be able to:
1. Explain the role of genes and their functions.
2. Describe the methodologies used in animal breeding.
3. Describe how genetics can be used in animal breeding to improve traits.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals and self-study.

Assessment
Coursework 40% (assignment, practical report and presentation): Exam 60%

Essential Reading
Molecular and Quantitative Animal Genetics
February 2015, Wiley-Blackwell
paperback
Animal Genetics Vol 48 (6 Issues in 2017)
harm to the environment and thus minimize climate change.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 40% (essays, presentation and report): Exam 60%

Essential Reading

Further Reading
https://www.unfccc.int/resource/docs/publications/impacts.pdf

N421 Livestock Integrated Farming Systems

Module coordinator: Mr Gerald Enda

Module description
This module introduces students to livestock-crop integration. It describes how sustainable agricultural concepts utilize limited land resources with vertical integration becoming important for the growing population. It outlines current challenges to agriculture including avoiding the problems arising from decades of using farming practices with high environmental impacts, mitigating emissions of greenhouse gases, reducing erosion and loss of fertility of soil and water pollution, among others. Integrated crop livestock systems are considered to be key among sustainable technologies to achieve the goals.

Learning Outcomes.
By the end of this module students will be able to:
1. Define and describe existing integrated farming systems
2. Design the integrated farming systems of the developing countries
3. Present a literature review of development and successfully established integrated farming systems
4. Observe the components of integrated farming systems and analyse the associated problems
5. Establish and research the alternative integrated farming systems suitable for PNG conditions.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field trips and self-study.

Assessment
Coursework 40% (Literature review, practical report and case study): Exam 60%

Essential Reading
Integrated Farming System Book. Department of Agronomy, CSKHPKV, Palampur, Editor: S.S. Rana
Sankarsana Nanda Imprint NIPA ISBN 9789385516207 Year 2016

Further Reading
N422 Animal Breeding

Module coordinator: Mr Freddy Gena

Module description

This module provides skills in developing selection criteria and breeding objectives, breeding programs and conservation techniques. The module includes: introduction to genetics and breeding, selection, mating systems, factors affecting the rate of genetic change – heritability and generation interval, genes in populations, dealing with multiple traits, biotechnology in animal breeding, breeds and animal genetic resources.

Learning Outcomes.

By the end of the module students will be able to:

1. Define and apply key terms used in genetics and animal breeding.
2. Propose a simple breeding program relevant to PNG conditions taking into account conservation and demand for food and protein.
3. Identify and evaluate quantitative traits of animals and determine i) which traits are of greatest economic importance. ii) the genetic relationship (correlation) between the traits and iii) the simplest effective method of measuring / collecting data.
4. Solve relevant genetics and animal breeding problems.
5. Observe and judge animals to determine their general health status and breeding soundness.
6. Analyse and identify breeds/strains of different farm animals commonly found in PNG.
7. Identify the different biotechnological techniques used in animal breeding and evaluate their ethical and cultural implications based on PNG culture and beliefs.

Module delivery

100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment

Coursework 50% (tests, essays, and seminar/poster presentation): Exam 50%

Essential Reading


Further Reading

http://www.aces.uiu.edu/vista/html_pubs/pigs/pigs.htm
https://www.britannica.com/science/animalbreeding

N424 Animal Reproduction

Module coordinator: Mr Freddy Gena

Module description
A thorough understanding of animal reproduction is important to minimise losses at the reproductive stage. This module includes: anatomy, physiology of reproduction, endocrine reproduction, reproduction cycle, pregnancy diagnosis, pregnancy and birth, lactation and milk secretion glands, reproduction behaviour, reproduction nutrition

Learning Outcomes

By the end of the module students will be able to:

1. Describe the anatomy & physiology of farm reproductive system and hormonal functions.
2. Control the reproduction and breeding of farm animals.
3. Respond to reproductive behaviour of farm animals.
4. Develop dietary needs of farm animals to maintain optimum fertility of reproductive organs.
5. Diagnose and monitor successful pregnancies of farm animals.

Module delivery

100 hours comprising 20 hours lectures, tutorials, practicals and self-study.

Assessment

Coursework 40% (essays, presentation and report): Exam 60%

Essential Reading


Further Reading

assistance and training you will obtain along the way. Our academic, technical and support staff are happy to provide advice or assist with issues as they arise. It gives me much pleasure to welcome you to this University, to wish you well in your studies and hope that your time with us would be both stimulating and rewarding.

Welcome!
Mr. Aisi S Anas
Head of Department

Administration

**Head of Department** Mr Aisi Anas, *BSc Hons 1st Class, Fisheries (UPNG), BSc Biology (UPNG), PhD Candidate (Fish Ecology, UQ)*

**Administrative Officer** Mrs Thelma Wartovo, *Cert. Secretarial Studies (Lae Tech)*

Lecturers

**Fisheries Sciences** Mr Aisi Anas, *BSc Hons 1st Class, Fisheries (UPNG), BSc Biology (UPNG),

**Fisheries and Aquatic Ecology** Mr Lloyd Werry, *MSc (Wageningen), PGD Biol (UPNG), BSc (UPNG)*

**Fisheries Biology** Mr Joseph Aitsi, *MSc Marine Science (Ryukyu, Japan), BSc (Unitech)*

**Marine Sciences** Mr Vonklauss Siwat, *MSc Marine Science (Diponegoro UNI, Indonesia), Bachelor FMR (PNGUNRE)*

**Fisheries Management and Fisheries Business** Ms Dorothy Worogop, *Postgrad Cert. Management (UNRE 2014); Postgrad Cert in commerce (Univ Queensland 2007)*

**Aquaculture** Mr Boas Malagat, *BTAgri (UNRE 2010)*

**Courses**

**Fisheries Management, Law and Economics** Mr Walain Ulaiwi, *BSc (Fisheries), PNG Unitech (1985)*

**Post Harvest** Mr Yaosa Kaikar, *BSc (Food Tecnology) PNG Unitech (1993)*

**Technical Staff**

**Technical Officer (Aquaculture)** Mr Mathew Gati, *Dip. FMR (PNGUNRE) (on study leave)*

**Technical Instructor (Fishing Operations Science)** Mr. Roger Routuna, *Bachelor FMR (PNGUNRE)*

**Technical Officer** (Marine and Fisheries Management) Mr. Terencehill Galiurea

**Technical Officer (Laboratory)** Mrs Bilhah Routuna, *Bachelor FMR (PNGUNRE)*

**Courses**

The Fisheries and Marine Resources Program at the University of Natural Resources and Environment is the only integrated fisheries offered in Papua New Guinea. The programme incorporates studies in Aquaculture. This training forms the basis of two award modules preparing students for scientific, managerial and technical positions in government, industry and local communities:

- Diploma in Fisheries and Marine Resources
- Bachelor of Fisheries and Marine Resources

This program is offered by the Department of Fisheries & Marine Resources of PNGUNRE and is implemented at the PNGUNRE’s East New Britain – Vudal Campus

**Diploma of Fisheries and Marine Resources** This course requires three years of full-time study. The basic grounding subjects in Natural Resource Sciences are
taught in Year 1. In Years 2 and 3, students are introduced to a breath of subjects in fisheries, marine and aquaculture covering core areas such as fisheries biology, marine biology and ecology, fisheries management, aquaculture, fishing and post – harvest operations.

**Bachelor of Fisheries and Marine Resources**

This course is PNG’s only fully integrated module of study for students wishing to prepare themselves for a wide range of careers, within both the public and private sectors of the fisheries industry in PNG and the South Pacific Region. These include professional and technical positions in the areas of biological, environmental and economics research, fisheries regulation and management, environmental and resource conservation, aquaculture research, fish farming, fishing gear technology, seafood technology and marketing. Students gain an overall appreciation of all aspects of fisheries research, development and management, and are given the opportunity to develop research skills in a particular fisheries science field through specialized research topic chosen in the fourth year module. The degree course requires four years of full-time study. Entry requirement for the degree module is the completion of the Diploma module with highly satisfactory results in Year 1 and Year 2, with a Cumulative Grade Point Average (CGPA) of 2.5 or better.

**Bachelor of Fisheries and Marine Resources – Bridging**

Students already holding a Diploma in Fisheries and Marine Resources followed by at least 3 years industry experience can apply to enter the Bachelor in Fisheries and Marine Resources bridging program via direct entry into the fourth year program for the degree. The module is only offered at Vudal Campus and is subject to demand and accommodation space being available. Enrolment is competitive and subject to eligibility conditions.

**Structure of Courses**

**Year 1 Common first year**

**Semester 1 Modules**

- A111 Communication Skills
- A112 Introduction to Biology
- A114 Introduction to Chemistry
- A115 Introduction to Agriculture
- F111 Introduction to Forestry
- M111 Introduction to Fisheries

**Semester 2 Modules**

- A123 Natural Resource Conservation & Utilisation
- A126 On Farm Practice
- A127 Introduction to Economics & Management
- A128 Applied Biology
- A129 Physical Science
- T121 Introduction to Tourism

**Year 2 – Diploma/Degree Fisheries and Marine Resources**

**Semester 1 Modules**

- A211 ICT for Natural Resources
- A212 Introduction to Aquatic Ecosystems
- A213 Health and Safety at Work
- A216 Introduction to Plant Science
- M211 Biology of Fisheries Resources
- M212 Introduction to Aquatic Ecosystems

**Semester 2 Modules**

- A224 Introduction to Business and Management
- M221 Marine Conservation Biology
- M222 Fishing Operations and Gear Technology
- M223 Introduction to Tropical Seafood
- M224 Intro to Fisheries and Marine Resource Management
- M229 Applied Ecology
Year 3 – Diploma in Fisheries and Marine Resources

Semester 1 Modules
AD311 Statistics
AD313 Work Experience
  Placement between year 2 and 3
MD311 Fisheries Marketing
MD312 Fisheries observing, monitoring and statistics
MD313 Freshwater ecology and limnology
MD314 Small Business Planning

Semester 2 Modules
AD322 Research Methods
MD321 Aquaculture
MD322 Tropical seafood science
MD323 Inland fisheries
MD324 Fisheries Oceanography
MD325 Intro climate change impacts to fisheries and aquaculture

Year 3 – Degree in Fisheries and Marine Resources

Semester 1 Modules
A311 Statistics
A313 Work Experience
  Work placement between year 2 and 3
M311 Fisheries Marketing
M312 Fisheries observing, monitoring and statistics
M313 Freshwater ecology and limnology
M314 Small Business Planning

Semester 2 Modules
A322 Research Methods
M321 Aquaculture
M322 Tropical seafood science
M323 Inland fisheries
M324 Fisheries Oceanography
M325 Intro climate change impacts to fisheries and aquaculture

Year 4 – Degree Fisheries and Marine Resources

Semester 1 Modules
A411 Industry Project
A413 Entrepreneurship
M411 Biology, Ecology and Management of Commercial Fisheries Species in PNG
M412 Fisheries climatology
M413 Marine pollution assessment
A417 Special Projects I

Semester 2 Modules
M421 Fish population dynamics
M422 Fisheries economics
M423 Marine law, policy and resource management
M424 Ecological approaches to fisheries Management
A427 Special Projects II

M111 Introduction to Fisheries
Module coordinator: Mr Aisi Anas

Module description
It is essential that all UNRE students understand the role of natural living resources including agricultural, forestry, tourism and fisheries, in sustaining human livelihoods and economies. Students must then recognise the need to develop and utilise these resources and their environments in a sustainable manner. This module is vital in developing the understanding of sustainable utilization of fisheries and marine resources and their environment, globally and in PNG. It covers the basics of fisheries sciences in two parts: the human dimension of fisheries includes diversity of fishing gears and their designs, the history of capture and culture fisheries and the marketing of fishery products, gathering data for resource monitoring and fisheries management, models for fisheries resource assessment, and marine protected areas. Fisheries
biology includes the identification, description, measuring, analysis and prediction of biological processes which are used to provide knowledge for optimal management of exploited fisheries. It also introduces to the taxonomy, anatomy and identification of fishes and invertebrates and it reviews the fisheries and fisheries resources of PNG and the world. Finally, it introduces to the principles of fish population dynamics.

**Learning Outcomes**

By the end of the module students will be able to:

1. Explain the differences in characteristics, types and levels of fishing operations.
2. List the main types of fishing gears and discuss their historic developments.
3. Discuss the complexity of fisheries and the potential impact on the environment and overfishing.
4. Discuss the importance of fisheries science (e.g. fisheries biology) in relation to promoting sustainable fisheries.
5. Demonstrate the basic understanding of the methods used to collect fisheries data.

**Module delivery**

100 hours per semester comprising 20 hours lectures, 15 hours seminars and practicals and 65 hours self-study.

**Assessment**

Coursework 50% (test and reports). Exam 50%

**Essential Reading**

A Module Handbook for Introduction to Fisheries is available at the University Bookshop and electronically.


**Further Reading**


Chapman et al. SPC. 2008. Fish species identification manual for deep-bottom snapper fishermen. SPC

Chapman et al. 2006. Marine species identification manual for horizontal longline fishermen. SPC.

**M211 Biology of fisheries Resources**

*Module coordinator; Mr Joe Aitsi*

**Module Description**

This module teaches the biology and ecology of fish and aquatic macro invertebrates. It includes the diversity of species that support or have the potential to support both capture and aquaculture fisheries. Students will recognise that managing the use of fisheries and marine resources is complex and may result in either sustainable or unsustainable fisheries. They will understand that fisheries are sustained by species populations from the wild, hence a good and detailed understanding of the biology and ecology of organisms is necessary to make informed management decisions based on scientific facts. The module focuses on the general biology and ecology of finfish and aquatic macro-invertebrates including general classification, trends in evolution, diversity, swimming and locomotion, colouration, integrative and sensory biology, physiology, circulatory and respiratory systems, osmoregulation, feeding ecology.
and digestion, migration, reproduction, age and growths. Early life history topics cover the importance of understanding egg and larval development and mortality.

**Learning Outcomes**
By the end of the module students will be able to:
1. Use scientific classification systems to identify and group fish based on external and internal characteristics.
2. Show a working knowledge of general fish biology.
3. Demonstrate the ability to synthesize biological information.

**Module delivery**
100 hours per semester comprising 20 hours lectures, 15 hours seminars and practicals and 65 hours self-study.

**Assessment**
Coursework 50% (assignments, test and lab reports). Exam 50%

**Essential Reading**

**Further Reading**

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Motupore Island Research Centre, UPNG.
Fisheries Research (1982-2007)

**M212 Introduction to Aquatic Ecosystems**

*Module coordinator: Mr Vonklaus Siwat*

**Module description**
This module familiarises students with different aquatic ecosystems, teaching them the diversity of aquatic ecosystems, and also their uniqueness in structure and function at all levels (biological, physical, chemical). Students will appreciate that all systems are linked so that positive or negative impacts on one system affects the others. This is vital in understanding how natural ecosystems function sustainably, and that fisheries should be managed by emulating sustainable natural systems. The module introduces students to the most common methods and skills in field sampling of marine biology and ecology, freshwater biology and ecology, and aquatic ecology in general.

**Learning Outcomes**
By the end of the module students will be able to:
1. Identify the key aquatic ecosystems found in PNG, the tropics and globally and discuss the basic understanding of their ecologies.
2. Demonstrate familiarity with regularly used sampling gear to collect flora, fauna,
physical and chemical parameters/variables across a broad range of habitat types.
3. Identify key flora and fauna found in East New Britain’s streams, estuaries, coral reefs and sea grass meadows.
4. Demonstrate an understanding of the important ecological relationships in the earth’s diverse aquatic ecosystems.
5. Outline and differentiate between physical and chemical characteristics of water and different aquatic ecosystems.
6. Demonstrate an understanding of the potential consequences of natural and human disturbance events on the structure and function of aquatic ecosystems in PNG and the tropics.
7. Communicate theory and field experience through structured scientific report-writing.

**Module delivery**
100 hours per semester comprising 20 hours lectures, 15 hours seminars and practicals and 65 hours self-study.

**Assessment**
Coursework 50% (assignments, test and lab reports). Exam 50%

**Essential Reading**

**Further Reading**

**M221 Marine Conservation Biology**
*Module coordinator: Mr. Job Opu*

**Module description**
This module covers conservation principles for coastal and marine resources as well as community based fisheries management and political ecology of fishing communities in Papua New Guinea and the Pacific region. It focusses on coastal and marine conservation strategies for marine ecosystems; special feature of rare and endangered marine organisms found in Papua New Guinea and in the pacific; marine conservation planning tools used at different scales; and an integration of community conservation management with a special focus on local marine management in Papua New Guinea.

**Learning Outcomes**
By the end of the module students will be able to:
1. Describe fundamental biodiversity and conservation principles.
2. Design community appropriate engagement plans including zoning and monitoring plans.
3. List the different types of participatory rural appraisal tools and demonstrate use of each PRA tool in local communities.
4. Evaluate community resource utilisation and identify high value conservation areas.
Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50% (seminar, tests and field work report): Exam 50%

Essential Reading
Groves, C. & Game, Edward T. 2016, Conservation Planning - Informed decisions for a healthier planet

Further Reading
Student Training Manual Developed for the Kavieng Community – Based Fisheries Management Module
King, M.G. & Lambeth, L., 2000, Secretariat of the Pacific Community, Noumea, New Caledonia. Fisheries Management by Communities: A manual on promoting the management of subsistence fisheries by Pacific Island Communities

M222 Fishing Operations and Gear Technology
Module coordinator: Mr Roger Routana

Module description
This module will teach students the development of the major fishing gears and their fishing methods so that they can link fishing activities to species ecology and fisheries management. Students will be given hands-on experience of the design, construction, operation and maintenance of common fishing gears. Field operations of these self-constructed gears allow students the benefit of understanding linkages between fishing method, target species, and catch rates. Students will appreciate the importance of seamanship and maritime skills to effectively carry out tasks on-board a fishing vessel or a small sea-craft. Survival at sea and firefighting on-board a vessel will be covered. Students will be taught to start and operate an outboard motor engine up to 40 horse power. The module also introduces students to the practice and opportunities for fisheries entrepreneurship.

Learning Outcomes
By the end of the module students will be able to:
1. Identify the main types of fishing gears and describe their line of development.
2. Demonstrate a working knowledge of the design, construction, operation, and maintenance of gill nets, troll lines, bottom longlines, and hand-lines
3. Discuss the main target species for the different types of fishing gears and methods.
4. Demonstrate competency in the skills for sea safety, fire safety and survival techniques.
5. Demonstrate seamanship skills and techniques related to rope work knots and splicing.
6. Demonstrate competency in the knowledge and operation of an outboard motor engine attached to a small sea craft.
7. Identify and describe electronics and their operations and interpretations for navigation and fishing operations.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.
Assessment
Coursework 50% (practical skills tests):
Exam 50%

Essential Reading

Further Reading
Maritime Group Pty Ltd. NSW. Australia. (Call No. 623.880994).

M223 Introduction to Tropical Seafood
Module coordinator: Mr Yaosa Kaikar

Module description
This module provides a general introduction to the major seafood resources exploited in the tropics. Physiological and nutritional aspects of seafood, post-harvest seafood handling methods, spoilage and control measures, seafood hazards and control measures, seafood preservation methods ((both traditional and modern), and quality control systems. The module also introduces students to HACCP, GMP and SSOP. A critical analysis is made of the role of PNG in traditional and modern processing industries and seafood quality issues in the regional and global context are examined in some detail.

Learning Outcomes
By the end of the module students will be able to:
1. Describe the major seafood that are exploited in the Tropics.
2. Explain the general conditions for seafood handling that would prevent nutritional, quality and food safety issues.
3. List the seafood spoilage factors and their control measures.
4. Identify food safety hazards associated major seafood exploited commercially.
5. Illustrate their understanding of the various traditional and modern preservation methods used in PNG and globally.
6. Outline the principles associated with seafood quality assurance system.
7. Explain the principles of the HACCP System
8. Interpret legislative requirements for seafood exports.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, and self-study.
Assessment
Coursework 50% (assignment, practical and field reports and test): Exam (50%)

Essential Reading

Further Reading
Martin RE, RL Collette, JW Slavin (Eds), (1997). Fish Inspection, Quality Control & HACCP,


M224 Introduction to Fisheries and Marine Resources Management
Module coordinator: Mr Walain Ulaiwi

Module description
Students will be taught the biological and ecological nature of fisheries resources, and the critical role played by social and economic needs, wants and aspirations of society that influence human behaviour towards utilisation of fisheries resources. Students will be introduced to how this knowledge is applied in managing fisheries and aquatic resources. This will include a brief overview of the tools available for resource management, and the institutional, legal and administrative structure and mechanisms that must be in place to facilitate effective management. Students will guided to appreciate the limitations in the applications of biological/ecological and socio-economic information to achieve sustainable resource use due to the peculiar nature of fisheries systems that affect sustainable exploitation and management.

Learning Outcomes
By the end of the module students will be able to:
1. Describe why and how fish and other living marine organisms are renewable resources, and how they can be used and managed in a sustainable manner for the achievement of desired objectives.

