PAN AFRICAN UNIVERSITY OF LIFE AND EARTH SCIENCES (INCLUDING HEALTH AND AGRICULTURE), UNIVERSITY OF IBADAN, IBADAN, NIGERIA

The Pan African University is a flagship Institution of the African Union Commission. Addis Ababa, Ethiopia and is the culmination of the decision of the Assembly of Heads of State and Governments of the African Union to create the Pan African University (EX.CL/579(XVII), and has five Institutes namely Life and Earth Sciences (including Health and Agriculture) at the University of Ibadan, Nigeria; Governance, Humanities, and Social Sciences at University of Yaoundé II, Cameroon; Science, Technology and Innovation at Jomo Kenyatta University of Agriculture and Technology, Kenya; Water and Energy (including Climatic change) at University Tlemcen, Algeria and the Institute of Space Sciences, South Africa.

The Institute of Life and Earth Sciences (PAULESI), is located in the ancient city of Ibadan, Nigeria and is currently handing four thematic areas. These programmes include Reproductive Health Sciences having two options-Masters of Health Science in Reproductive Health Master of Health Science in Reproductive Biology; Masters in Plant Breeding; Masters in Environmental Management; Master in Geosciences with two options- Master in Petroleum Geosciences and Master in Mineral Exploration Geosciences.

The PAU nurtures quality and exemplifies excellence and admits students from all over the African continent including the Diaspora. Consequently, PAULESI is seeking renowned experts in the various programmes currently handled in the institute, all over Africa and the Diaspora to internationalize and beef up the quality of its Faculty. These positions are for short-term for periods of one week to three months.

Call for Short-term/Part-time Academic Staff Positions

1. Short-term/Part-time Positions

MASTER OF HEALTH SCIENCES IN REPRODUCTIVE HEALTH

- Position In Epidemiology And Biostatistics
- Position In Gender Issues In Reproductive Health
- Position In Monitoring And Evaluation Of Reproductive Health Programmes
- Position In Fundamentals Of Reproductive Health
- Position In Monitoring And Evaluation Of Reproductive Health Programmes
- Position In Fundamentals Of Reproductive Health
- Position In Contemporary Issues In Reproductive Health
- Position In Demographic Methods
- Position In Research Methodology
- Position In Behavioural Issues And Interventions In Reproductive Health
- Position In Strategic Leadership And Management
- Position In Public Health Communication
- Position In Ethics, Law & Reproductive Health
- Position In Reproductive Health Surveillance
- Position In Public Health Informatics
- Position In Health Policy Development And Advocacy
- Position In Maternal And Newborn Health
- Position In Community Organisation And Community Development
- Position In Adolescent Reproductive Health
- Position In Public Health Principles And Practices