2. Demonstrate how and why good understanding of the basic biological and ecological concepts such as “Fish Stock, MSY and other population parameters, are important and how such data are used for the sustainable management of fisheries and marine resources.

3. Describe how social and economic factors contribute towards sustainable or unsustainable resource exploitation practices.

4. Identify the various fisheries management tools that are available, and describe how they are used to address issues that arise in the exploitation and management of fisheries resources.

5. Identify and describe the inherent limitations in our understanding of resource and the management tools, and how these limitations might be accounted for in managing fisheries and marine resources.

6. Develop data collection, data analysis and interpretation skills.

**Module delivery**
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

**Assessment**
Coursework 50% (practical skills tests):
Exam 50%

**Essential Reading**
King, M., 2007, Fisheries Biology, Assessment and Management, Fishing News Books, Oxford
Pauly, D. & Murphy, G.I., 1982, Theory and Management of Tropical Fisheries, ICLARM, Philippines

Further Reading
Hart, P. and Reynolds, J.D. (2002). Handbook of Fish Biology and Fisheries (Volume 1): Fish Biology
FAO Technical Reports on Fisheries accessed through FAO Website www.fao.org
9Fisheries Publications in Website: www.fishbase.org

**M229 Applied Ecology**

*Module coordinator: Mr Lloyd Werry*

**Module description**
This module introduces students to various approaches to apply ecological concepts and principles to solving real world problems. Students with an expertise in applied ecology will be well-equipped to address local and global challenges, associated with a wide range of important issues such as water quantity and quality, natural resource management, environmental conservation and restoration, climate change and maintenance of biodiversity. The module examines the ecological underpinning of conservation biology and restoration ecology. It focuses on the aspects of the ecology of direct importance to conservation biology and the connection between ecological theory and conservation biology. It covers measures of biodiversity, extinction dynamics, invasive species, species and natural product
harvesting (population viability analysis), genetic and spatial connectivity of populations, ecosystem resilience and resistance, community assembly in the context of restoration.

Learning Outcomes
By the end of the module students will be able to:
1. Define and describe ecological concepts, systems and processes.
2. Demonstrate an understanding of applying ecological concepts and principles to environmental challenges presented.
3. Collect and process ecological data and interpret trends for use in management, restoration or conservation.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50% (tests and practical report): Exam 50%

Essential Reading

Further Reading

M(D)311 Fisheries Marketing Management
Module coordinator: Dorothy Worogop
Module description

The module teaches the theoretical frameworks of marketing at the local, national and global level and provides students with an understanding of contemporary marketing concepts and theory and how these affect fisheries producers and consumers. It also develops the skills required to analyse the fisheries marketplace in order to provide quality products and service that will meet the needs of the customers while retaining competitive advantage, profitability and sustainability.

Learning Outcomes
By the end of the module students will be able to:
1. Analyse and evaluate fisheries markets in the region to see the factors affecting the markets and products sold at the markets.
2. Demonstrate a critical ability to relate marketing theory and practice to current organisational processes in an increasingly dynamic and changing world.
3. Appreciate the dynamic and complex nature of marketing of fisheries products on the local, national and the global markets.
4. Apply critical thinking and problem solving skills to address marketing issues in any given situation.

Module delivery
100 hours comprising 20 hours lectures, tutorials, field visits and self-study.

Assessment
Coursework 60% (test, report and tutorial exercises): Exam 40%

Essential Reading
Eric, N., Berkowitz, Kerin & R.A., Rudelius, W., Marketing,(1992), United States
McCarthy, Perreault & Quester (2000), Basic Marketing – A Managerial Approach
M(D)312 Fisheries observing, monitoring and statistics

Module coordinator: Mr Walain Ulaawi

Module description
This module describes the importance of fisheries statistics in making informed management decisions. Students learn how, where and when to obtain fisheries data and then use statistics to derive scientific information for fisheries management. The module teaches students the importance of timely and accurate information for accurate formulation of fisheries management plans and strategies, which should result in sustainable use of marine resources and their environment. This module teaches students the basics of correlation and regression and their applications in fisheries science. Students will be taught how data on non-linear relationships can be transformed so that relationships can be viewed as linear and easily interpreted.

Learning Outcomes
By the end of the module students will be able to:
1. Discuss the need to monitor and observe fisheries activities and collect appropriate fisheries data for fisheries management.
2. Describe the standard classes of fisheries data types and the appropriate methods to collect them.
3. Practice the methods of collecting, processing and analysing fisheries data to answer specific scientific and management questions.
4. Interpret and report fisheries data following standard scientific methods.
5. Derive descriptive statistics of fisheries data for both single variable and multi-variable statistics, using Microsoft Excel.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50% (tests and lab report): Exam 50%

Essential Reading
A Module Handbook for Fisheries Observing, Monitoring and Statistics is available at the University Stationery Shop and electronically at the Department of Fisheries and Marine Resources.
Further Reading

M(D)313 Freshwater Ecology and Limnology
Module coordinator: Mr Lloyd Werry

Module description
Freshwater biomes are a vital component of the biosphere. They constitute lakes, marshes, streams, and rivers. The aim of this module is to develop understanding of the physical, chemical, and biological properties of freshwater ecosystems and to become familiar with techniques used in research of freshwater ecosystems. The module introduces concepts, theory, and methods which can be integrated to address basic and applied problems in fresh waters. Emphasis will be given to building field research skills and the quantitative aspects of managing, analysing, writing, and graphing field data.

Learning Outcomes.
By the end of the module students will be able to:
1. Contrast the physical, chemical and biological characteristics of different freshwater ecosystems.
2. Debate ecological processes; energy dynamics and nutrient cycling.
3. Describe organisms according to their ecological importance such as functional feeding groups and their basic taxonomy to relate them to freshwater food web.
4. Demonstrate a basic understanding of ecosystem functioning in freshwater systems and the role of organisms.
5. Explain theoretical concepts and methods used in freshwater ecology and limnology.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50% (tests and practical reports): Exam 50%

Essential Reading

Further Reading

M(D)314 Small Business Planning
Module coordinator: Ms Dorothy Worogop

Module description
The module provides the theoretical framework to understand why within our region some small businesses fail and other succeed. The module will develop analytical skills enabling students to appraise small tourism operations and to
develop a better understanding of particular problems faced by this sector of the economy.

Learning Outcomes.
By the end of the module students will be able to:
1. Review the factors affecting growth, development and viability of small businesses within the region.
2. Write a business plan for establishing and developing a local enterprise.
3. Appreciate the dynamic and complex nature of the small business sector and its contribution to the economy.
4. Describe the history of National and Regional Government support for the small business sector.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 60% (assignments): Exam 40%

Essential Reading

Further Reading
Avraham,E. & Ketter,E., (2015),Tourism Marketing for Developing Countries: Battling Stereotypes and Crises in Asia, Africa and Middle East, Palgrave Macmillan-book

M(D)321 Aquaculture
Module coordinator: Mr Malagat Boas

Module description
Half of the world fish protein supply now comes from aquaculture. This module will teach students the importance of aquaculture as an industry in contributing towards world food production. Students will learn that aquaculture enhances capture fisheries by restocking overfished fish populations by growing fish in controlled systems and releasing these in natural ecosystems. The module will also teach the role of aquaculture in environmental destruction and pollution, and how these can be controlled and managed to ensure aquaculture is a sustainable natural living resource industry.
Learning Outcomes.
By the end of the module students will be able to:
1. Define aquaculture and explain how it is different from capture fisheries.
2. Discuss reasons for modern trends in world aquaculture development and why aquaculture is important to PNG.
3. Identify the different forms of aquaculture systems and provide demonstrated descriptions of techniques used in pond construction and the management of water and cultured organisms.
4. Identify and describe the different water quality parameters, their effects on the health of a cultured species, and demonstrate the methods used in measuring these parameters.
5. Describe the different elements involved in combine rearing of aquatic and terrestrial species to promote sustainable vegetable crops production.
6. Demonstrate a basic understanding of feed formulation, feed production and feeding management for aquaculture species.
7. Describe and explain the environmental implications of aquaculture.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals and self-study.

Assessment
Coursework 50% (assignment, test and practical report): Exam 50%

Essential Reading

M(D)322 Tropical Seafood Science
Module coordinator: Mr Yaosa Kaikar
Module description
This module provides information on major seafood exploited in the tropics. It discusses physiology of seafood resources, nutritional quality, spoilage and control measures, hazards and control measure, processing (both traditional and modern innovative), preservation, quality and safety assurance systems are examined. This includes a critical analysis of the role of traditional and modern processing industries in PNG. Regional and global seafood quality and safety issues are examined in some detail.

Learning Outcomes.
By the end of the module students will be able to:
1. Describe the biological aspects of fish including anatomy and physiology.
2. Demonstrate an understanding of the post-mortem changes that occur in fish.
3. List, describe and have a demonstrated understanding of key procedures for seafood handling, processing and preservation.
4. Discuss the principles involved in various preservation methods for seafood both traditional and modern.
5. Illustrate their understanding of the elements of Food Quality Assurance System and prepare Food Quality Assurance Programmes for seafood industries.
6. Demonstrate understanding of the elements of HACCP and be able to design HACCP Systems for seafood industries.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, and self-study.

Assessment
Coursework 50% (Assignment, tests and practical report): Exam 50%
Essential Reading

Further Reading
Martin R E, R L Collette, and J W Slavin (eds.) 1997. Conference on Fish Inspection, Quality Control & HACCP; a global focus proceedings of a conference.

M(D)323 Inland Fisheries
Module coordinator: Mr Walain Ulaiwi

Module description
Inland fisheries are an important component of capture fisheries. This module gives an overview of the global importance of inland fisheries and places special emphasis on the status of inland fisheries in PNG and the potential they hold for fish production, food security and poverty alleviation in rural areas. It covers all aspects of inland fisheries, including topics such as fishing methods, biology and ecology of important food fish species and their fishery, the inland water systems (rivers, lakes, floodplains etc.) and the topographical and hydrographical regimes that influence and sustains these fisheries. Competing land-use/development practices, pollution and habitat modifications which affect inland fisheries are also presented and discussed.

Learning Outcomes.
By the end of the module students will be able to:
1. Identify and describe the different types of inland water systems and the fishery they support.
2. Describe the important ecological and biological processes that underpin the productivity of inland waters
3. Describe the types of fishery in inland waters, types of fishers, fishing methods and the management measures and
strategies that are used in managing these fisheries.
4. Evaluate and discuss the vulnerability of inland waters and their fishery to anthropogenic impacts.
5. Identify and discuss the problems and issues that arise due to competing use of inland waters by different stakeholders.
6. Evaluate and analyse management measures and strategies that could be applied to address the problems and issues that arise due to competing uses to ensure compatible use of inland waters for different purposes, including for fisheries.

**Module delivery**
100 hours comprising 20 hours lectures, tutorials, practicals, and self-study.

**Assessment**
Coursework 50% (tests assignment and field report): Exam 50%

**Essential Reading**

**Further Reading and Webpages**
FAO Technical Publications on Inland Fisheries available from FAO Website: www.fao.org
Inland Fisheries Publications on: www.fishbase.org

**M(D)324 Fisheries Oceanography**
*Module coordinator: Mr Vonklaus Siwat*

**Module description**
Oceanography is the study of oceans, and includes aspects of its biology, chemistry, physics, ecology, and climatology. The biological component (fish and other marine organisms from macro to micro flora and fauna) makes up the main content of this module. Flora and Fauna in the marine environment interact amongst themselves and with the non-living component (chemical, physical, and climatological). In order to understand the lives of and the behaviours of the living organisms existing in the marine environment these living and non-living factors also play influential roles.

**Learning Outcomes.**
By the end of the module students will be able to:
1. Discuss oceanic circulations or currents in both local and global scales.
2. Describe oceanic circulations and climate and their interconnections.
3. Discuss marine chemistry and its influence on ocean dynamics.
4. Identify and describe organisms of the ocean in their major groups of plankton and nekton.
5. Explain energy flow in food-webs and nutrient cycles in the marine environment.
6. Discuss generic impacts of climate on fisheries.

**Module delivery**
100 hours comprising 20 hours lectures, tutorials, practicals, and self-study.

**Assessment**
Coursework 50% (tests, field and lab reports): Exam 50%

**Essential Reading**
M(D)325 Introduction to climate change impacts to fisheries and aquaculture  
_module coordinator: Mr. Joe Aitsi_

Module description
This module includes the physical and ecological implications on Fisheries and Aquaculture systems with a focus on the large-scale changes related to changing temperature, winds and acidification and how these factors affect the distribution, abundance, species composition and the overall productivity of an area. The module will emphasize the observed and expected changes both globally and regionally, outlining the implications to fishery dependent island economies and communities as it looks at management measures and policies in place.

Learning Outcomes
By the end of the module the students will be able to:
1. Identify physical and ecological implications on Fisheries and Aquaculture systems;
2. Describe large scale factors affecting the distribution, abundance, species composition and overall productivity;
3. Describe expected climatic change projections both regionally and globally;
4. Discuss the implications of climate change to fishery-dependent island economies and communities;
5. Assess the climate change adaptive management strategy and policies in Papua New Guinea and around the Western Pacific region.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50% (tests, essays, and seminar/poster presentation): Exam (50%)

Essential Reading
Bell, J., et al., 2016, Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change, SPC, Noumea, New Caledonia

Further Reading
Bell, J.D. Johnson, J.E. & Hobday, A.J. 2011, Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change, SPC, Noumea, New Caledonia

**M411 Biology, Ecology and Management of Commercial Fisheries Species in PNG**

*Module coordinator: Mr Joe Aitsi*

**Module description**
This module provides the knowledge and skills to develop management strategies specific to existing commercial fisheries in PNG. Students will explore the successes and failures of management strategies applied in current fisheries in PNG, then identify corrective or improvement measures to make them sustainable. They will obtain vital biological and ecological data about each specific resource species. By studying a chosen species, students will appreciate the practical steps involved in acquiring information, deriving policy and making informed decision for sustainable fisheries.

**Learning Outcomes.**
By the end of the module students will be able to:
1. Describe the biology and ecology of tuna, shark, snapper, and grouper species important to the commercial fisheries in PNG and the region.
2. Describe the biology and ecology of commercial invertebrate species in PNG including prawns and lobsters relevant to fisheries biology and management.
3. Demonstrate species-specific management strategy options based on scientific knowledge and understanding.

**Module delivery**
100 hours comprising 20 hours lectures, tutorials, practicals and self-study.

**Assessment**
Coursework 50% (tests, assignment and practical activity): Exam 50%

**Essential Reading**

**Further Reading**
Journal of fish biology (internet/printed issues)
Journal of experimental marine biology and ecology (internet/printed issues)
Fisheries Research (internet/printed issues)

**M412 Fisheries climatology**

*Module coordinator: Mr Aisi Anas*

**Module description**
This module explores the possible impacts of climate and climate change on the productivity, abundance, distribution, and dynamics of marine fish stocks. Specific content includes: Premise to understand effects of climate and climate change on fish and fisheries. Regime shifts in marine ecosystems. Detecting regime shifts, climate indices, El Nino and La Nina.
Major global oceanic currents, upwelling and their contribution to fisheries.
Migration strategies of marine species - Triangular Migration Hypothesis, horizontal migrations, vertical migrations. Case studies of climate impacts on fish stocks - Peruvian anchovy Engraulis ringens, sardines and upwelling and El Nino, Skipjack tuna and El Nino in the Pacific, barramundi and El Nino in PNG, Cod stocks of Northern Hemisphere and climate change. Climate change effects on fisheries and fisheries management.

**Learning Outcomes.**
By the end of the module students will be able to:
1. Justify the need to integrate climate effects into the models for fish stock assessment.
2. Explain how climate affects fish at the individual, population and ecosystem levels.
3. Describe the direct and indirect pathways by which climate affects a fish stock.
4. Evaluate impacts of climate on specific fish species in PNG, the Pacific and around the globe.
5. Explain the concept of “fishing down the food-web”.

**Module delivery**
100 hours comprising 20 hours lectures, tutorials, practicals, and self-study.

**Assessment**
Coursework 50% (tests, essays, and lab report): Exam 50%

**Essential Reading**

Cochrane K, C DeYoung, D Soto and Bahri T. 2009. Climate change implications for fisheries and aquaculture: overview of current scientific knowledge. FAO Publications.

**M413 Marine pollution assessment**

*Module coordinator: Lloyd Werry*

**Module description**
This module provides an overview of the diverse issues related to coastal and marine pollution from human activities and how these can holistically affect marine ecosystems, fisheries habitats and resources. It presents marine litter highlighting synthetic by-products, plastics, and lost or abandoned fishing gear; oil pollution from spills and ships; pollution from chemicals discharged; and how municipal wastewater can also contribute to marine pollution. International agreements such as MARPOL as examples of marine pollution monitoring/regulating instruments for states to conform to are highlighted. The module also covers risk assessments and the practical use of biological and chemical markers in pollution assessment.

**Learning Outcomes.**
By the end of the module students will be able to:
1. Illustrate sources, pathways of pollutants and their effects on marine life, ecology, fisheries and humans.
2. Describe characteristics of pollutants such as their toxicity and persistence.
3. Discuss clearly the differences between effects of different classes of pollutants.
4. Demonstrate basic/rapid risk assessment and biological assessment to potential pollution scenarios.
5. Demonstrate an understanding of different international conventions on harmful substances and their role in having states respond to them.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50% (essay lab and field report): Exam 50%

Essential Reading

Further Reading

M421 Fish population dynamics
Module coordinator: Aisi Anas
Module description
This module provides an introduction to the theoretical models, quantitative methods and estimation of the population parameters required for fishery assessment. It examines advanced concepts and methods in fish population dynamics and stock assessment, with emphasis on the design of harvest policies for sustainable fisheries. Topics covered include: Population and individual fish growth; Mortality; Length-based methods; Recruitment; The dynamic pool approach; the surplus production approach; Virtual population analysis; Simple bio-economic models. Students will learn to apply the main methods used today for fisheries assessment, along with pitfalls and examples of where these methods have failed. Presentations on harvest policy design range from simple estimation of targets and reference points to development of experimental, adaptive management policies.

Learning Outcomes.
By the end of the module students will be able to:
1. Discuss the complexity and dynamics of a fish population, and identify the main factors in the Russell’s model of fish population dynamics that drive such dynamism.
2. Describe the development of a fish stock in terms of biomass, abundance, cohort recruitment and dynamics using specific models such as the Von Bertalanffy Growth Function (VBGF), Exponential Decay Model, etc.
3. Identify, classify and discuss the common fish stock assessment models and management techniques to guide fisheries stock management.
4. Demonstrate understanding of the methods of calculating and determining growth, age, mortality and recruitment parameters to determine the state of a stock.
5. Demonstrate proficiency in data analysis and interpretation, and its use for fisheries management, e.g. to diagnose overfishing and explore management policies to improve fisheries.
6. Define the basic terms used in fish stock management and assessment of fish population dynamics.

Module delivery
100 hours comprising 20 hours lectures, tutorials, 30 hours practicals, and self-study.

Assessment
Coursework 50% (data sorting and processing activity): Exam 50%
**Essential Reading**


Further Reading


**M422 Fisheries economics**

**Module coordinator: Dorothy Worogop**

**Module description**


**Learning Outcomes.**

By the end of the module students will be able to:

1. Analyse and relate economic concepts and principles to fisheries products and fisheries economic development in the country.
2. Construct and apply various economic models for making informed decisions on the status of specific fishery product yields, efforts and sustainability and the profitability and sustainability of fisheries firms in the country.
3. Construct a bio economic model to analyse economic and biological effects of fishing under open access and managed fisheries.
4. Describe and demonstrate understanding of the role and importance of fisheries economics to production, profitability and sustainability of existing fisheries in PNG.
5. Evaluate and discuss the effects of Fisheries Economic Development on specific fishery population growth, individual transferable quota, property rights and public goods, international trade and markets in PNG.

**Module delivery**

100 hours comprising 20 hours lectures, 30 hours practicals and self-study.
Assessment
Coursework 50% (assignment, tests and seminar): Exam 50%

Essential Reading

M423 Marine law, policy and resource management
Module coordinator: Mr Walain Ulaivi

Module description
This module develops an understanding of how international developments have impacted on development of relevant marine policies and laws. Conventional resource management concepts and approaches, their success and failures, new approaches (such as the concept of Ecosystem Approach to Fisheries/Marine Resources Management), are described and discussed in detail. Through case studies, students gain a deeper insight into the application of the various management tools and approaches to solve problems of unsustainable exploitation of fisheries and marine resources.

Learning Outcomes.
By the end of the module students will be able to:
1. Demonstrate an in-depth understanding of the biological and ecological concepts such as “Fish Stock, MSY and other population parameters, and how they are used in the management of Fisheries and Marine Resources.
2. Identify and describe the most significant international treaties, laws and conventions on which local and regional legal systems are developed relevant to ocean and marine resource governance.
3. Describe the impact of international treaties, laws and conventions and how these have impacted and affected the way we do business in PNG.
4. Identify and describe the various tools and strategies of management, and be able to know when and where these tools can be applied in managing fisheries and marine resources.
5. Demonstrate awareness of the limitations of fisheries science and conventional fisheries management tools and approaches, and how these are intended to be addressed through new approaches such the Ecosystem Approach to Fisheries Management.

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals and self-study.

Assessment
Coursework 50% (tests and assignment): Exam 50%

Essential Reading
King, M., 2007, Fisheries Biology, Assessment and Management, Fishing News Books, Oxford
Pauly, D. & Murphy, G.I., (1982), Theory and Management of Tropical Fisheries, ICLARM, Philippines,

M424 Ecological approaches to fisheries management
Module coordinator: Mr Job Opu

Module description
This module discusses the concept of ecosystems-based fisheries management for an ecologically sustainable development of fisheries and marine resources. It considers the sustainable use of both species and ecosystems, the maintenance of essential ecological processes, and the preservation of biological diversity. Marine ecosystems are valuable for reasons other than commercial fishing, including the prevention of coastal erosion, climate regulation, nutrient storage, the maintenance of biodiversity and recreation. This module will reveal how the marine environment is in demand and must be managed holistically due to under pressure from many different sources including commercial fishing, subsistence fishing, recreational, aquaculture, tourism, water sports, shipping, coastal developments and industry.

Learning Outcomes.
By the end of the module students will be able to:
1. List the guiding principles for ecosystem based management.
2. Identify high conservation/management areas.
3. Design conservation / development landscape and seascape Plans.
4. Explain the conservation adaptive management model.
5. Demonstrate the use of ecosystem based management (EBM) modelling tools such as stakeholder analysis, spatial analysis (GIS) tools like Marxan, risk assessment matrix and cost benefit analysis.
6. Evaluate existing fisheries management plans (reviewing and adapting).

Module delivery
100 hours comprising 20 hours lectures, tutorials, practicals, field visits and self-study.

Assessment
Coursework 50% (tests, assignment and tutorial exercises): Exam 50%

Essential Reading
Christensen, V. & Maclean, J. 2015. Ecosystem Approaches to Fisheries – A global Perspective, Cambridge Publishing

Further Reading
Purcell, S.W. 2010, Managing sea cucumber fisheries with and ecosystem approach, FAO, Rome. UNEP-WCMC, 2006, In the front line; shoreline protection and other ecosystem services from
Courses handbook 2019


**Department of Forestry**

**Head of Department** TBA

**Administrative Officer** Vacant

**Forestry**

**Technical Officer** Mr Daniel Waldi, Bachelor of Forest Management (UNITECH), Dip Trop. Agr. (UNRE)

**Technical Officer** Mr Sylvestor Kulang (Dip. Applied Science, Lae Tech)

**Courses**

**Degree in Sustainable Tropical Forestry**

**Structure of Courses**

**Year 1 Common first year**

**Semester 1 Modules**

- A111 Communication Skills
- A112 Introduction to Biology
- A114 Introduction to Chemistry
- A115 Introduction to Agriculture
- F111 Introduction to Forestry
- M111 Introduction to Fisheries

**Semester 2 Modules**

- A123 Natural Resource Conservation & Utilisation
- A126 On Farm Practice
- A127 Introduction to Economics & Management
- A128 Applied Biology
- A129 Physical Science
- T121 Introduction to Tourism

**Year 2 Diploma/Degree Sustainable Tropical Forestry**

**Semester 1 Modules**

- A211 ICT for Natural Resources
- A212 Applied Mathematics
- A213 Health and Safety at Work
- A215 Principles of Soil Sciences
- A216 Introduction to Plant Science
- F212 Forest Products and their Utilisation

**Semester 2 Modules**

- A221 Sustainable land use
- A224 Introduction to Business and Management
- A227 Agricultural Mechanisation
- F223 Plantation Forest Silviculture
- F224 Forest Ecology
- M229 Applied Ecology

**Year 3 Diploma Sustainable Tropical Forestry**

**Semester 1 Modules**

- AD311 Statistics
- AD313 Work Experience Placement between year 2 & 3
- AD314 Extension Methods
- MD314 Small Business Planning
- F311 Forest Inventory and Assessment
- F314 Catchment Management

**Semester 2 Modules**

- AD322 Research Methods
- AD324 Sustainable Palm Oil Production
- F323 Sustainable Use of NTFP’s
- F325 Environmental Services and Forest Management
- F326 People and Forests
- F327 Natural Forest Silviculture

**Year 3 Degree Sustainable Tropical Forestry**

**Semester 1 Modules**

- A311 Statistics
- A313 Work Experience Placement between year 2 & 3
- A314 Extension Methods
- F311 Forest Inventory and Assessment
F314 Catchment Management
M314 Small Business Planning

Semester 2 Modules
A322 Research Methods
A324 Sustainable Palm Oil Production
F323 Sustainable Use of NTFP’s
F325 Environmental Services and Forest Management
F326 People and Forests
F327 Natural Forest Silver-culture

Year 4 Degree/Honours Degree Sustainable Tropical Forestry
Semester 1 Modules
A411D Industry Project
or
AH411D Research Project I
A413 Entrepreneurship
F411 Agroforestry
F413 Forest Policy
F414 Forest Economics

Semester 2 Modules
A422D Current Issues in Natural Resources
or
AH422D Research Project 2
A422 Plant Breeding and Biotechnology
A423 Marketing Management
F422 Certification and legality in Forestry
F425 Climate Change and Global Carbon Markets

F111 Introduction to Forestry
Module coordinator: TBA

Module description
This module introduces the importance of forests and trees to ALL first year UNRE students. Tourism students will appreciate the importance of forests in the landscape and in supporting our rich biodiversity and culture. Fisheries students will understand the importance of forests to the water cycle and thus in the ecology of fish stocks. Agriculturalists and Animal Scientists will understand the role of trees in soil development and in the carbon and nutrient cycles, and the module will form the foundation for future modules for Forestry students.

The module introduces some of the basic aspects of forestry, including: silvicultural systems, types of forests; commercial, cultural, ecological and landscape values, mangroves as nurseries for fish, forests in water catchments, forest products and NTFP’s, forestry legislation, global timber trade, markets and regulations, forest ecology; pests, diseases and other biodiversity, tree biology; physiology, genetics and reproductive biology.

Learning Outcomes
By the end of the module students will be able to:
1. Identify the main products of forestry.
2. Describe the value of trees and forests to other industries in the region.
3. Identify the positive and negative impacts of forest management on local communities.
4. Define the main components of continuous cover forestry.

Module delivery
100 hours per semester comprising 20 hours lectures, 15 hours practicals and 65 hours self-study.

Assessment
Coursework 100% (literature review and group presentation).

Essential Reading
Estate scale tree production in Papua New Guinea. K.R. Woodward.
P 338.17399953 WOO 1
Forestry management for sustainable development. E.D'Silva,
P 333.75095 D’S
Plantation silviculture: training manual for the Papua New Guinea Forestry. K.D. Coll Romijn. SR 634.95 ROM
Issues in Papua New Guinea Forest policy 22nd October 1982 chaired by: Mr. W.

**F212 Forest Products and their Utilisation**

*Module coordinator: TBA*

**Module description**

This module introduces students to the principle products of forestry, how they are processed, marketed, and utilised in their end form. It covers wood anatomy, wood structure, relevance to wood products, wood processing technology. PNG processing, wood products, product pricing. The impact of forest type and management on wood properties. The impacts of disease or fungi on wood properties. Species suitability for end-product use. Non-timber products. Oil palm production and processing.

**Learning Outcomes.**

By the end of the module students will be able to:

1. Describe the key differences in timber products, and how wood structure is relevant to different processing methods.
2. Illustrate the relationship between forest management regime and timber quality and subsequent marketability.
3. Critically evaluate the forest product chain from point of production to point of use, highlighting key stages and limitations in the process.
4. Provide examples of the importance of wood anatomy to the economics of timber marketing.

**Module delivery**

100 hours comprising 20 hours lectures, 15 hours practicals and 65 hours self-study.

**Assessment**

Coursework 75% (essay and group presentation): Exam 25%

**Essential Reading**

Balsa: biology, production and economics in Papua New Guinea. Midgley, Stephen SR 634.97368 BAL 1
Common forest trees of Papua New Guinea (series)
Fast growing timber trees of the lowland tropics: Gmelina arborea. Lamb, A. F. A. P 634.9560913 LAM
Experimental design and analysis for tree improvement Williams, E. R. C 634.956 WIL 1
Research on multipurpose tree species in Papua New Guinea A: a selected bibliography. Louman,Bas P 582.16016 L888

**F223 Plantation Forest Silviculture**

*Module coordinator: TBA*

**Module description**

This module develops understanding of the principles of plantation silviculture as an economic enterprise and its implications in the timber industry. Students are taught to utilise their developing understanding of plantation silviculture as a tool for reforestation. The silviculture of individual tree species and the market demand for standardised forest production methods and produce is covered. The ecological and economic implications of single-species plantation forestry is described. The module includes: The principles of management in planted commercial forests. Stock selection, seed collection and handling, nursery systems (seedlings and clonal), Plantation planning, establishment, maintenance, harvest and post-harvest...
management. Stand dynamics, tree interactions and growth. Disease and insect pest issues. Other damage agents such as fire and wind. Post-harvest restoration and regeneration
Site, soil assessment and species choice.

Learning Outcomes.
By the end of the module students will be able to:
1. Describe the main components of plantation silviculture
2. Determine a suitable approach to plantation establishment based on sound knowledge of site-specific and silvicultural factors.
3. List the main processes involved in nursery production systems and describe their relevance to plantation establishment.
4. Compare the ecological impacts of plantation silviculture and natural forest silviculture.
5. Develop a reasoned argument for plantation forestry in the context of development.

Module delivery
100 hours comprising 20 hours lectures, 15 hours practicals, and self-study.

Assessment
Coursework 70% (essays, and group presentation): Exam 30%

Essential Reading
Plantations in tropical and subtropical regions: mixed or pure P 634.9 FOO
Research on multipurpose tree species in Papua New Guinea A: a selected bibliography. Louman, Bas P 582.16016 L888
Forest resources of Papua New Guinea: map with explanatory notes. Saunders, John Campbell R 333.7509953 SAU
Matching trees and sites C 634.99 M425 1
Preparing to plant tropical trees. K.A. Longman, C 634.956 L856

Issues in forest conservation: rehabilitation and restoration of degraded forests. D. Lamb.
C 333.75152 LAM

F224 Forest Ecology
Module coordinator: Mr Kari Iambai

Module description
This module equips students with an understanding of the complex ecological interactions that occur within a wide range of natural and managed woodland communities.

For the forestry industry to be sustainable within the region it needs to be aware of the ecological background to forest management and sustainable development of the forest sector. The module includes:
The main types of forests found in different regions of the world. World forest resources. The importance of tropical forests (carbon storage, climate control, livelihoods, economics, biological diversity, soil security). The characteristics, and classification of tropical forests (including mangroves). Forest soils. Nutrient and water cycles in forest ecosystems. Carbon storage and sequestration. The difference between natural, semi-natural and plantation forests, and their respective influence on ecological considerations. Key differences between tropical and temperate forest ecologies. Species interactions; pollinators, seed ecology and dispersal agents, keystone species dynamics and their influence. Fungal pathogens, symbionts and endophytes.

Learning Outcomes.
By the end of the module students will be able to:
1. Describe the world’s main forest types
2. Discuss the factors which influence forest growth and regeneration.
3. Identify the main components of the nutrient and water cycles in forests.
4. Describe the main ecological differences between natural, semi-natural, and plantation forests.
5. Assess the value of the global forest resources.

Module delivery
100 hours comprising 20 hours lectures, tutorials, 15 hours practicals, and self-study.

Assessment
Coursework 50%: Exam 50%

Essential Reading
Tropical Forest Ecology; The Basis for Conservation and Management
F. Montagini and C. F. Jordan
Forestry management for sustainable development. E. D'Silva.
P 333.75095 D'S
The tropical rainforest: an ecological study.
F.W. Richards, C 634.94 RIC 1
Physiological Ecology of Tropical Plants
Ulrich Lüttge Lèuttge, Ulrich.

F(D)311 Forest Inventory and Assessment
Module coordinator: TBA
Module description

Remote sensing of natural forest resources and its application in forest inventory and monitoring.

Learning Outcomes.
By the end of the module students will be able to:
1. Recognise the fundamental importance of assessment, inventory and monitoring with respect to forest resource management.
2. Carry out a forest inventory.
3. Apply a sampling system commonly used in forest inventory.
4. Demonstrate an appreciation of the importance of monitoring forest resources.
5. Incorporate variation in the forest resource in the process of forest inventory.

Module delivery
100 hours comprising 20 hours lectures, tutorials, 15 hours practicals and self-study.

Assessment
Coursework 50% (Practical reports): Exam 50%

Essential Reading
Tree and Forest Measurement
P. W. West

F(D)314 Catchment Management
Module coordinator: TBA
Module description
This module covers the impact of various forms of land management (particularly forestry) on water catchment management. A sustainable supply of water is essential for many human activities. It is therefore important that graduates understand the importance of various farming and forestry practices on water quality and security of supply. The module includes: The principles of hydrology and the water cycle. Meteorology and patterns of local rainfall. Definitions of a catchment and the relationship to forestry and agriculture.
Fundamental freshwater ecology, mangrove ecosystems, and mitigation of pollutants. The impact of land-use management on water production (quality and quantity). Natural flood management methods; influencing flow, leaky woody dams and floodwater retention. Point source and diffuse pollution; mitigation and monitoring.

Learning Outcomes.
By the end of the module students will be able to:
1. Critically compare the impacts of different forestry systems on the water catchment.
2. Determine the effect of positive and negative land management in catchments.
3. Describe the impact of turbidity and pollution on freshwater ecology.
4. Produce a clear and concise critique of the impact of an oil palm or forestry plantation on a riparian system.
5. Demonstrate an understanding of mangroves and their importance in mitigating erosion and pollution.

Module delivery
100 hours comprising 20 hours lectures, tutorials, 15 hours practicals, and self-study.

Assessment
Coursework 70% (essays, and group presentation): Exam 30%

Essential Reading
Fishes and forestry: worldwide watershed interactions and management / C 639.977 FIS
Integrating Watershed Management in the Global Ecosystem by Rattan Lal
Hydrology and water management in the humid tropics: hydrological research issues and strategies for water management - Michael Bonell; Maynard M Hufschmidt; John S Gladwell; Unesco.

Forest Hydrology: An Introduction to Water and Forests, Third Edition by Mingteh Chang

Further Reading
Technical co-operation in agriculture, forestry and fisheries: towards sustainable development of natural resources/ P 338.181 T255

F(D)323 Sustainable Use of Non Timber Forest Products (NTFPs)
Module coordinator: TB A

Module description
An understanding of multi-faceted forest products is vital to the wider understanding of forest resources and their potential markets. This module introduces students to this fundamental concept in sustainable development, and the sustainable use of the forest resource as a primary factor in building resilience in forest-dependent communities. The module includes: The importance of NTFP’s to the economy of smallholder producers. Regional NTFP’s, their production, use, and marketing (Sandalwood, eaglewood, betel, areca palm, fungi). The question of plant variety rights. Ethnobotany, traditional knowledge, and pharmacological markets. Determination of sustainable yield in minor crops. Harvesting, production and marketing. Trademarking of NTFP’s; lessons from the case studies.

Learning Outcomes.
By the end of the module students will be able to:
1. Produce a critical appraisal of varying production and market methods of NTFPs at a regional level.
2. Illustrate an understanding of the use of NTFPs and their place in global markets.
3. Identify the limitations to NTFP production and marketing, and propose resolutions.
4. Identify the importance of traditional knowledge and how it can be applied in a global context.
5. Determine the sustainable yield of a NTFP using production forecasting methodology.

Module delivery
100 hours comprising 20 hours lectures, 10 hours tutorials and self-study.

Assessment
Coursework 80% (essay, and presentation): Exam (20%)

Essential Reading
Non-Timber Forest Products in the Global Context by Sheona Shackleton, Charlie Shackleton, and Patricia Shanley
Tapping the green market: management and certification of non-timber forest products. Patricia Shanley 1955-, London; Sterling, VA: Earthscan Publications
Commercialization of non-timber forest products: factors influencing success: lessons learned from Mexico and Bolivia and policy implications for decision-makers. E Marshall (Elaine); Kathrin Schreckenberg; A. C Newton; UNEP World Conservation Monitoring Centre; World Conservation Monitoring Centre. Cambridge: UNEP World Conservation Monitoring Centre

F(D)325 Environmental Services and Forest Management

Module coordinator: TBA
Assessment
Coursework 60% (essay and presentation): Exam 40%

Essential Reading
F. Stuart Chapin, III Gary P. Kofinas Carl Folke Editors Principles of Ecosystem Stewardship Resilience-Based Natural Resource Management in a Changing World
Vegetation-Climate Interaction How Vegetation Makes the Global Environment Jonathan Adams SpringerLink (Online service) Springer eBooks Berlin, Heidelberg: Springer Berlin Heidelberg
Tropical Forest Ecology; the Basis for Conservation and Management
Authors: Dr. Florencia Montagnini, Dr. Carl F. Jordan

F(D)326 People and Forests
Module coordinator: TBA

Module description
This module develops an understanding of the role forests play in the livelihoods of people regionally and globally in terms of development. It introduces the social and economic principles centred on forest management, and teaches students to apply sustainable developmental principles in their approach to forest management. The module includes: The concept of the social license to operate. Cultural awareness and differences.
Food security and livelihood considerations.
The sustainable livelihood framework/approaches to determining sustainability. The role of the different forms of capital and their influence on forest management. The role of fuelwood. Customary land and rights/land tenure. Labour and employment. Profit sharing arrangements. Participatory management Peri-urban forestry.

Learning Outcomes.
By the end of the module students will be able to:
1. Critically analyse the impacts of the forest industry on and local communities.
2. Explain the global social issues associated with sustainable forest management.
3. Compare and contrast the different approaches used in forest management in terms of their influence on livelihoods.
4. Identify the barriers to sustainable development in forestry, and apply a systems thinking approach to overcoming regional challenges.

Module delivery
100 hours comprising 20 hours lectures, 10 hours tutorials and self-study.

Assessment
Coursework 80% (report and presentation): Exam 20%

Essential Reading
Rapid appraisal for community forestry: the RA process and rapid diagnostic tools. D.A.Messerschmidt. C 634.99 M584
Gain from social forestry: Lesson from west Bengal. Shah, Tushaar P 634.9 SHA
Globalisation, community development and Melanesia: the North New Georgia sustainable social forestry and rural development project. A. Makim. P 307.1412 MAK
An introduction to gender concepts and definitions for Pacific Island planners on integrating gender concerns in agriculture, fisheries and forestry. United Nations Development Fund for Women (UNIFEM) C 305.3 UNI
Enhancing livelihoods in Lao PDR through environmental services and planted-timber products. C 634.92594 ENH
Loggers, donors and resource owners: Papua New Guinea country study. C.Filer. SR 634.98953 FIL 1

F(D)327 Natural Forest Silviculture
Module coordinator: TBA

Module description
This module teaches the reasoning and techniques behind NFS. It covers the history of silviculture in PNG and tropical forestry in general. The current approach to silviculture systems in PNG. The process of harvest, regeneration techniques, management of the growing stocks, enrichment planting. Pest and disease issues in natural and semi-natural forests. The application of continuous cover forestry systems, and their differences to conventional systems. Impacts on wildlife, soil water and economics. Infrastructure implications in NFS; transport, machinery, labour. Matching NFS to policy objectives.

Learning Outcomes.
By the end of the module students will be able to:
1. Describe the principle differences between natural, semi-natural forests and plantations.
2. Compare the management objectives in natural and semi-natural forests.
3. Recognize the importance of NFM as a sustainable management option.
4. Identify the challenges to NFM and present options for amelioration.
5. Outline the fundamentals of differing CCF systems and their application in NFM.

Module delivery
100 hours comprising 20 hours lectures, 15 hours practicals and self-study.

Assessment
Coursework 50%; Exam 50%

Essential Reading
Silviculture in the Tropics
by Gunter, Sven Weber, Michael Stimm, Bernd Mosandl, Reinhard
The tropical rainforest: an ecological study. F.W. Richards, F. W, C 634.94 RIC 1
Sustainability and Diversity of Forest Ecosystems; An Interdisciplinary Approach T. Nakashizuka (Ed.)

F411 Agroforestry
Module coordinator: TBA

Module description
This module introduces the potential role of integrating trees into farming systems. Agroforestry is commonplace in tropical agriculture but remains very rare in temperate farming systems. This module explains why agroforestry is such an important part of tropical agriculture. The module covers the practical agronomy of growing tree crops and integrating trees in with other farming systems. To be able to do this, first it must explore the science behind intercropping.

Learning Outcomes.
By the end of the module students will be able to:
1. Demonstrate a clear understanding of the theories of resilience, complementarity, facilitation and the diversity yield relationship.
2. Explain the advantages and disadvantages of a range of traditional agroforestry systems.
3. Apply de Witt replacement design to optimise the agronomy of a two species mix.
4. Compare and contrast the benefits of agroforestry systems in tropical and temperate farming systems.
5. Optimise a planting design to help control a range of pests and diseases.
Module delivery
100 hours comprising 20 hours lectures, 15 hours tutorials and self-study.
Assessment
Coursework 50%: Exam 50%

Essential Reading
TBA

F413 Forest Policy
Module coordinator: TBA
Module description
This module provides students with an understanding of the national and international policy frameworks in place for the forest industry, and the key drivers behind policy development which facilitate trade and economic growth. It also covers the implications of current policy frameworks on livelihoods and environmental management.

Learning Outcomes.
By the end of the module students will be able to:
1. Explain how the current forestry policy framework in PNG developed.
2. Critically review global forest policies and how they affect national strategies.
3. Define the key factors in policy determination, and recognise where there are challenges in policy development.
4. Compare and contrast the principle legal instruments which determine policy.
5. Review the implications of policy instruments to livelihoods and sustainability.

Module delivery
100 hours comprising 20 hours lectures, 10 hours tutorials and self-study.

Assessment
Coursework 60% (Essay): Exam 40%

Essential Reading
Revised National Forest Policy / P 333.75 PNG

Policy That Works for Forests and People
Bass, Stephen Mayers, James Maini, Jag
Forest Strategy: Strategic Management and Sustainable Development for the Forest Sector.
Michael Gane
International Forest Policy – the instruments, agreements and processes that shape it;
Constance L. McDermott, Aran O’Carroll and Peter Wood
Department of Economic and Social Affairs United Nations Forum on Forests Secretariat

F414 Forest Economics
Module coordinator: TBA
Module description
This module provides students with an introduction to basic economic theory and application in the forest sector. It includes:
The definition of economics and the differences to financial analysis. Micro and macroeconomic policy and their effect on development. Discounting, calculating NPV of forest resources, and estimation of benefits. Multiple-use economics and the optimisation of NPV. Risk and uncertainty. Cost/benefit analysis and the private/societal disparity in forest valuation. Undervaluation of forests. Environmental services. PNG forest economic policy.

Learning Outcomes.
By the end of the module students will be able to:
1. Demonstrate a clear understanding of how the principles of economic theory are applied in decision making with the forestry industry.
2. Produce a critique of aspects of forest economic policy within PNG.
3. Describe the processes of discounting, net present value calculation in the context of forestry operations.
4. Determine NPV from a given forestry-specific scenario.
5. Undertake a cost/benefit analysis in a given scenario.

Module delivery
100 hours comprising 20 hours lectures, 15 hours tutorials and self-study.

Assessment
Coursework 50% (presentation): Exam 50%

Essential Reading
Economic assessment of forestry project impacts. H. Gregersen, C 634.9 GRE
The economics of the tropical timber trade. E.B. Barbier. C 382.449 BAR
The political economy of forest management in Papua New Guinea. SR 333.759953 POL

F422 Certification and legality in Forestry
Module coordinator: TBA

Module description
This module introduces the need for traceability in market chains for forest products, the legal framework underpinning the national and international timber trade, and certification systems; their influence, their effects on producers, and how they operate in a global marketplace.

Learning Outcomes
By the end of the module students will be able to:
1. Demonstrate a broad comprehension of different certification systems.
2. Critically analyse certification systems and their limitations.
3. Identify relevant national and global policy mechanisms which affect opportunities in timber export markets.

4. Identify how certification presents both opportunities and difficulties to forest managers.
5. Explain the national context for certification opportunities in PNG

Module delivery
100 hours comprising 20 hours lectures, 10 hours tutorials and self-study.

Assessment
Coursework 50%: Exam 50%

Essential Reading

Further Reading

F425 Climate Change and Global Carbon Markets
Module coordinator: TBA

Module description
This module provides students with an understanding of climate change and the important role that forests have to play in amelioration of anthropogenic impacts. It includes an explanation of how carbon markets associated with climate change work.
The module covers: the greenhouse effect and the enhanced greenhouse effect, This history of the world’s atmosphere, climate, vegetation and rocks. Natural and anthropogenic drivers of climate change. International agreements; The UNFCCC, the Kyoto Protocol, The Paris Agreement, National commitments; PNG Nationally Determined Contributions (NDCs) National greenhouse policy, greenhouse conventions, Carbon systems, carbon mitigation, carbon accounting, national carbon accounts the impact of climate change in forestry; fires, droughts, flooding, mangroves, growth and biological diversity Planning for climate change in the forestry sector; building diversity.

Learning Outcomes.
By the end of the module students will be able to:

Module delivery
100 hours comprising 20 hours lectures, 10 hours tutorials and self-study.

Assessment
Coursework 50% (essays): Exam 50%

Essential Reading
Accounting for Climate Change; Uncertainty in Greenhouse Gas Inventories — Verification, Compliance, and Trading

Editors: Daniel Lieberman, Matthias Jonas, Zbigniew Nahorski, Sten Nilsson
ISBN: 978-1-4020-5929-2 (Print) 978-1-4020-5930-8 (Online)
The School of Sustainable Resource Management & Business Studies is one of PNG UNRE’s new schools and will ultimately comprise of the following departments:

- Department of Resources Management
- Department of Management Studies
- Department of Business & Economics
- Department of Tourism & Hospitality
- Department of Information & Computing Technology

In 2019 the School is offering its first course, in International Sustainable Tourism, which comes under the Department of Tourism & Hospitality.

Department of Tourism & Hospitality
Welcome to the Department of Tourism & Hospitality. As a student enrolled in the course of International Sustainable Tourism in 2019, you are a part of the first cohort of tourism students at PNG UNRE. You are also undertaking the first tourism course at an accredited university in the New Guinea Islands. Congratulations on your selection and we wish you the best in your studies here in East New Britain.

The Department of Tourism & Hospitality at PNG UNRE is focused on producing graduates with an understanding of how the international tourism industry operates and how this can be managed sustainably in the best interests of local people. Our nation’s potential as a tourist destination is innately tied to its natural environment and its people. The department’s courses are unique in the Pacific Region as students are given a strong foundational knowledge of Papua New Guinea’s natural resources and environment. Students will learn how the different industries (agriculture, fisheries, forestry, and livestock) and their stakeholders can work together for the progressive development of Papua New Guinea as a tourism destination. Thus as graduates, you will become agents for the ongoing growth and development of the nation.

The Department is made up of experienced and enthusiastic individuals dedicated to student education and the broader rural community. When you register with the university, you are expected to focus your energy on achieving your potential. Learning is one of the main activities, as is participating in workshops and conducting research on tourism development and sustainability methods and techniques relevant to Papua New Guinea’s needs.

It is imperative to note that as young adults and responsible citizens of this campus and country, you should apply yourself to your studies, so as to become the best version of yourself. It takes time for most students to settle down in university life. A disciplined approach to your studies will offer the best opportunity to pass through and enjoy the social aspects of university life. Our department members are happy to give advice or help with problems as they arise. The University also offers advice through the office of Student Support Services.

Head of Department: Mr George Korowi, Master Degree Management (PNG UNRE), Bachelor in Commerce (UPNG), Cert. in Banking (PNGIBBM)

Tourism Course Coordinator: Ms Hannah Woolcott, Masters of Professional Acct. (JCU), BSc (Hons) Aquaculture (JCU).

Administration Officer TBA
Administrative Clerk: TBA

Lecturers:
Ms Miring ONAGI
Ms Karen VALI

COURSE STRUCTURE
BACHELOR OF SUSTAINABLE INTERNATIONAL TOURISM

Codes:
A = Agriculture, F = Forestry,
M = Fisheries & Marine, N = Animal Science, T = Tourism

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NB: Diploma code modules only in year 3

duplicate degree modules but with different assessments.

Courses

Diploma in Sustainable International Tourism

This is a three year full time undergraduate course offered at Vudal Campus. In the first year students study are introduced to the field of tourism and hospitality, as well as gaining an appreciation of the agriculture, fisheries, marine resources, forestry and livestock industries in Papua New Guinea. Foundation modules in accounting, economics and the social sciences will also be undertaken. In the second and third year students will be introduced to a range of topics such as marketing, consumer behaviour, customer satisfaction, destination and tour management, foreign language skills and business planning.

Degree in Sustainable International Tourism

This is a four year full time undergraduate course and is taught at the Vudal Campus. Students are selected for entry into the third year of the Degree program based on their Grades Point Average Marks (GPA) over the previous two years of the Diploma of Sustainable International Tourism, which must equal to or exceed 2.5. The third and fourth year programs consist of advanced modules in entrepreneurship, hospitality and catering, sustainable tourism, tour guiding, local community interactions, and managing visitors’ health and expectations. In addition, a whole semester is devoted to conducting an off-campus, industry based project.

Structure of Course
Sustainable International Tourism

Year 1 First year Degree/Diploma

Semester 1 Modules
A111 Communication Skills
A115 Introduction to Agriculture
F111 Introduction to Forestry
M111 Introduction to Fisheries
T111 Introduction to Tourism
TI112 ICT for Tourism Development

Semester 2 Modules
A123 Natural Resource Conservation & Utilisation
A127 Introduction to Economics & Management
T122 Introduction to Hospitality
T123 Geography Essentials for Tourism
T124 History Essentials for Tourism
T125 Introduction to Accounting

Year 2 Sustainable International Tourism Diploma/Degree

Semester 1 Modules
A212 Applied Mathematics
A213 Health and Safety
T211 Contemporary Case Studies in International Tourism
Courses handbook 2019

T213 Introduction to Marketing
T214 The Tourism Industry

**Semester 2 Modules**
A224 Business and Management
T222 Contemporary Case Studies in Regional Tourism in PNG
T225 Consumer Behavior
T226 Destination & Attraction Management
T227 English Language Skills
T228 Customer Satisfaction

**Year 3 – Sustainable International Tourism Diploma**

**Semester 1 Modules**
AD311 Statistics
AD313 Work Experience
MD314 Small Business Planning
TD311 Adventure Tourism
TD312 Human Resource Management
TF313 Eco & Wildlife Tourism

**Semester 2 Modules**
AD322 Research Methods
TD321 Visitor Management
TD322 Rural Economics & Planning
TD323 Foreign Language Skills
TD324 Tour Management

**Year 3 – Sustainable International Tourism Degree**

**Semester 1 Modules**
A311 Statistics
A313 Work Experience
MD314 Small Business Planning
T311 Adventure Tourism
T312 Human Resource Management
T313 Eco & Wildlife Tourism

**Semester 2 Modules**
A322 Research Methods
T321 Visitor Management
A322 Rural Economics & Planning
T323 Foreign Language Skills
T324 Tour Management

**Year 4 – Sustainable International Tourism Degree/Honours Degree**

**Semester 1 Modules**
A411D Industry Project OR AH411D Individual Project I
A413 Entrepreneurship
T411 Hospitality & Catering
T412 Sustainable Tourism
T413 Being a Tour Guide

**Semester 2 Modules**
A421D Current Issues in Natural Resources
A422D Current Issues in Natural Resources or AH422D Individual Project II
A423 Marketing Management
T421 Working with Local Communities
T422 Health & the Overseas Visitor
T423 Security, consumer concerns and customer care

**Modules**

Modules are described by code in alphabetical order, then numerical order. Module codes beginning with A, M, F or N can be found under the Departments of Agriculture, Fisheries & Marine Resources, Forestry and Animal/Livestock Sciences.

A more detailed description of the module, its learning outcomes, assessments and reading lists will be available in a module handbook at the start of each semester.

**T111 & T121 Introduction to Tourism**

*Module coordinator: Ms Hannah Woolcott*

*Note – this module is taught to Tourism students in Semester One (T111), and remaining first year students in Semester Two (T121).*

*Module description*

Tourism is the largest industry on earth.
Within our region tourism is already an important source of foreign revenue. However, it has considerable scope for expansion and must be regarded as an industry in its infancy. Unfortunately, the potential for tourism to grow within the region may be compromised by conflicts between its needs and the needs of other rural and marine industries which are studied by UNRE students. The focus of this introductory module is on the conflicts that occur, between agriculture, forestry, fisheries and the fledgling tourism industry. The module covers the diversity of the tourism industry, the history of the tourism industry, regional and social differences in the tourism market, what tourist want and what they don’t want, conflicts between rural and marine industries, conflicts between industry and our rural communities, sustainability of markets, PNG’s global image and marketing our products, constraints on the growth our regional industries, StaRs Vision 2050 and the future.

**Learning Outcomes**
By the end of the module students will be able to:

1. List the main types of tourism that occur within and outside the region;
2. Discuss the historic development of the tourism industry in different regions;
3. Describe the main areas of conflicts between tourism and other regional industries;
4. Identify how “the PNG brand” helps and limits the marketing of our products;
5. Describe how our regional industries may work together for mutual benefit.

**Module delivery**
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**

Coursework Assessment 50% (review article): Exam 50%.

**Essential Reading List**

**Further Reading**

**T122 Introduction to Hospitality**

*Module Coordinator: TBA*

**Module description**
By far the largest component of the global tourism industry is the hospitality and service sector. In 2016, the sector represented 30% of global service exports. This module explores the various sub-sectors of the hospitality industry, by covering their development, unique characteristics, and global trends. An overview of the key hospitality providers in Papua New Guinea will also be covered. The hospitality sub-sectors covered will include:

- Accommodation types & operations;
- The cruise industry;
- Restaurants and food & beverage operations;
- Entertainment venues;
• Conferences and Expos;
• Event management.

Learning Outcomes
By the end of the module students will be able to:
1. Describe the different sectors of the hospitality industry;
2. Identify the various career paths available in the hospitality industry;
3. Describe the history of the hospitality industry in different regions;
4. Outline global trends in the hospitality industry;
5. Identify the challenges to development of the hospitality industry in PNG.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
60% coursework assessment; 40% Exam.

Essential Reading List

T123 Geography Essentials for Tourism
Module Coordinator: TBA

Module description
An integral component of tourism is the movement of people. Understanding what drives this movement, and the relationships between people and the places they travel to and from, is essential for students of tourism in today’s society. Human geography goes beyond physical landscapes and maps, to delve into the phenomena that play a role in travel, the socio-cultural and economic impacts thereof, as well as developing an awareness and appreciation of the culture of travellers from different countries of origin around the world. Topics covered in this module include:
• Overview of regions that produce tourists, and the places they visit;
• Population change – trends in PNG and around the world; socio-economic issues affecting populations; migrants and refugees;
• Traveller demographics;
• Economic geography & globalisation;
• Cultural geography – destinations and their features;
• Urban Geography – PNG’s urban system, global cities & other generic urban systems;
• Transportation geography.

Learning Outcomes
By the end of the module students will be able to:
1. Outline major regions that attract tourists and why;
2. Describe different types of travellers and their motivations;
3. Demonstrate an understanding of different cultures;
4. Identify different types of transportation within and between regions;
5. Outline the different urban systems of advanced, developing and undeveloped countries.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
60% coursework assessment; 40% Exam

Essential Reading List

T124 History Essentials for Tourism
Module Coordinator: TBA

Module description
The study of history is not just about recounting facts and events; rather it is a field of knowledge that assists individuals to understand different destinations and cultures by how they evolved over time. Historical events and destinations are also large drivers of tourism in many countries, including Papua New Guinea. This module provides an overview of the key developments in our world’s history, with particular focus on those for which evidence still exists today and that form the basis of tourist destinations in Europe, Africa, Asia, the Pacific and South America. The history of different cultures will also be examined, which will develop an understanding of why certain peoples act the way they do. Finally students will learn about Papua New Guinea’s history, how our nation has been shaped into what it is today, and its significance in the history of other countries. Throughout the module the time periods covered will include, but not limited to:
- Ancient civilisations;
- Pilgrimages & the Crusades;
- The Middle Ages & Renaissance;
- Industrial revolution;
- Imperialism & Colonialism;
- World War 1 & World War 2;
- Modern conflicts.

Learning Outcomes

By the end of the module students will be able to:
1. Identify the key international tourism destinations that attract travellers;
2. Summarise the events of key moments in the history of Papua New Guinea and different international regions;
3. Explain the significance of Papua New Guinea’s history to international visitors;
4. Identify why travellers seek out destinations of historical significance;
5. Describe how international groups can work in collaboration with Papua New Guinea to preserve our history and foster development.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
60% coursework assessment; 40% Exam

Essential Reading List

T125 Introduction to Accounting
Module Coordinator: TBA

Module description

Learning Outcomes

Courses handbook 2019
By the end of the module students will be able to:

**Module delivery**
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**
60% coursework assessment; 40% Exam

**Essential Reading List**
TBA

**T211 Contemporary Case Studies in International Tourism**

*Module Coordinator: TBA*

**Module description**
This module focuses on contemporary case studies in international tourism. These cases will cover 'mass' tourism as well as new forms of 'alternative' tourism that are now beginning to challenge the supremacy of mass tourism. Such alternative tourism forms include farm tourism, backpacker tourism, volunteer tourism, food (gastronomic) tourism and wine tourism, adventure tourism, ecotourism and heritage tourism. Emerging variants of mass tourism, for example low-budget tourism and all-inclusive tourism, will also be considered.

1. The mass tourism model and the notion of alternative tourism;
2. Home-stay tourism in developing nations, with focus on the local community impacts;
3. Farm tourism, with a focus on farm diversification strategies;
4. Backpacker tourism, focusing on community impacts;
5. Food and wine tourism, emphasising product development considerations;
6. Heritage tourism, examining visitor management aspects;
7. Ecotourism, analysing its environmental impacts;
8. Volunteer tourism, with an emphasis on operational management issues;
9. Adventure tourism, investigating the visitor experience;
10. All-inclusive tourism, measuring and analysing tourism impacts;
11. Low-budget tourism, highlighting implications destination marketing.

A concluding lecture will serve to pull together the various issues and themes that have been identified in the series, to draw out lessons and to form conclusions about the contemporary nature of tourism.

**Learning Outcomes**
By the end of the module students will be able to:

1. Identify a range of forms of tourism and the factors leading to their growth;
2. Explain how new ways of experiencing tourism have impacted on the 'mainstream' tourism industry;
3. Outline the costs and benefits of such forms of tourism in comparison to conventional forms such as mass tourism;
4. Draw and apply lessons from case studies on the planning and management of tourism operations and destinations;
5. Synthesise findings from case studies in order to illustrate contemporary issues in the marketing and management of tourism organisations.

**Module delivery**
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**
20% group presentation; 30% essay: 50% Exam
Essential Reading List

Further Reading
A history of Australian travel and tourism. J. I. Richardson, C 338.479194 RIC

T213 Introduction to Marketing
Module Coordinator: TBA

Module description
This module aims to develop your understanding of the history and nature of marketing as an academic subject, and of how marketing knowledge can be applied to real world phenomena and problems in business and society, but particularly in the context of the tourism business.

- The nature of Marketing: practice and the academic study of practice
- The Marketing environment
- Social responsibility and ethics in Marketing
- Consumer buying behaviour
- Business buying behaviour
- Market segmentation, targeting and positioning
- Product design and branding
- Pricing
- Promotion and the Marketing Communications Mix
- Place
- Where Marketing goes from here: relationships; management; contexts

Learning Outcomes
By the end of the module students will be able to:
1. Describe the importance of marketing to a tourism business;
2. Identify the common social, environmental and ethical criticisms that are commonly directed at the marketing discipline;
3. Explain the analytical models of the consumer buying process;
4. Discuss marketing problems by applying the principles of market segmentation, targeting and positioning;
5. Identify the basic principles of Marketing’s ‘4Ps’ and of their integration in a ‘marketing mix’ that determines the competitive positioning of a product;
6. Assess the limitations of simple marketing principles, and identify other challenging issues that must be addressed by marketing academics and practitioners.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
40% essay; 60% Exam

Essential Reading List

T214 The Tourism Industry
Module Coordinator: TBA

Module description
Tourism is said to be the largest industry of all. But what does this mean? What is tourism? This module explores the diversity of the industry from short local excursions through to “year out” world tours. The relative economic importance of the different types of tourism ventures are considered along with their regional distribution. The history and development of the tourism is considered in different parts of the world. Pilgrimage, the grand tour, the rise of leisure time and disposable income for the mass public are all reviewed. The common themes and differences in the development of tourism are

Courses handbook 2019
in different regions is reviewed. The module considers, how the tourism industry conflict and complement other industries in both a rural and urban setting.

**Learning Outcomes**

By the end of the module students will be able to:

1. Explain the nature of different forms of tourism;
2. Discuss the historic development of the tourism industry in different regions;
3. Assess the size of different international tourism markets and their long term viability;
4. Identify and evaluate the critical challenges in identifying a viable tourism market for a specific location and time;
5. Evaluate a range of contemporary case studies of tourism enterprises and how they may complement or conflict with other industries.

**Module delivery**

100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**

50% magazine article; 50% Exam

**Essential Reading List**


**T222 Contemporary Case Studies in Regional Tourism in PNG**

*Module Coordinator: TBA*

*Module description*

This module focuses on contemporary case studies in regional tourism within PNG. These cases will cover wild life / ecotourism, adventure tourism (the Kokoda Trail), indigenous cultural heritage and war time heritage experiences, scuba diving holidays, hide-away retreats, volunteer tourism. Finally, cruise ship operations will be considered as a hybrid model between regional and international forms of tourism experience.

1. Is there potential for mass tourism in PNG?
2. Home-stay tourism in developing nations, with focus on the local community impacts;
3. Backpacker tourism, focusing on community impacts;
4. Cultural heritage tourism, emphasising product development considerations;
5. War time heritage tourism, examining visitor management aspects;
6. Ecotourism, analysing its environmental impacts;
7. Volunteer tourism, with an emphasis on operational management issues;
8. Adventure tourism, investigating the visitor experience;
9. All-inclusive tourism, measuring and analysing tourism impacts;
10. Low-budget tourism, highlighting implications destination marketing.
11. Exclusive experience tourism, contrasting luxury and authenticity.

A concluding lecture will serve to pull together the various issues and themes that have been identified in the series, to draw out lessons and to form conclusions about the contemporary nature of tourism.

**Learning Outcomes**

By the end of the module students will be able to:

1. Identify a range of forms of regional tourism and the factors limiting growth in PNG;
2. Explain how international tourism trade may impact on the regional tourism industry;
3. Outline the costs and benefits of developing news forms of tourism within PNG in comparison to
conventional forms such as mass tourism;
4. Draw and apply lessons from regional case studies on the planning and management of tourism operations and destinations;
5. Synthesise findings from case studies in order to illustrate contemporary issues in the marketing and management of regional tourism operations.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
Group presentation 20%, essay 30%; 50% Exam

Essential Reading List
East New Britain provincial five year tourism development plan 1999-2003. C 338.479109953 E13 1

Further Reading
An overview of tourism and its employment generating potential in Fiji in the 1980s. C. John. P 338.4791 C182
They came for savages: 100 years of tourism in Melanesia D. Ngaire. C 338.479195 D735

T225 Consumer Behaviour
Module Coordinator: TBA

Module description
The study of consumer behaviour is still a very much evolving part of the marketing discipline. It focuses on how end consumers and business consumers make decisions to spend their available resources such as time, money, effort on consumption related items. That includes what they buy, why the buy it, where they buy it, how often they buy it and how often they use it.

• Foundations of Consumer Behaviour
• Behavioural processes
• Behavioural outcomes
• Psychological influences on consumerism
• Emotional processes
• Cognitive processes
• Personality and Self
• Social influences on consumerism
• Reference groups
• Virtual groups

Learning Outcomes
By the end of the module students will be able to:
1. Describe different theories about the 'Self' and how these relate to consumer behaviour;
2. Evaluate different psychological perspectives on how, where, when, what and why individuals consume;
3. Summarise views of the consumer as an individual, their individual needs and motivations, recognizing both the rational and emotional bases of many consumer actions;
4. Describe different socio-cultural perspectives on how, where, when, what and why individuals and groups consume;
5. Explain the consumer’s social needs, motivations, and positions within social structures and how these affect their consumption decisions.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
50% Essay: 50% Exam
T226 Destination & Attraction Management

Module Coordinator: TBA

Module description
The importance of the tourism attractions and destinations in the tourism industry is considered.

Destination stakeholders, organization and interdependencies. Implications for management and planning. Destination types and their sources of competitiveness.

Resources and attractors. Geography/location of the tourism attraction related to demand and resources, climate and transport.


Learning Outcomes
By the end of the module students will be able to:

1. Explain the role of destinations and attractions in the tourism system;
2. Discuss the sources of destination and attraction competitiveness;
3. Assess the rationale, scope and tools of destination and attraction management;
4. Identify and evaluate the critical challenges in managing destinations and attractions;
5. Evaluate a range of contemporary case studies in destination and visitor attraction management.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
20% Group presentation, 30% Essay; 50% Exam

Essential Reading List

Further Reading

T227 English Language Skills

Module Coordinator: TBA

Module description
This module is specifically set within the context of the tourism industry.
The English language skills developed and assessed here are relevant to the context of the international tourism industry. English is the first or second language of the majority of international travellers. Customers may have very different levels of English and may struggle to understand regional accents and colloquial words and phrases. This module is designed to develop an appreciation of the complexity of the issue and to develop the skills of clear communication through the English language, in both the spoken and written word.

- Understanding the regional diversity in the English language;
- What language does the tourist need to use;
- Regional variation in key phrases and commonly asked questions;
- Listening skills;
- Communicating with English learners;
- Clear presentation in spoken English;
- Clear presentation in written English;

**Learning Outcomes**
By the end of the module students will be able to:
1. Appreciate the different English language abilities of customers;
2. Recognise regional variation in key English phrases;
3. Orally communicate a complex idea in simple language;
4. Produce an information leaflet providing regional travel health guidance.

**Module delivery**
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**
25% Leaflet, 25% Comprehension Test; 50% Exam

**Essential Reading List**

**T228 Customer Satisfaction**
**Module Coordinator: TBA**
**Module description**
This module is specifically set within the context of the tourism industry. It covers the differing expectations of various types of customer: including age classes, families, young-singles, and older generations, educational, religious and other special interest groups. Regional differences between customers in expectations and spending power are also reviewed along with how these correlate with the national and world economies. An important aspect of this module involves the analysis of data from market research techniques and customer satisfaction surveys. How can these data be used to inform the decision making progress in establishing a new tourism enterprise and in enhancing and improving an existing business.

**Learning Outcomes**
By the end of the module students will be able to:
1. Explain the nature and expectations of different types of tourist;
2. Carry out a customer satisfaction survey;
3. Analysis the data from a customer satisfaction survey to review product performance;
4. Identify and different expectations in different types of customer types;
5. Describe how a tourism enterprise may adapt to changing expectations.

**Module delivery**
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
50% coursework assessment; 50% Exam

Essential Reading List

T(D)311 Adventure Tourism
Module Coordinator: TBA

Module description
This module will explain the growth in adventure tourism and how it is situated within contemporary rural locations. It will include an appreciation of the history of adventure, adventurous leisure practice and relationships to environment and landscape, and explain consumer motivations and models of adventure. It will also show how adventure tourism has been used within destinations to broaden the tourist product. Theories and issues associated with adventure tourism will be illustrated using case study material and issues important to management of adventure tourism activities in a commercial setting will be identified. Students will be able to show an appreciation of product and programme development strategies in theory and practice and discuss and evaluate risk management strategies. Leadership skills and the use of these in adventurous and non-adventurous activities will also be identified as well as an evaluation of strategies and techniques for managing adventurous activity within protected areas.
- A history of adventure and exploration;
- Motivations for adventure;
- Adventure and the environment;
- Models of adventure;
- Marketing adventure;
- Adventure destinations;
- Managing Adventure businesses;
- Risk Management;
- Product and Program Development;
- Leadership Skills;
- Activity conflicts.

Learning Outcomes
By the end of the module students will be able to:
1. Discuss the history of adventure and exploration;
2. Appreciate models of adventure and outdoor recreation;
3. Discuss behaviour in adventure tourism activity;
4. Evaluate risk management in outdoor recreation;
5. Understand the need for environmental conservation and sustainability in adventure tourism;
6. Be able to plan, and market an adventure tourism product.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
50% Business plan; 50% Exam

Essential Reading List
Further Reading
T(D)312 Human Resource Management  
*Module Coordinator: TBA*

**Module description**  
The module introduces the student to the theories and practice of managing employees. It covers legal aspects of employment law. How to recruit staff, manage their performance, identify training and retraining needs, manage difficult members of staff, promotion, redundancy and planning for retirement.

- Employment law  
- An introduction to the different theories and models of Human Resource Management  
- Strategic Human Resource Management  
- Human Resource Planning and factors affecting this; workforce issues recruitment, selection and retention policies and procedures  
- Human resource management and labour market analysis, the concepts of flexibility, alternative ways of working; skills mix and skill substitution  
- Managing equality and diversity  
- Staff development, Learning and development  
- Strategic aspects of performance, performance management and reward; performance review, performance development plans, managing absence and attendance, managing difficult performance  
- Developing and sustain employee engagement  
- Emerging issues in HRM; work-life balance, the future of work; sustainable HR management practices

**Learning Outcomes**

By the end of the module students will be able to:

1. Describe the different theories and approaches to human resource management;  
2. Comment on the effectiveness of different HRM techniques;  
3. Apply different HRM techniques and practices in the tourism sector;  

**Module delivery**  
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**  
50% Evaluation document; 50% Exam

**Essential Reading List**  

T(D)313 Eco & Wildlife Tourism  
*Module Coordinator: TBA*

**Module description**  
This vocational module covers the practicalities of how to plan, organise and run an eco-tourism or wildlife based tourism venture. Aspects covered include: conservation legislation. The diversity of life, charismatic mega fauna and flora and niche markets. Locating and interacting with local and international experts, conservation agencies, wardens and communities. Field naturalist skills. The
development of the global customer base for wildlife tourism. Understanding the seasonality of both nature and tourists. Wildlife photography and other specialist equipment. Balancing the eco-tourism with other attractions. Balancing the rare and charismatic with the risk of not encountering them. Understanding the eco-tourist and associated other demands and interests. Environmental impacts and disturbing wildlife.

- Legal and conservation aspects
- National parks, reserves and customary lands
- Logistics of encountering target species and habitats
- Diversity of life, knowing your product
- Diversity of types of tours, group sizes and durations
- Developing attractive but realistic marketing materials
- Niche markets and sustainability
- Managing expectations and disappointment
- Dealing with extreme conditions and isolated destinations
- Review, reflection and revisit durations

**Learning Outcomes**

By the end of the module students will be able to:

1. Plan a niche eco-tourism activity within PNG;
2. Evaluate the likely sustainable demand for restricted niche eco-tourism;
3. Appreciate the associated demands of the eco-tourist;
4. Be aware of the environmental impacts of wildlife tourism;
5. Discuss and interpret conservation legislation.

**Module delivery**

100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**

50% Eco-tourism Plan; 50% Exam

**Essential Reading List**


**Further Reading**


**T(D)321 Visitor Management**

*Module Coordinator: TBA*

**Module description**

This vocational module considers how rural visitors and tourist sites can be managed to ensure maximum benefit to visitors, tourism enterprises, communities and conservation. A marketing approach is taken throughout the module where the rural environment or tourism resource is considered as a product and the visitor as a customer. The module identifies potential management issues and introduces students to possible practical and managerial solutions. As such the module covers areas such as; the use of infrastructure, interpretation, disabled access, footpath erosion and customer care. The module concludes by considering issues relating to the legal and practical management of access into the countryside.

- Marketing and its role in managing visitors and developing sites
- The monitoring of visitors
- Development and management of recreational and tourist infrastructure
- The role of interpretation
- Recreational public transport
• Footpath erosion and restoration techniques
• Access for visitors with disabilities
• Dealing with the news media
• Legal aspects of visitor management such as legislation relating to access, trespass and litter

Learning Outcomes
By the end of the module students will be able to:
1. Describe and utilise the marketing process as a means of managing visitors;
2. Evaluate the issues concerned with the management of a rural recreation or tourist site and detail potential management solutions;
3. Discuss and interpret the legislation relating to visitor management.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
50% Interpretation materials document; 50% Exam

Essential Reading List

T(D)322 Rural Economics & Planning
Module Coordinator: TBA

Module description
This module covers the basics of rural planning and rural policy-making, i.e. contemporary rural policies, the role of interest groups and institutions as well as mechanisms of rural planning and rural development. Particular emphasis is given to the complexity of land ownership rights and traditional community conflicts. Regional, national and international dimensions of rural development issues are also covered.

• Rural change post-independence
• Defining ‘the rural’ and social construction of rurality
• Agricultural policy and politics
• Rural policy and globalisation
• Rural policy, regionalism and localism
• Planning and rural areas
• Rural interest groups and conflicts
• Rural economies and businesses
• Rural social and demographic change
• Rural areas and climate change
• Poverty and social exclusion in the countryside
• The rural housing question
• Gender, class, age and ethnicity in the contemporary countryside

Learning Outcomes
By the end of the module students will be able to:
1. Critically assess the contemporary policies, institutions and mechanisms of rural planning and rural development within the region;
2. Analyse rural planning and development conflicts from geographical and sociological perspectives;
3. Compare planning and rural development issues with in PNG to international cases;
4. Evaluate the role of various interest groups and agencies in rural planning and development processes;
5. Explain the economic, social and cultural context within which rural policies are framed.
Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
50% Resolution document; 50% Exam

Essential Reading List

Further Reading

T(D)323 Foreign Language Skills
Module Coordinator: TBA

Module description
This module is specifically set within the context of the tourism industry. This module covers the taxonomy of language groups, which languages are related to each other and which languages are most widely spoken and which are the dominant languages of trade and tourism.

The module covers how to recognise which language is be spoken and how to convey and extract some basic information from a traveller. Areas covered, include, greetings, travel arrangements, telling the time, cash transactions basic health queries and local sites of interest. How to use online translation software effectively.

- Basic language of tourism
- Translation software, and how to avoid making mistakes in written materials

Learning Outcomes
By the end of the module students will be able to:
1. Recognise the most widely spoken languages;
2. Be able to greet someone in the world’s most commonly spoken languages;
3. Be able to translate key phrases used by international tourists;
4. Produce a tourism information leaflet in three different international languages;
5. Use online language translation software in problem solving

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
25% Tourism leaflet, 25% Oral test, 25% Translation exercise; 25% Exam.

Essential Reading List

The Lonely Planet Phrasebook and Dictionaries for: Japanese, French, Spanish, Mandarin and Cantonese.

T(D)324 Tour Management
Module Coordinator: TBA

Module description
This vocational module covers the practicalities of how to plan, organise and
run a tour for a variety of types of tourism and activities. Aspects covered include: the legality of travel regulations, medical cover before, during and after the tour, Insurance cover. Equipment requirements and maintenance for specialist activities. Preparatory visits and establishing links with local communities and attractions. Checking out local emergency and health services. Transporting and feeding groups in remote locations, balancing time for rest and recuperation with demanding customers, managing expectations. Risk assessments and planning for the unexpected.

- Legal and medical aspects
- Logistics of food and transport
- Diversity of types of tours, group sizes and durations
- Attractive but honest marketing materials
- Developing the product and pre-visits
- Planning the itinerary
- Supplying and managing specialist equipment
- Planning for and dealing with the unexpected
- Dealing with extreme conditions and isolated destinations
- Review, reflection and revisit durations

Learning Outcomes
By the end of the module students will be able to:
1. Organise an itinerary and plan a tour to a region of PNG;
2. Evaluate the likely issues involved in running a tour to a remote destination;
3. Appreciate the diversity of tours types on the market;
4. Discuss and interpret the legislation which regulate visitors.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
50% Tour plan; 50% Exam

Essential Reading List

Further Reading

T411 Hospitality & Catering
Module Coordinator: TBA

Module description
This module provides an introduction to hospitality and catering management. It includes the basics of food and drink operations, keeping an efficient front office and learning how to manage facilities, customer service management skills. Legal requirements are also covered such as food hygiene and safety standards. This provides a framework to ensure that hospitality products are made available safely and meet approved standards taking into account different hospitality environments and customers.

- The industry, accommodation, food and beverages and front of house
• Types of products and levels of service provision
• Diversity of customer groups and their expectations
• Career structure and training opportunities for staff in the sector
• Record keeping and purchasing
• Equipment requirements, maintenance and safety standards
• Food standards, health and safety, international and local cuisine, special dietary needs
• Managing areas used for food preparation and consumption
• Costings and budgeting, and food procurement
• Managing customer expectations, enquiries and complaints
• Retail and management of beverage including intoxicating drinks

Learning Outcomes
By the end of the module students will be able to:

1. Appreciate the quality of standards of hospitality services required by different customers;
2. Identify appropriate menus for different types of visitor;
3. Be able to manage the safe preparation of food;
4. Keep clear accountable purchasing records;
5. Deal appropriately with a range of customer enquiries and complaints.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
Critique review 50%; Exam 50%

Essential Reading List


Further Reading

T412 Sustainable Tourism
Module Coordinator: TBA

Module description
Designing and implementing effective management strategies and policies for sustainable tourism requires a sound knowledge of the concept of sustainable development and how it applies to the context of tourism. This module will identify the core principles of sustainable development approach and examine how they can be put into practice with the aim of making various tourism types and destinations more sustainable. This will involve an in-depth evaluation of good practice on the part of the tourism industry, governments and host communities, non-government organisations and tourists. Environmental, economic and cultural aspects of sustainability will be considered. A practical focus will be adopted through the use of international case studies and classroom-based exercises. There will also be a field visit to observe sustainable tourism in action.

• Introduction to the principles of sustainable development;
• Environmental, economic and socio-cultural impacts of tourism;
• Application of the principles of sustainable development in the context of tourism;
• Definitions and conceptual models of sustainable tourism;
• Policy tools for sustainable tourism;
• Community participation and planning issues;
• Case studies in sustainable tourism.

Learning Outcomes
By the end of the module students will be able to:
1. Critically discuss the core principles of sustainable development;
2. Identify and critically evaluate the environmental, social and economic impacts of different forms of tourism;
3. Critically analyse the conceptual basis of sustainable tourism;
4. Make a critical assessment of the practical application of sustainable tourism tools, plans and strategies;
5. Identify good practice in sustainable tourism management.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
Presentation 30%; Exam 70%.

Essential Reading List

Further Reading

T413 Being a Tour Guide
Module Coordinator: TBA
Module description

This vocational module covers the practicalities of how to be a design and construct an attractive tour and how to be an effective tour guide.
The key elements of the module include:
What makes a good tour, knowing your topic, being able to answer questions at a variety of different levels, dealing with different levels of expertise and interest.
Presentation skills. Refreshing the product and returning customers.
• What is a tour, what is the role of a tour guide?
• What sorts of tours are available on the global and local market?
• What makes a tour sustainable?
• Knowing enough and knowing when the audience has had enough
• Being fit enough and knowing when the audience is tired
• Background research and training. Catering for different audiences
• Planning the itinerary
• Presentation skills for a range of audiences
• Refreshing the product and variations on a theme

Learning Outcomes
By the end of the module students will be able to:
1. Critically compare a range of tours available within PNG;
2. Design a present tourism tour product;
3. Assess the risks involved in running a particular tour activity;
4. Evaluate the sustainability of the tour market.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.
Assessment
Visit presentation 20%, Product report 50%, Exam 30%.

Essential Reading List
Further Reading

T421 Working with Local Communities
Module Coordinator: TBA

Module description
The module critically explores the contemporary debates regarding what development means in the 21st century and how our regional rural communities can maintain their traditional culture, strengths and virtues while interacting with and benefiting from the resources offered by interacting with more affluent western societies. It covers the complexity of landownership rights and traditional beliefs and community structures. Legal aspects of access rights are covered along case studies of reality.

- The dilemmas of development
- The strengths of traditional communities
- The challenges facing traditional communities
- Ensuring resources and opportunities are equitable distributed
- Establish ownership rights and knowing who to deal with
- The land, the law and the reality
- Practical problems and solutions
- The ethics of marketing traditional customs and cultures

Learning Outcomes
By the end of the module students will be able to:
1. Critically review the dilemmas faced when marketing traditional cultures in the tourism market place;
2. Describe the complexities of legal and traditional land ownership within the region;
3. Negotiate an agreement with a diverse group of individuals;
4. Develop an ethical policy for a tourism business.

Module delivery
100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
Ethical policy document 25%, MoU 25%; Exam 50%.

Essential Reading List
Further Reading
Living and Working in Paradise: Why Housing Is Too Expensive and What

T422 Health & the Overseas Visitor

Module Coordinator: TBA

Module description
This module aims to provide an understanding of the basic biology of tropical medicine, preventative medicine, preventative behaviours, first aid and medical insurance.

• The causes of disease and health problems
• Bacteria, virus, fungi and parasites
• Vector of disease
• Endemic disease risks
• Health, nutrition and sanitation
• Vaccinations and preventative medicines
• Avoiding disease risks
• Spotting symptoms
• First aid and how to find help
• Food poisoning and rehydration
• The sun, heatstroke and dehydration
• Medical insurance cover

Learning Outcomes
By the end of the module students will be able to:

1. Recognise the main health problems experienced of overseas visitors to our region;
2. Critically review the main prophylactic medication recommended to visitors;
3. Recognise the symptoms of a range of common tropical diseases;
4. Identify appropriate actions to avoid a range of potential medical problems.

Module delivery

100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

Assessment
Medical response test 50%; Exam 50%.

Essential Reading List

T423 Security, consumer concerns and customer care

Module Coordinator: TBA

Module description
This module aims to provide an understanding of the issues of concern to potential visitors to our region and how these may be addressed. The module covers dealing with misconceptions and misinformation, as well as dealing with reality and managing bad news stories. Security issues covered include: achieving a sense of wellbeing by balancing reassurance with low profile effective security measure. The second part of the module raises awareness of other problems that worry visitors and keeping the customer satisfied.

• The international image of PNG
• International crime statistics and the reality
• Who and where are the victims of violent crime
• Image management and reassuring the potential customer
• High and low profile approaches to security
• Balancing security with being in a bubble
• Avoiding risks and reducing risks
• Technology and human based solutions
• Other customer concerns
• Pricing policy and customer satisfaction
• Monitoring satisfaction levels

**Learning Outcomes**

By the end of the module students will be able to:

1. Recognise the importance of fear of violent crime as a limiting factor to growth in the regional tourism market;
2. Provide an accurate picture of regional and global crime statistics relevant to tourists;
3. Manage security and security concerns effectively;
4. Appreciate how to monitor and manage customer satisfaction levels.

**Module delivery**

100 hours per semester comprising 20 hours lectures, 10 hours tutorials, 70 hours self-study.

**Assessment**

Advice leaflet 20%, Consumer survey 30%; Exam 50%.

**Essential Reading List**


The centre invites applications for Postgraduate studies in existing departments of Sustainable Tropical Agriculture, Sustainable Fisheries and Marine Resources, Sustainable Forest Management, Sustainable Animal Sciences and Sustainable International Tourism and Hospitality. Interested applicants are to check the department concern for the availability of suitable supervisors and resources to undertake postgraduate research.

**Postgraduate Degree**
For some careers, especially those requiring research skills, training beyond the level of Bachelor is required. Students will be able to undertake postgraduate study for awards of Honours one year after an undergraduate degree with high distinctions or a Postgraduate Diploma some years after having earned a Bachelor degree, Masters or PhD level at PNGUNRE or other PNG or overseas Universities.

The School invites applications for enrolment into Higher Degrees by Research as a full-time or part-time candidate. The Master research degree has minimum duration of 18 months full-time. The PhD is awarded by examination of a thesis based on independent research carried out over a minimum period of 3 years.

**Department of Management Studies**
The University’s Postgraduate (Management) Program was endorsed by the University Council in its 14th Meeting held in July 1999 as a stand alone program and commenced enrolling students in November 2000. Due to the academic level of the program at Postgraduate level (Masters & Postgraduate Certificate), all visiting Professors are qualified at Doctorate and Professorial levels. The program is PNGUNRE owned with eminent academic professionals from overseas universities and institutions in Australia, New Zealand and India conducting all lectures. The Professors take one or two weeks off from their University commitments to travel to the Vudal campus to deliver lectures. They take students through a process of course work, research and examination for each module that is offered which forms part of the students’ assessments.

The program since its inception in November 2000, has been operating as a self-funded program and fully depends on student’s tuition fees for its operations. The tuition fees collected are used for operational costs of the Program’s office - office stationery and equipment, visiting Professors’ module delivery fees, accommodation and airline tickets, Project (thesis) supervision and external examiners fees, purchase of course materials, etc.

The program has also contributed to lifting and giving a positive image of the University to the wider community in-country and externally and has also provided an avenue for UNRE Fisheries and Agriculture graduates already in employment, to return and upgrade their qualifications to Masters level in the area of leadership and management, so that they are well equipped to take on Management positions in the respective organizations they are serving in. The Postgraduate Program has been one of the success stories of the University.

**Courses Offered**
The courses can be credited towards one of the following PNGUNRE qualifications;

- Certificate of Attendance (short course format – per module basis)
- Graduate Certificate in Management (4 modules required)
- Masters degree in Management (7 modules required)

These are articulated, so that the credit from one program flows into the next in a step-wise manner. For a student not wishing to study towards a UNRE qualification, he/she can enroll into a non-award program (short-course
type) without a need to sit for formal examination.

1. **Visiting Professors**
   1. Dr Gopinath Chattopadhyay (Federation University, Australia)
      - MMS122 Project Management
      - MMS114 Operations Management
   2. Dr David Smorfitt (James Cook University/Consultant)
      - MMS112 Financial Management
   3. Dr Murray Prideaux (James Cook University)
      - MMS121 Leadership & Management
      - MMS124 Entrepreneurship, Innovation, Change & Development
      - MMS111 Quality & Performance Excellence

**Course Structure**

MMS100 Project
MMS111 Performance Excellence
MMS112 Financial Management
MMS113 Asset Management
MMS114 Operations Management
MMS121 Leadership Management
MMS122 Project Management
MMS124 Entrepreneurship, Innovation, Change and Development
MMS125 Human Resource Management

PNG UNREs Learning, Teaching and Assessment policy indicates that, “a 10 credit point module will require a 100 -130 hour work load of study-related participation including class attendance over the duration of the study period, irrespective of mode of delivery” [adjust as required]. This work load comprises timetabled hours and other attendance requirements, as well as personal study hours, including completion of online learning activities and assessment requirements.

**MMS 100 Project**

*Module Coordinator: Dr David Smorfitt*

**Rationale/Aim**

This unit provides training in research philosophy/methods and appropriate strategies for carrying out a research investigation, and allows candidates to develop skills applying principles learned to potential dissertation topics in preparation for a dissertation. The project is normally industry sponsored, solving a particular problem of concern that the company/organisation has encountered. It is an in-depth study of a topic, which includes a research investigation leading to critical evaluation of evidence and a presentation in an appropriate, usually written/typed format.

**Objectives**

On completion of the dissertation, candidates should be able to:

- Design and execute a research process
- Conduct a literature search illustrating state-of-the-art of the chosen field
- Conduct experiments (if applicable) and/or gather data and employ appropriate analytical tools to carry out analysis and draw meaningful conclusions
- Critically evaluate information and communicate its significance with clarity
- Justify and present to an acceptable professional and academic standard a mastery study on the chosen topic

**Content**

The precise content of the project will differ for individual candidates. Candidates will be encouraged to tackle a wide variety of dissertation topics, ranging from technology, systems development, management, business plans, etc. It is envisaged that candidates will bring their professional experience together with their previous studies to identify a research study, which reflects a professional, mature and innovative approach.
Module Delivery
Before commencement of the project, each candidate will consider the initial protocol/methodology prepared and consult with staff as necessary. If the brief is broadly acceptable, an appropriate supervisor will be allocated to the candidate. The protocol/methodology will comprise the following:

• Title of the project (tentatively)
• Clearly stated objectives
• Background/literature review against which the work will be conducted. This should include how this study follows from the current state of knowledge/practice
• A methodology which explains how, what and why the candidate wishes to undertake the investigations and gives a reasoned and justified approach to the dissertation.
• Detailed description of experimentation (if any), design, data collection including analysis of data and drawing conclusions
• Conclusions and recommendations must fulfil the project objectives stated earlier. The candidate will be required to contact his/her supervisor on a regular basis according to the demand of his/her dissertation topic. The overall responsibility for monitoring student work is with the Project Supervisor.

Dissertation Project – The format for the final dissertation of the project shall be in accordance with that agreed with the Project Supervisor. The submission may take different forms, e.g., the production of software, design and specification, quality systems manual, etc., but should be equivalent of a written dissertation of 50 – 80 typed pages (double spacing) excluding reference, bibliography and appendices.

Assessment
The project is 100% dissertation based. Two copies of the dissertation must be submitted to the Project Supervisor by the agreed submission date. The dissertation will be marked by the Project Supervisor and by an external assessor. In exceptional circumstance, the candidate may be required to undertake a viva voce examination to substantiate the work the candidate has produced and to allow candidates to defend by discussing and explaining the context nature of the dissertation.

References
Detailed readings will vary by individual candidate and are normally guided by the Project Supervisor.

MMS 111 Performance Excellence
Module Coordinator Dr Murray Prideaux

Prerequisites
Not Applicable

Module description
Welcome to the world of performance excellence. In today’s rapidly changing world, growth and perhaps the very survival of a business, may depend on the organisation’s ability to build relationships with customers and suppliers, understand the needs and expectations of customers and deliver the products and service that customers demand at the time, place, quantity, price and quality expected, while still making a profit. This subject draws together a number of business topics and issues to examine them through the lens of quality and a systems perspective.

The subject adopts the adult learning androgyne employing a range of adult learning principles where the learner is to engage with the subject content and material. To achieve this outcome a range of learning approaches are used. These include visual materials presented in a learning environment, class and small group discussion and practical hands-on experiences in the form of industry visits to see and experience performance
excellence in action in the business world.

You are expected to engage with the subject material, read the text chapter and key readings BEFORE class sessions and be prepared to engage in class discussion and activities.

This subject develops your knowledge and understanding of performance excellence and the ability to evaluate and apply performance excellence (quality) knowledge in a systems context. The subject focuses on building and sustaining quality organizations and application and management of processes and practices towards gaining customer satisfaction through organizational excellence. The subject considers performance excellence (quality) as a key management philosophy which provides competitive advantage for the organisation. Topics covered include service quality frameworks, measuring customer satisfaction, process management, and achieving continuous quality improvement.

Learning Outcomes
• Demonstrate a critical ability to relate quality and performance excellence theory and practice to contemporary organisational management processes in an increasingly dynamic and dispersed world
• Ability to critically evaluate industry practice to consider application of theory to practice; and to consider practice-informing theory.
• Recognise the significance and impact performance excellence within business organisations, and demonstrate knowledge and understanding of core quality management philosophies and standards
• Identify and apply frameworks, tools and techniques to support effective service quality management within organisations
• Research and consider contemporary issues of quality management and performance excellence
• Demonstrate effective communication skills and the ability to work with others in a professional manner and independently
• Delineate the key elements of a performance excellence system based on international quality criteria
• Allow students opportunities to develop business network and industry relationships

This subject uses a combination of approaches to teaching and learning, including both student centered and teacher directed approaches. The content of the subject is disseminated using a variety of teaching strategies which may include workshops, group work, case studies, discussions, simulations, and readings. At the beginning of each workshop, you will be made aware of the expected learning outcomes, how such outcomes are relevant to the world of business, and the resources that support the learning outcomes of this subject.

Beyond the classroom, your learning experience will be greatly enhanced if you collaborate and share ideas with other students. One easy way to achieve this is to form a study group with 2-3 other students with similar needs and expectations. Your lecturer can assist with this.

Module Delivery

Attendance of lectures and submitting two major Assessments. You are expected to be an active participant in the learning process and are encouraged to participate in workshops and undertake weekly readings.

Assessment
Continuous 60%, Final Exam40%

References
Further Reading
MMS 112 Financial Management  
*Module Coordinator Dr Gopinath Chattopadhyay*

This subject is designed to provide an understanding of the related applications of accounting in the contemporary environment. Financial information relating to an organisation's performance is critical not only to the success of individual companies but also to the economy more broadly. Topics covered will include the comprehension and interpretation of financial reports, budgeting and performance evaluation. It should be recognised that this subject is concerned with developing an understanding of accounting concepts, issues and problems.

The subject also develops skills and knowledge in areas of accounting and finance. This subject provides students with an understanding of the fundamentals of accounting. The aim is to build on basic concepts to develop a clearer understanding of financial statements, their uses and limitations in decision-making. The capacity to analyse financial statements and make decisions based on them is emphasised. The subject examines decisions on cost structures and the implications for operating leverage and thus the financial statements.

**Objectives**
To be able to understand:
1. The development and analysis of financial statements

2. The relevance of cash flows and interpretation of Cash flow statements
3. The importance and management of working capital
4. Costs, cost structures and operating leverage
5. Financing and financial leverage
6. Budgeting and
7. Financial statement analysis

**Module Delivery**
Lecture sessions 1 week
Day 1 Introductory concepts & financial systems, Accounting equation & transaction analysis, Balance sheet and income statement
Day Two: Statement of cash flows and their interpretation with the emphasis in this course, Managing working capital, Cost behaviour including operating leverage and CVP analysis
Day Three: Financing and leverage, Financial statement analysis 1
Day Four: Financial statement, analysis 2
Day Five: Budgeting

**Assessment**
Coursework 60%
Final Examination 40%

**Reference**

MMS 113 Asset Management  
*Module Coordinator Dr Murray Prideaux*

**Objectives:**
- An understanding and appreciation of various asset strategies and management techniques
- An awareness of reliability theory and applications

Courses handbook 2019
• Ability to assess cause of failure and to undertake FMEA, RAM, RPN and RCM
• An understanding of risk management
• General - To provide students an understanding of the underlying philosophy and practice.

Theory – Overview of Asset Management; Reliability Analysis; Reliability Centred Maintenance (RCM); Maintenance planning and control; Availability; Maintainability; Spare parts inventory management; Failure mode and effect analysis; Asset management systems; Risk management.

Learning Outcomes
On completion of this Unit students should be able to have:
• An understanding and appreciation of various asset strategies and management techniques
• An awareness of reliability theory and applications
• Ability to assess cause of failure and to undertake FMEA, RAM, RPN and RCM
• An understanding of risk management

Tutorials - To apply theory in to problem solving.

Final Examination - To assess the depth and breadth of knowledge in asset management and application of various tools.

Delivery – 120 hrs

Module 1: Introduction
• overview of engineering asset management concepts
• vision and mission
• policies, procedures responsibilities and tasks

Module 2: Asset management systems
PASS51 and 2

Module 3
• Reliability

• Basic reliability functions
• Component reliability
• * common distributions
• Data collection and analysis
• Probability plotting
• Availability
• Maintainability
• Safety

Module 4: Failure Analysis and Modelling
Module 5: Total Productive Maintenance
Module 6: Asset Inventory Management
Module 7: Maintenance and services in Asset Management
Module 8: Continual improvement in asset Management

Assessment
Group activity and project (30%), Reports and presentation 20%, Class Activity 10%
Final Examination 40%

References:

BSI: PAS55-1 and 2 :2004


MMS 114 Operations Management
Module Coordinator Dr Gopinath Chattopadhyay

Objectives:
• To develop the student’s ability to grasp the significance of the quantitative approach to decision making and to help him or her to become proficient in the
application of mathematical models to management of operations.

- OM provides an introduction to the basic concepts, systems and techniques of operations management
- Theory: Topics come from the areas as given in outline.

**Learning Outcome**
Analyze operational problems and apply appropriate tools and techniques for taking managerial decisions in solving those problems.

**Delivery**
Tutorials: Instructions and discussion will demonstrate how the principles and techniques are applied to a wide range of operations. Tutorials are provided to help students to apply theory to simulated situation.

Final Examination: Understanding of concepts and application of various numerical tools used in operations management.

Module 1 Operation Management Introduction
Module 2 Facility Location Layout
Module 3 Process Selection
Module 4 Break even analysis
Module 5 Process Improvement
Module 6 Master Production Schedule and Inventory Control
Module 7 Production Control Forecasting
Module 8 Scheduling
Module 9 Method study and Job design
Module 10 Statistical Quality Control
Module 11 Linear Programming
Module 12 Transportation Problem
Module 13 Assignment Problem

**Assessment**
Class work, Group activities and project (40%) Final Examination (60%)

**References**

- Nicholas, J.M. Project Management for Business and Technology - Concepts and implementation (2nd Ed), Prentice-Hall (2001)

**MMS 121 Leadership and Management**  
*Module Coordinator Dr Murray Prideaux*

**Course Description**
The subject explores theory and practices, issues, emerging challenges and implications, and thinking of leadership and management in organisations in an increasingly dynamic and dispersed world with application to indigenous perspectives in the tropical and global world. The subject establishes a critical framework to study leadership and management in context in
a range of contemporary organisational forms. A focus of the subject is for students to critically examine themselves and others involved in the leadership and management context and to critically reflect on the impact this has upon individuals, teams and managers, organisational design and self. A central aim is to provide a framework for the analysis of leadership and management of contemporary organisations by engaging in discussion and analysis of contemporary organisations. Ultimately, the subject draws students to consider their own leadership point of view and style of leadership and management within the context in which they will be leading and managing in their career.

This subject draws together theories, concepts and knowledge studied in other subjects in the management and associated disciplines.

This module requires a 100-hour workload of study-related participation by students over the duration of the study period including class attendance. The workload comprises timetabled hours and other attendance requirements, as well as personal study hours, including completion of out of class activities and assessment requirements.

This module is delivered as a combined lecture/workshop/tutorial session. Two sessions will be conducted per day. Sessions are interactive and dynamic. Students are expected to engage with the material before attending each session and during sessions and are expected to spend at least 40 hours engaged in the subject materials outside the scheduled contact times.

**Objectives**
This subject explores theory and practices, issues, emerging challenges and implications, and thinking of leadership and management in organisations in an increasingly dynamic and dispersed world with application to indigenous perspectives in the tropical and global world.

The subject establishes a critical framework to study leadership and management in context in a range of contemporary organisational forms. A focus of the subject is for the student to critically examine self and others involved in the leadership and management context and to critically reflect on the impact this has upon individuals, teams and managers and organisational design. A central aim is to provide a framework for the analysis of leadership and management of contemporary organisations by engaging students in discussion and analysis of contemporary organisations.

Ultimately, students develop their own approach to leadership that is appropriate to their own context.

**Learning Outcomes**
1. demonstrate a critical ability to relate leadership theory and practice to contemporary organisational management processes in an increasingly dynamic and dispersed world.
2. reflect upon their own leadership style and approach.
3. apply critical strategic thinking skills at the organisational level, to foster organisational dialogue and to lead and manage processes and people in organisations within a context sensitive environment.
4. appraise new models of leadership and management as a way of considering structural options for organisations, such as networked and ‘virtual’ organisations, and
5. demonstrate leadership skills within a small teach environment and independently.

**Delivery**
Lectures Sessions
Poster Presentation
Reflection Topics and Journal
Self-Directed study
Final Examination

Courses handbook 2019
**Assessment**

Assessment Task 1  
Leader, Leadership, Context, Practice 15%

Assessment Task 2  
Reflection Topics and Journal 45%

Final Examination 3 hrs 40%

**Reference**

Clawson (2015) MMS121 Level Three  
Leadership: Getting below the surface, Pearson

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**MMS 122 Project Management**

*Module coordinator Dr Gopinath Chattopadhyay*

**Aim** - To provide an introduction to the basic concepts, systems and techniques of project management starting from project initiation and definition to implementation and termination.

**General** - To provide students an understanding of the underlying philosophy and practice.

**Theory** - Project Management tools and team building to develop project report. This includes project brief, Scheduling, project costing, project appraisal, contractual and human aspects of project management.

**Tutorials** - To apply theory in to practice

**Final Examination** - To assess the depth and breadth of knowledge in project management and application of various tools.

**Learning Outcomes**

On completion of this Unit students should be able to:

1. Analyse project needs and prepare project reports,
2. Devise operational plans for timely completion of projects within budget and performance criterion.
3. Present project plans to clients,
4. Develop skills for managing quality, cost and schedule of various projects.

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**Delivery Mode**

120 hours of study. Read lecture notes, attend lectures and tutorials, participate in team based assignments to apply theory into practice and read books recommended in the outline

**Assessment**

Course work 40%  
Final Examination 60%

**References**


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**MMS 124 Entrepreneurship, Innovation, Change & Development**

*Module Coordinator Dr Murray Prideaux*

This module draws on a wide body of theory and concepts to examine global trends, thinking, entrepreneurship, creativity, innovation, business models, organisational development and transformation through a change paradigm.

Students will be applying knowledge and skills developed from previous, together with knowledge acquired in this subject, to analyse an organisation through the various lenses presented in this subject to develop appropriate
recommendations and change plan to support the organisations quest for enhanced organisational agility and value.

This module requires a 100-hour workload of study-related participation over the duration of the study period including class attendance. The workload comprises timetabled hours and other attendance requirements, as well as personal study hours, including completion of out of class activities and assessment requirements.

The module is delivered as a combined lecture/workshop/tutorial session. Two sessions will be conducted per day. Sessions are interactive and dynamic. Students are expected to engage with the material before attending each session and during sessions and are expected to spend at least 60 hours engaged in the subject materials outside the scheduled contact times.

This module will help students to;

1. Demonstrate a critical ability to relate theory and practice to contemporary organisations in an increasingly dynamic and disruptive world,
2. Appraise models of thinking, creativity, innovation, entrepreneurship, business models, and change as a way of considering enhancing organisational agility and value;
3. Explain the nature of entrepreneurship and its importance economically and socially in an international, national and regional context;
4. Demonstrate leadership skills relevant to managing strategic change through people processes and performance in organisations;
5. Develop strategic entrepreneurial skills by identifying and analysing opportunities demonstrating feasibility

Learning Outcomes

Courses handbook 2019
Students are provided an opportunity to reflect on, integrate, and extend their learning from other subjects. Students are encouraged to critically analyse a range of current PNG and global issues as they relate to contemporary HRM theory and practice. Further, through in-depth exploration of contemporary issues, concerns, and controversies in the HRM area, students will develop their skills in identifying and analysing problems in HRM.

The subject provides students with the foundation to understand and address core issues, perspectives and decision-making procedures relating to managing human capital. A central aim is to provide a framework for designing, implementing and maintaining HRM practices which are contemporary, relevant and capable of sustaining organisations in competitive environments. This is achieved by discussion and analysis of numerous theoretical and practical examples from PNG and the international business environment. A practical and relevant 'Hot Topic' relating to managing people in PNG will be woven through the subject.

Rationale

In today’s highly turbulent world, students need to have the knowledge, competences, capabilities and skills to interact in the global context. People are the key to an organisation’s success and leaders and managers need to understand how to effectively lead and manage people in this increasingly complex and interconnected global environment. Gaining an insight into key aspects of the relationship between the individual and the workplace, notions of personal and group identity in relation to the changing nature of work and employment relationships, and a holistic approach to human relations, exploring various aspects of managers’ behaviour both privately and at work and identifying their interdependence are critical competencies leaders and managers need in an increasingly complex world.

Students need an opportunity to explore some of the psychological dimensions of human behaviour and leadership such as identity, personal values, motivation, self-esteem, emotional intelligence, and the management of intrapersonal, interpersonal and group effectiveness, and apply this knowledge to the examination of some of the current challenges for managers such as changing organisational forms, diversity of the global workplace, work-life balance, and personal career development to effectively lead and manage human capital in today’s context.

Module Delivery
Lecture Sessions of 1 week
Self-Directed study Final Examination

Learning Outcomes
1. Appraise contemporary issues and changing role of HRM;
2. Adopt a professional perspective towards a career in the HRM profession;
3. Apply theory and practices of HRM to manage people in organisations.
4. An understanding of the challenges involved in managing a cross-cultural workforce and managing transnationally, including expatriate management and the conduct of organisational change and development in global business operations.
5. Develop strategies to analyse and reflect upon human relations issues in contemporary work environments with a focus on best practices and innovative HRM initiatives.

Assessment
Coursework 60%
Final Examination (Open Book) 40%

References
A range of key readings (academic journals) provided as part of the subject package.
SCHOOL OF ENVIRONMENT AND CLIMATE CHANGE STUDIES

By 2050 world population will reach 9.6 billion. Care for the environment for food security measures is becoming imminent. Lack of control of the environment will result in decrease food security with increasing population. Survival of the human race therefore is reliant on the decisions made with regards to the environment.

Department of Geohazards and Risks
In progress.

Department of Ocean Sciences
In progress

Department of Environmental Engineering
In progress

Department of Environmental Law
In Progress
SECTION E: UNRE Teaching Definitions, Roles and Responsibilities

UNRE Management Team
The Senior Management of UNRE

PVC Academic
Pro Vice Chancellor Academic

UNRE Academic Board / Exam Board/ Senate
This body is chaired by the VC or PVC Academic, and its membership includes ALL UNRE academic members of staff. The Board meets to approve student marks, progression and degree classifications. It takes into account evidence of students with special circumstances and cases of unfair practice. This body also receives reports from our External Examiners. It is responsible for overseeing Departmental responses to External Examiners Reports and looking for any common concerns and examples of good practice.

Academic Review and Accreditation Committee
This body is chaired by the VC or PVC Academic, and its membership includes ALL UNRE academic members of staff, with additional representation from other groups, such as technical staff, the library and students.

The Learning and Teaching Committee is a body for discussing, amending and approving learning and teaching policies and procedures. Standing items on the agenda should include: reports from the SRC and departmental SSLCs, reports from the Teaching and Learning Methods Unit and ideas for new modules and course changes (approved concepts are subsequently developed under the guidance of the relevant Head of Department and then submitted to the PVC Academic). Where possible, the L&TC should arrive at a consensus, agreeable to all in attendance. However, silence in the face of a forceful pronouncement by a figure of authority should not be assumed to indicate that a consensus has been reached. Thus, voting by show of hands provides as an integral part of the L&TC a quick method to allow all members to express an opinion for or against a proposal. However, new and revised regulations may require subsequent approval by UNRE Management Team and the Council of the University.

At the end of each academic year a special meeting of the L&TC is responsible for receiving and discussing all annual module and course review documents, looking for any common concerns and examples of good practice. Meetings of this Committee MUST be formally minuted.

External Examiners
At least one External Examiner (a senior relevant academic from another University with no recent affiliation with PNG-UNRE) should be present at our Academic Board. External Examiners should be appointed on a four year term. They should be recommended by the Academic Department and their appointment approved by the PVC Academic. External Examiners are responsible for producing an annual report on our courses. An External Examiner may be responsible for reporting on more than one of our courses, if their expertise is considered appropriate by the PVC Academic.

Late Submission of assessable Tasks
Note that UNRE Policy outlines a uniform formula of penalties that will be imposed for submission of an assessment task after the due date. This formula is 5% of the total possible marks for the assessment item per day including part-days, weekends and public holidays. After 20 days, the assessment item thus would be awarded 0 marks (i.e. 5% x 20 = 100% of total possible marks in penalties).
Teaching and Learning Methods Unit
The function of this unit is to mentor new academic staff in the teaching QA structures and systems described in this document and provide training in tertiary level teaching. The TLMU also offers continued personal development opportunities for more experienced members of staff and provides a forum for sharing good practice. The TLMU should support new members of staff by appointing both a teaching and a research mentor.

Special Circumstances Reports
Students with exceptional circumstances, e.g. extreme medical problems, or genuine, unforeseen personal circumstances such as illness, family problems or death of a close relative, may bring such information to the attention of the University, by submitting an appropriate form and providing independent supporting evidence. These circumstances may be fully taken into account by granting an extension on the coursework deadline or setting an alternative assessment. However, these forms may also be considered by the Academic Board and if considered appropriate the Board may raise borderline marks if they are within 2% of a class boundary.

Student Disciplinary Committee and Unfair Practice
A panel of staff comprising the staff member setting the work, the year coordinator and course coordinator, will adjudicate on whether unfair practice has occurred in the completion of that work. The outcome of their deliberations (mark penalty) is reported to the Academic Board. There is a right of appeal in this case to the PVC Academic.

The Student Disciplinary Committee has the responsibility for enforcing the regulations defined in the Student Rule Book 2019 and must only apply the penalties that it prescribes.

Student Representative Council
This body is chaired by the PVC Academic and the Student President of the SRC. Its membership includes the Vice Chancellor, the elected Student Representatives, the Heads of ALL Academic Departments and representatives of other groups as required such as IT, Estates, the Library. The function of this body is to provide a forum for students to raise University wide concerns and discuss with the management how these may be resolved. This Committee should meet three times each Semester.

The SRC is also tasked with nominating the best lecturer and best module handbook of the year, so that the Teaching and Learning Methods Unit can disseminate examples of good practice.

The SRC should be allocated an annual budget by the Bursar to be spent supporting student centred activities on campus. The allocation of this budget is dependent on the SRC, presenting annual audited accounts and documenting their expenses.

Student Affairs Committee (SAC)
Each Academic Department should organise its own SAC, chaired by the Head of Department. Membership includes elected Student Representatives from the department; one from each year group, plus the year coordinators and a member of support staff from the Department. The function of this body is to provide a forum for students to raise Department and Course issues and discuss with the department how these may be resolved. This Committee should meet twice each Semester.
Democracy and the Learning and Teaching Committee:
When does the AR&AC meet?

- At least three times in the year.
- A week before each semester begins and at end of the academic year.
- Additional AR&ACs may be called by the PVC Academic to discuss urgent issues.

When should votes be held?

- Whenever a draft Academic Review and Accreditation policy or procedure requires approval by the AR&AC.
- Whenever an amendment to a draft learning and teaching policy or procedure is proposed and seconded by members of the AR&AC.
- Whenever a motion to refer a learning and teaching policy or procedure back to the AR&AC for revision is received from the PVC Academic.

Procedure for debating and voting

- A motion to approve, amend or refer a policy or procedure should be proposed by a member of the AR&AC and seconded by a different member of the AR&AC.
- The proposer should make a single, brief argument in favour of the motion.
- Other members of AR&AC may each make a single, brief argument (< 5 minutes) for or against the motion or ask a single question.
- After everyone who wishes to speak has done so, the proposer of the motion may answer any questions asked by other members of AR&AC and make brief replies to any comments.
- Other speakers may request a single opportunity to reply briefly to comments directly relating to their suggestions.
- The motion will normally be put to a vote by show of hands. A teller will be appointed to count votes for and against and those abstaining. The results of the vote will be entered in the AR&AC minutes.

- Under exceptional circumstances, any member of AR&AC may request a secret ballot. Ballot papers will be issued to all AR&AC members present and marked papers will be deposited in a box. The results of the vote will be entered in the LR&AC minutes.
- Normally, a motion is passed if it receives the support of a simple majority of the AR&AC meeting. In cases where changes to the composition or standing orders of the LR&AC are proposed, a two-thirds majority is required.

Academic Departments

- Academic departments are responsible for drafting new and revised modules and course documents following approval of the AR&AC and submitting the required documents to the PVC Academic for consideration.
- Academic departments are responsible for holding two SSLC per semester and reporting these to the AR&AC.
- Academic Departments are responsible for the Quality Assurance of Coursework Briefs and Exam Questions. These should be checked for clarity, and to ensure that the appropriate Learning Outcomes are being assessed. OLD EXAM QUESTIONS SHOULD NOT BE ROUTINELY RECYCLED. Year 3 & 4 exam questions should be sent to an External Examiner for approval before the exam.

Personal tutors

At the beginning of the first semester, all new first year students will be assigned by the Head of Department to a personal tutor within the Department.

Personal Tutoring is an important element in enabling students new to the University to settle into their studies and to have an initial point of contact for any personal, academic or other matters that might impact upon their student experience.

The primary roles of personal tutors are to:
- Support the academic development of tutees
- Provide pastoral support for tutees if required

In addition, UNRE tutors may be called upon to teach and/or assess their tutees if they are registered on certain modules. Tutors are expected to meet with all their tutees in all year groups, at least once per semester, either as a group, or as individuals.

**Tutors and Pastoral Care**

Tutors may be asked by their tutees to provide references for job applications, to offer guidance on filling out special circumstances forms, or to explain how resits and progression operate. It is therefore important that students feel comfortable raising such issues with academic staff. Tutors are NOT expected to solve students’ personal problems, but to help direct them to more appropriate people who can help such as Student Support Services.

**Module Leaders**

All modules must have a UNRE academic member of staff identified as the module leader, even in cases when the module is delivered by people from outside our Institution. The job of the module leader is to ensure that our QA procedures are followed and that the required documents are available on time in the standard UNRE format. The common UNRE format for a module includes at least a:

- Description of the module and its learning outcomes.
- Timetable of activities (lectures, seminars, practical classes etc.) within the module.
- Clear coursework brief, (if assessed by coursework).
- Module course-book of supporting materials including a reading list.
- Health and safety guidance for any practicals and field trips

**NB Much of this information is defined in the MAF (Module Approval Form)** and a summary is included in this handbook. Coursework briefs require a standard UNRE coversheet which enables the work to be marked anonymously. It should include a brief module description, list the learning outcomes covered in the assignment, identify the module coordinator and coursework coordinator, the proportion of marks allocated to the coursework, the due hand-in date and the UNRE policy on late submission of coursework.

Module leaders are responsible for submitting coursework and exam marks and mark moderation forms promptly to the departmental office and checking their accuracy. The academic department is responsible for forwarding these marks to Academic and Student Administration within three days. Approaching the end of each module’s teaching delivery, module leaders are required to survey student feedback using the standard forms. This student feedback and analysis of marks, provides the backbone of the module review process, which module leaders are required to complete at the end of the academic year and not before the external examiners arrive for the final exam board. Module leaders are responsible for ensuring that this year’s version of the above documents and samples of this year’s student work are stored in departmental office. These records are kept to allow External Examiners or Quality Auditors to review our teaching provision, quickly and easily before exam boards. Thus, files should be completed shortly after the end of semester. These box files should contain:

- Definitive list of students on the module,
- Module descriptions,
- Module timetables,
- Coursework Briefs,
- Module Handbook,

Courses handbook 2019
• Copies of mark sheets and mark moderation forms,
• Photocopied samples of course work, representing the full range of marks awarded: at least one example per degree class,
• Copies of all risk assessment forms associated with practical classes or field visits and the annual module review form.
At the end of the academic year the box contents will be archived, but the intention is that we will keep the most recent module review forms in the box to enable a longer term view to be taken.

Module Handbooks and Reading lists
• ALL Module Handbooks should be available electronically at the start of the semester.
• All books, journals and articles on module reading lists should be available through the university library, or available electronically.
• Reading lists should be available to students at least four weeks before a module commences.
• Reading lists should follow a standard structure throughout the university and be listed under two main headings, essential and further.
• There should be a minimum of five and a maximum of fifteen items on a module reading list.
Policy / good practice needs to be agreed at Learning and Teaching Committee.

Heads of Department
UNRE Heads of Department are budget holders. They must present an annual report to the UNRE Management team at the annual planning round meeting. This must include a request for a budget for the year ahead. This report should include a case for support statement requesting funds for any new initiatives. The allocation of subsequent budgets are dependent on the department staying within budget, and returning annual audited accounts documenting their expenses. The Head of Department is responsible for the academic development and direction of the department. Line-manage the academic staff, encourage their teaching and research activity. Develop a training policy for the department. They must take an active role in identifying the need for new academic staff and be involved in the recruitment process.

Course Leaders (Heads of Department)
UNRE Heads of Department are designated as course leader. Unless there is more than one course within a department in which case there may be a separate course coordinator.

Overview
Course leaders are required to be responsible for the general administration of our degree programmes, to act as “go-betweens” between students and the University and to provide the departmental office with relevant information about students on their course. A course leader has the support of year coordinators. The main role of this team is to ensure the smooth running of the course (from recruitment, to graduation) and to be a point of contact for student feedback regarding problems that are wider than an individual module through the SSLC.

Main roles/activities:
• Brief new first year students at the beginning of the academic year – Give an introduction of the course structure, modular system, registration, medical questionnaire, and Health, Safety Policy and Practice. Course leaders should stress the importance of attending lectures and handing coursework in on time, and the purpose of the UNRE student handbook.
You should explain the UNRE marking criteria and how final course marks are calculated

- Meet with all year groups of students near the start and end of each semester. At the start you should review their timetable. Check beforehand for any potential problems. Similarly you should review their hand-out and hand-in timetable for coursework, and try and avoid extreme pressure points by discussion with relevant module leaders. Explain progression rules, remind students about the value of module handbooks. Seek nominations for representatives on the departmental SSLC.
- You may wish to have a follow up meeting with first year students to re-emphasise these points and check they have settled in well a few weeks into term.
- An additional meeting should be held at the end of the first semester with each year group in order to review the term and discuss the forthcoming exams.
- Review Semester 1 marks (along with the Head of ASA) check and identify students who cannot progress. Attend the Exam Board and present the marks of students on the course.
- At the end of the academic year hold a course meeting with each year group to explain when and how marks will be sent out (Student Record).
- With ASA explain to the students how they will be contacted about resit and progression regulations and procedures.
- Review Semester 2 marks for all years and check (with ASA) referral indicators with the Marks Officer. Attend the Exam Board and go through each year cohort.
- Compile course material for external examiners visit – cohort analysis, copies of conventions and progression rules, annual course monitoring report, breakdown of the marks of each final year student, decisions on borderline marks and recommended progression route.
- Attend Exam Board and go through marks.
- Check marks (with ASA) of resitting students and decide if they are allowed to re-join the course.
- Before the academic year, chair a course review meeting with all relevant module leaders to discuss module reviews and action points. Review course student questionnaire feedback from end of last academic year and discuss any course action points. Develop an assessment timetable for each semester for each year group to avoid activity/assignment hand in date clashes and even out the student workload as much as possible.
- Promote UNRE degrees and be involved in student recruitment activities.
- Throughout the year, respond to enquiries about the course and liaise with UNRE admissions. Meet with potential candidates.
SECTION F: ASSESSMENT AND FEEDBACK

Coursework submission, return of marks, moderation and feedback

Student coursework should be submitted anonymously through the department office. Submitted coursework will be date and time stamped by the department and a receipt issued to the student. Work handed in late will be awarded a mark of ZERO and will result in the student failing the module, since students must obtain minimum scores of 40% in both the Coursework and examination, as well as scoring 50% overall in order to pass each module.

All coursework will be marked and returned to the student (via the departmental office) within A THREE WEEK PERIOD. Students will only be allowed to collect their marked coursework if they provide some form of identification.

Feedback from members of staff should be clear, it should be consistent with the UNRE marking criteria and provide recommendations on what the student needed to do to improve their mark.

A sample of coursework from across each grade boundary should be moderated (checked) by a second member of staff. All failed coursework should be checked by a moderator. The moderator should document this process by completing a coursework moderation form. If the distribution of marks gives cause for concern, with the average mark being very high or very low the marks must be approved by the Head of Department BEFORE being released to the students. Class marks giving cause for concern may only be adjusted as a class set with the agreement of the marker, moderator and Head of Department. INDIVIDUAL MARKS CANNOT BE ALTERED BY A MODERATOR. Once the marks have been agreed and the work de-anonymised, the class set of marks should be entered into a table and returned to the departmental office.

Student oral presentations, should be marked independently by two members of staff and an agreed mark and agreed set of feedback comments provided to the student after the session.

Setting Exam Questions, Exam Rubric and Marking Policy

Writing exam questions is the responsibility of the academic member of staff. Exam questions should be clearly written in easy to understand English. Outline answers should be provided which should enable another member of staff to mark the exam paper if required. The exam paper must cover all the associated Learning Outcomes. It is the responsibility of the HoD to check the exam papers for: clarity, to avoid the reuse of last year’s questions and to ensure that the assigned LOs are covered. This process should be documented on a Draft Exam Form. The standard UNRE exam rubric, must be used which describes the number of questions that should be answered (e.g. 2 from a choice of 4), and the duration of the exam. In cases where students answer more than the required number of questions (unless answers have been clearly crossed out), then all questions attempted will be marked and the marks that are most advantageous to the student will be used in the calculation of the final exam mark.

Examinations

There is an examination week at the end of each semester. Failure to attend an exam will be recorded as a fail, unless the candidate has formally withdrawn from the module (see below).

Withdrawal

Where exceptional circumstances arise, a candidate, with the approval of his or her Head of Department, can withdraw in writing
to the Registrar from the study of a module or modules. If this is done not less than five full weeks before the examination week, he or she shall not be recorded as having failed in that module. The candidate may then present themselves for examination in a future semester.

**Plagiarism**

Plagiarism occurs when you copy or reproduce someone else’s words or ideas and then present them as your own without proper acknowledgement. It is a form of cheating. Penalties for plagiarism are severe and include failure in the module(s) and may lead to termination of your studies.

**Failed Modules and Regulations on Academic Progress**

Candidates must pass all the modules in a semester in order to proceed to the next semester or graduate (One condoned module is allowed in year 1 – see below). Students failing one module must repeat and pass the failed module before proceeding to the next stage of the course. Students failing two modules in a semester shall be discontinued from the course. They may apply to resume their studies, but their readmission will be subject to approval by the Registry and the Department. Such candidates would be required to enrol in all modules for which they scored grades lower than credit (2). A candidate may appeal against their discontinuation. The appeal should be made to the Pro Vice Chancellor Academic within seven days of receiving the discontinuation letter.

**Calculation of Final Year Grades and Degree Progression Rules 2019**

**Year 1 Progression**

- Average end of year marks are calculated as percentages (not grades marks)
- Progression into year two is based on passing the first year with an average mark above 50%
- One condoned failed module with a mark between 40 and 49% can be carried (no need to re-sit) but not in a MUST PASS MODULE

### MUST PASS MODULES:

<table>
<thead>
<tr>
<th>Tropical Agriculture</th>
<th>Fisheries &amp; Marine</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 115 Introduction to agriculture</td>
<td>M 125 Introduction to fisheries</td>
</tr>
<tr>
<td>A 116, 126 On farm practice</td>
<td>A 112, 122 Biology</td>
</tr>
<tr>
<td>A 112, 122 Biology</td>
<td>A 111 Communication skills</td>
</tr>
<tr>
<td>A111Communication skills</td>
<td>A 114 Chemistry</td>
</tr>
<tr>
<td></td>
<td>A 124 Physics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Livestock Production</th>
<th>Forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>A111 Communication skills</td>
<td>A111Communication skills</td>
</tr>
<tr>
<td>A 112, 122 Biology</td>
<td>A112 Biology</td>
</tr>
<tr>
<td></td>
<td>F111 Introduction to Forestry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tourism</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A111Communication skills</td>
<td></td>
</tr>
<tr>
<td>T111 Introduction to Tourism</td>
<td></td>
</tr>
</tbody>
</table>

**Degree/ Diploma Progression** is determined at end of year 2

- Students can carry one condoned failed module with a mark between 40 and 49% (with no need to re-sit)
- Students with average marks between 50 and 64% progress to diploma.
- Students with marks of 65% above progress to degree course.
- End of year 3 diploma students with average mark above 65% can progress directly into the final 4th year of the degree.
• End of year 3 degree students can progress into year 4 if they achieve an average mark above 50%.
• Degree students with marks between 40 and 49% can graduate at the end of year 3 with a diploma.
• Graduating diploma students with marks between 50 and 64% may return after a year’s relevant industry experience and enter the final year of the degree only if they pass a two-week revision course before the start of the semester.

Final Degree Classification
• Only final year marks are used in the classification of degrees
• Marks are calculated as percentages (not grade marks)
• Average marks above 75% are awarded MERIT
• Average marks above 85% are awarded DISTINCTION

Student Attendance Monitoring.
Academic staff are required to ask students to sign a register for all timetabled activities. This is partly for health and safety reasons (to ensure all students return from field visits etc.). Signing the name of another student on the register is an offence. Registers will be filed and summary data produced at the end of the academic year to assist staff in writing references for students.

Peer Observation of Teaching
UNRE expects all academic staff to engage in a rolling programme of peer observation of teaching. Peer observation is an integral part of probation for new staff, plus it is widely seen as good practice for all staff. There is a Peer Observation of Teaching Form available to help guide this process and staff are encouraged to identify examples of good practice to feedback to the Peer Observation Coordinator. However, it must be stressed that the form’s contents are entirely confidential to those directly involved, and the process is not designed to be part of the annual performance review or disciplinary action.

Health and Safety and Risk Assessment
UNRE has an obligation to look after the health, safety and welfare of all its staff and students.
Academic staff are required to complete a UNRE Risk Assessment Form for all non-classroom activities. These include visits, field visits and laboratory practicals. Guidance on completing these can be provided by the University Health and Safety Officer. Once completed, the risk assessment form should be kept in the module record box in the departmental office and form part of the module handbook.
<table>
<thead>
<tr>
<th>Mark %</th>
<th>Grade</th>
<th>Marking criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>85-100</td>
<td>4</td>
<td>The work presented should be factually close to faultless and well-focused on the task set. The text should be structured in a very clear logical way. There will be excellent coverage of the topic and extensive evidence of supplementary reading. Reliable evidence should be presented to support the statements made.</td>
</tr>
<tr>
<td>75-84</td>
<td>3</td>
<td>The work presented will be a high standard, clearly focused and relevant to the task set. The text should have a logical structure. There will be some evidence of supplementary reading. Some evidence should be used to support the statements made.</td>
</tr>
<tr>
<td>65-74</td>
<td>2</td>
<td>The work will be factually correct and broadly focused on the task set. The work will be structured in a mostly logical way. There will be some evidence of outside reading and presentation should be reasonably clear. Some evidence should be provided, but it may not be entirely relevant.</td>
</tr>
<tr>
<td>50-64</td>
<td>1</td>
<td>The work will be accurate but limited in depth of coverage. There may be some errors or key facts missing or misinterpreted. Presentation or organisation may hinder communication of the material. Relevant evidence may be limited.</td>
</tr>
<tr>
<td>40-49</td>
<td>0</td>
<td>Information will be sparse or inaccurate but broadly relevant to the question. The work will lack depth of coverage. Presentation or organisation will hinder communication of the salient material. Little relevant evidence will be provided.</td>
</tr>
<tr>
<td>20-39</td>
<td>0</td>
<td>The work presented will be poorly directed at the question. There will be many omissions or errors but some relevant facts will be correct. The work will lack convincing demonstration of understanding. The material will be largely irrelevant to the task set with many omissions and / or errors. Organisation will be poor.</td>
</tr>
<tr>
<td>19-0</td>
<td>0</td>
<td>The work will be lacking in length or irrelevant to the question. There will be little substance or factual material presented. There will be almost no relevant or correct material included.</td>
</tr>
</tbody>
</table>

Sometimes answers may contain elements that fit the description for more than one of the above grade descriptions. The mark awarded will be based on the markers subjective assessment of which description best matches the overall standard of the work.
SECTION H: UNRE Quality Assurance Structures
Teaching Structure

UNRE Management Team

PVC Academic

Student Representative Council

Academic Board / Exam Board

Learning & Teaching Committee

Teaching & Learning Methods Unit

Academic Departments

SSLC

Academic & Support Staff

Module MAF
Defines why, what & how we teach

Special Circs Reports & Student Disciplinary Committee

External Examiners

To change or not to change

Module Delivery

YES

NO
Cycle of Reflection – Course Leader

1. Course Approval Form Defines the combination of modules
2. All Modules Delivered
3. Annual Course Review
4. Feedback from Students
5. Analysis of Marks & Employment Data
6. Staff & External Examiners Comments

To change or not to change

YES

NO
SECTION I: PNG-UNRE Rules
Governing the Conduct of Students

Introduction
Becoming a student at PNG-UNRE is an achievement of which you should all be proud. As you join the staff and students who live and work together on the Vudal campus, we expect that you will treat other members of this community with the dignity and respect that you would wish to receive yourself. To ensure that the University is a harmonious place, we must all accept responsibility for our own actions and endeavour to live by the code of behaviour described here.

It is important that none of us do anything that would damage the good reputation of our University. We should all be proud of ourselves and of the University of which we are a part. Together the staff and students of PNG-UNRE form a partnership that is committed to making our University the BEST Higher Educational Institution in PNG.

All members of staff have a part to play in assisting in the maintenance of student discipline and most cases of minor misconduct will normally be dealt in the first instance by an individual member of staff on an informal basis by counselling in the correct behaviour and conduct.

The University has created the rules described here in conjunction with the Student Representative Council. These rules form the basis of our own judicial system, so that if necessary we are able to reprimand those who behave anti-socially, in a way that is consistently applied, proportionate and fair.

These rules apply to anti-social behaviour such as: verbal and physical abuse, excessive noise pollution, public nuisance, vandalism, and inconsiderate or disrespectful behaviour towards others. Criminal activities that break the Law, such as: stealing, assault, provocation, group fights or riot, rape, wilful damage of state or personal property, and/or inflicting injury on others and illicit drug use WILL all be referred to the Police and dealt with under the Laws of PNG.

It is important that we recognise that the University is a part of a wider local community of residents. Thus, where appropriate Local Community Leaders and Local Courts may be involved to mediate offences arising between students and the local community.

Offences

(i) Criminal behaviour
Students must not engage in any criminal activity against any other student, and must not perform any act which might render the University liable in criminal law. Students must not bring the University into disrepute or incur any liability on behalf of the University.

(ii) Anti-social behaviour and language
Students must not behave in a violent, indecent, disorderly or threatening manner or engage in oral or written abuse towards other students, staff or other individuals. This includes communication via e-mail and social media.

(iii) Nuisance and disturbance
Students must not disrupt the academic, administrative or social activities of any member of the University including other students. Students must maintain a peaceful and harmonious environment for all at all times.

(iv) Littering
Littering including spitting of betel nut is forbidden.

(v) Vandalism and theft
Students must not damage, deface or misappropriate any property of the University, or any other member of the
academic community (including other students) or employee of the University.

(vi) **Driving**
Students must have a valid PNG Driver’s License or a valid Learner’s Permit (in which case they must be accompanied by a Licensed Driver) and must observe Traffic Rules when driving on campus. Students must not drive any vehicle belonging to the University.

(vii) **Visitors**
Visitors can only be accommodated once approval has been given by the Director of Student Support Services or the Warden of Students.

(viii) **Pets/Animals**
Students are not allowed to keep pets/animals on campus. Feeding stray dogs is not encouraged.

(ix) **Weapons**
The University operates a zero tolerance policy on weapons. The use of any form of weapon to damage property or cause harm to another person is a criminal offence. In addition it is against the law of the University to use a weapon to threaten another person. Any student seen in possession of any weapon in the vicinity of a conflict will be deemed to be committing an offence. Self-defence will not be accepted as an excuse.

(x) **Illegal entry into an area or property**
Students must not enter prohibited areas on campus. These areas include staff residential areas, and residences of the opposite gender.

(xi) **Drugs and alcohol**
The University operate a zero tolerance policy on alcohol and illicit drugs. Students must not, while on the property of the University, or while engaged in any University activity, have in their possession any illegal substances or alcohol. It is also forbidden for students to arrive on campus under the influence of drugs or alcohol.

(xii) **Sexual harassment and discrimination**
Sexual harassment and discrimination are not allowed in the University.

(xiii) **Staff/student relationships**
Intimate or sexual relationships between staff and students are forbidden.

(xiv) **Intimidation and threats**
Students must not engage in intimidation, threats, blackmail, extortion, fraud, deceit, deception or dishonesty in relation to the University, its staff or students.

(xv) **Cheating and Plagiarism**
Cheating during examinations is not allowed. Students are not permitted to bring any material into the examination room, other than writing equipment and calculators. No bags can be taken into the examination room. Speaking to other students in the examination room is forbidden. Copying from another student is not allowed. Plagiarism is a form of cheating. It occurs when you copy or reproduce someone else’s words or ideas and then present them as your own without proper acknowledgement. Reproducing large blocks of text and passing it off as your own is referred to as unfair practice. Compiling individual sentences from different sources is bad practice and should be avoided. All assignments must be the students own work and it is forbidden to submit work which has previously been submitted by another student. Module leaders may provide additional rules pertinent to their own coursework.

(xvi) **Pornographic materials**
Students must not use University facilities for the production, downloading, or transmission of pornographic materials.
### Dining Hall

#### Meals Times

<table>
<thead>
<tr>
<th></th>
<th>Weekdays</th>
<th>Weekends</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td>6:30 – 7:30am</td>
<td>7:00 – 8:00am</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td>11:30 – 12:30pm</td>
<td>12:00 – 1:00pm</td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
<td>5:00 – 6:00pm</td>
<td>5:00 – 6:00pm</td>
</tr>
</tbody>
</table>

Any offences will be dealt with immediately by the mess supervisor who will then report them to the Director of Student Services for appropriate referral.

The University aims to provide a clean and pleasant atmosphere for resident students to eat and meet socially. Students are reminded of their role in maintaining this atmosphere.

(i) Students are forbidden from entering the mess other than at the above mealtimes.  
(ii) Meals will only be served to residential students and those who have paid an approved casual meal charge. Students must produce their ID cards at the Mess entrance.  
(iii) Students who attempt to obtain a meal by deception will be referred to the Director of Student Support Services.  
(iv) In the interest of hygiene, students are not allowed to enter the Dining Hall unless they are clean and properly dressed. Students must wash and change before coming to the Dining Hall from sporting activities or from the farm/manual labour.  
(v) Any student who has a complaint should make this known to the Mess Supervisor. If dissatisfaction continues the student may make a formal report to the Director of Student Support Services.  
(vi) The rules of the University apply to the Dining Hall. Students are expected to show courtesy and politeness to each other and to the mess staff. Any form of disrespect, abuse, aggression, threat or violence will be reported to the Director of Student Support Services for appropriate referral and action.  
(vii) Students with special obligations can make prior arrangements to collect late meals. Meals must be collected within one hour of the designated meal time. Where cut meals are required for field visits, a letter is required from the appropriate HOD stating the student name, ID number, meal(s) to be missed and reason for the request.

### Library

(i) All staff and registered students of PNG UNRE are members of the library.  
(ii) External users may register to use the library by paying a membership fee.  
(iii) Children aged 8 years and younger are not allowed to enter the Library without a parent or guardian.  
(iv) Academic staff may borrow up to 14 books at a time (4 books on normal loan and 10 books on semester loan). Students and non-academic staff may borrow 4 books at a time. Dependents and spouses may only borrow one book at a time. External users are not allowed to borrow books.  
(v) Books are due back 4 weeks after the date of borrowing, with the exception of academic staff semester loans which are due back at the end of the semester.  
(vi) A fine of 0.20t per day per book is charged for all overdue books up to a maximum of K2.00 for students and K5.00 for staff and their dependents.  
(vii) Failure to pay fines will result in withdrawal of borrowing privileges for the duration of that semester or until fines are paid in full.  
(viii) The library should only be used for quiet study and research. Any user creating a disturbance will be asked to leave.  
(ix) Staff and students should not use the library while suffering from an infectious illness  
(x) Borrowers are responsible for taking good care of books while in use in the library or on loan. The borrower will pay for any book lost or damaged. Failure by students to pay for the loss or damage will result in action by the Student Disciplinary Committee, and Diploma or Degree certificates will be withheld until payment has been made. Staff members will be dealt with by their Head of Department. External users found damaging books in the library will be referred to the police and their membership will be cancelled.  
(xi) Books in the Reserve Collection, reference books, newspapers and journals are for use in the library only. Their removal
will be considered theft and treated accordingly.
(xii) Food, drink, smoking and chewing betel nut are not allowed in the library.
(xiii) Bags, baskets and bilums big enough to conceal books should be left at the entrance.
(xiv) All folders and books (private books and borrowed library books) should be surrendered to duty staff for checking as you leave the library.
(xv) Students must wash and change following field work before being allowed in the library.
(xvi) Mobile phones must be switched off and other electronic gadgets capable of producing noise should not be used in the library.

**Computer laboratory rules**
(i) Registered students will be allowed to use the Computer Laboratory during the academic year only.
(ii) Student use takes priority over staff use.
(iii) The computer laboratory must be booked prior to use by classes.
(iv) External customers may pay to book the laboratory during study break. Bookings must be made a month in advance.
(v) Other than authorised bookings, only staff and registered students of the University are allowed in the computer laboratories.
(vi) Animals must not be brought into the laboratory.
(viii) Food, drink, smoking and chewing betel nut are not allowed in the laboratory.
(ix) Headphones or computer speakers must not be connected to the computers in the laboratory, and users must not make distracting noises.
(x) Mobile phones must be switched off while working in the computer laboratory.
(xi) Computer games must not be played in the laboratory.
(xii) Removal of any items from the computer laboratory will be treated as theft and dealt with accordingly.
(xiii) Students must not transfer peripheral items from one machine to another.
(xiv) Students found vandalizing any item in the computer laboratory will be referred for disciplinary action.
(xv) Any technical fault with computers in the laboratory is to be referred to the laboratory technician and only the I. T. staff are authorised to install any software.
(xvi) Any printing must be carried out by the help desk assistant.

**Pregnancy**
The compulsory medical check during registration week includes a pregnancy test for all female students. Courses at PNG UNRE incorporate physically demanding fieldwork, which are not appropriate during pregnancy and could result in harm to an expectant mother or the unborn child. In order to avoid any potential harm pregnant students are required to obtain a special letter from the clinic stating their situation and the possibility to refrain from certain physical activities demanded by a programme. The University accommodation is not appropriate for babies or children and expectant mothers must make alternative accommodation arrangements to live off campus upon delivery of a baby. Babies are not permitted in the dormitories and students can return to class after alternative arrangements for the care of their child has been made.

Should a student wish to withdraw from studies, proper formal arrangements can be made with university procedures to enable the student to apply for readmission.

**Rules of residence.**
(i) All rules of the University apply to the halls of residence.
(ii) Damage to University property in a Student Hall of residence must be reported to the Warden of that Hall. A student is responsible for paying for any damage or loss of any University property.

(iii) Quietness must be observed in Halls of Residence at all times after 7:00 pm.

(iv) No one of the opposite gender is allowed in Halls of Residence.

(v) Any student who wishes to spend a night away from their Hall of Residence must notify one of the Wardens.

(vi) Dependants of students are not permitted to live in the Halls of Residence.

(vii) Students are not allowed to move room without authorization from the Warden of Students and Dorm Warden.

(viii) Students are responsible for the maintenance of their room, and must pay a bond of K115.00 at the beginning of year one that is refundable when the student graduates.

(ix) Students vacating their rooms during a semester or for any vacation are required to inform the Warden at least 24 hours before their departure and provide their expected date of return.

(x) No pets and animals are allowed in the Halls of Residence.

(xi) Students are responsible for making the necessary clearances to the Warden before leaving. Students will be charged for replacement of non-returned items.

(xii) Unless authorized, no student shall take to his or her room any item of University property, including dining hall utensils, laboratory equipment, etc.

(xiii) No student is permitted to cook in Halls of Residence except in the Common Rooms. This prohibition does not extend to the use of electric jugs.

Disciplinary procedures.

(i) Offences should be reported to either the Shift Security Supervisor on duty, or Student Support Services. These sections will submit a detailed report to the Registrar who will then assign one of the following two authorities to deal with the case:

- University Student Disciplinary Committee,
- Local Level Government personnel with University staff (security and administration) involvement.

(ii) All cases must be dealt with within two weeks. If a student fails to attend a hearing without providing a satisfactory reason, an appropriately considered penalty will be imposed regardless.

(iii) The Vice Chancellor has authority to intervene at any time in any student’s case.

(iv) Sponsors will be notified of any breach of the Student Rules by a student.

(v) Any person may refer any alleged offence to the Police and nothing in these Rules shall prevent him/her from doing so as a private citizen.

(vi) Any criminal cases will be referred to the police, and the Vice Chancellor or his nominee will consider immediate removal from the University campus.

(vii) Results of disciplinary cases will be published, without names, in the University News bulletin and on Notice Boards.

(viii) In cases of civil disturbance, group fighting, and incidents involving breaches of the peace, the Police will only be called onto campus at the discretion and on the invitation of the Vice Chancellor or under delegated responsibility to the Registrar or their Nominee.

Penalties

The Student Disciplinary Committee will decide a penalty based on the guidelines below. Payments of financial penalties should be made to the Accounts Section.

(i) For minor offences the student may be counselled in the first instance and asked to sign a Good Behaviour Bond.

(ii) A student may be charged a fine of K100 per offence. If multiple offences have been
committed, then multiple K100 fines will be charged. In addition, where damage is inflicted on property a student will be expected to cover the associated cost. 
(iii) Fines not paid within one calendar months will be increased by K50 every month the fine is not paid. 
(iv) A student may be suspended from studies for a semester or excluded from the University at the discretion of the Vice Chancellor. 
(v) Offences involving weapons or alcohol will result in immediate suspension for one semester.
(vi) No student will be permitted to re-enrol or graduate until outstanding financial penalties imposed under these Rules have been paid in full.

**TEACHING AND LEARNING RESOURCES AT PNG UNRE**

**Rooms**

<table>
<thead>
<tr>
<th>ROOM NUMBER</th>
<th>TYPE</th>
<th>CAPACITY</th>
<th>Use</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>Lecture hall</td>
<td>100</td>
<td>Lectures/tutorial</td>
<td>With projector</td>
</tr>
<tr>
<td>L2</td>
<td>Lecture hall</td>
<td>100</td>
<td>Lecture/tutorial</td>
<td>With projector</td>
</tr>
<tr>
<td>KRKC</td>
<td>Lecture hall</td>
<td>200</td>
<td>Lecture</td>
<td>Without projector</td>
</tr>
<tr>
<td>Planning Conference</td>
<td>Seminar Room</td>
<td>40</td>
<td>tutorial</td>
<td>W/out projector</td>
</tr>
<tr>
<td>C1</td>
<td>Classroom</td>
<td>60</td>
<td>Lecture/tutorial</td>
<td>Dip 3 - AGR</td>
</tr>
<tr>
<td>C4</td>
<td>Classroom</td>
<td>40</td>
<td>Tutorial/Comp Lab</td>
<td>FMR/Tourism</td>
</tr>
<tr>
<td>C5</td>
<td>Classroom</td>
<td>60</td>
<td>Tutorial</td>
<td>FMR</td>
</tr>
<tr>
<td>Lab 1</td>
<td>BioChem Lab</td>
<td>60</td>
<td>Lab/tutorial</td>
<td>AGR/FMR</td>
</tr>
<tr>
<td>Lab 2</td>
<td>Soils/Fish</td>
<td>60</td>
<td>Lab/Tutorial</td>
<td>FMR</td>
</tr>
<tr>
<td>Lab 3</td>
<td>Physics Lab</td>
<td>60</td>
<td>Lab/tutorial</td>
<td>AGR/FMR</td>
</tr>
<tr>
<td>Security Conference</td>
<td>Classroom</td>
<td>50</td>
<td>Tutorial</td>
<td>Tourism/FMR</td>
</tr>
<tr>
<td>PG Training Room 1</td>
<td>Seminar Room</td>
<td>30</td>
<td>Tutorial</td>
<td>Tourism/FMR</td>
</tr>
<tr>
<td>PG Training Room 2</td>
<td>Seminar Room</td>
<td>30</td>
<td>Tutorial</td>
<td>Tourism/FMR</td>
</tr>
<tr>
<td>Office 1</td>
<td>Office</td>
<td>5</td>
<td>Offices</td>
<td>FMR</td>
</tr>
<tr>
<td>Office 2</td>
<td>Office</td>
<td>4</td>
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<td>AGR</td>
</tr>
<tr>
<td>Office 3</td>
<td>Office</td>
<td>3</td>
<td>Office</td>
<td>FOR</td>
</tr>
<tr>
<td>Office 1-8</td>
<td>Offices</td>
<td>8</td>
<td>Lect Staff Offices</td>
<td>AGR/FMR</td>
</tr>
<tr>
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<td>Offices</td>
<td>8</td>
<td>Lect staff</td>
<td>AGR/FMR</td>
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<td>Staff conference</td>
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<tr>
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## Teaching Staff

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<tr>
<td>FMR</td>
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<td>Tutors</td>
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<td>Bachelor degree</td>
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<td>PG Dip/Degree</td>
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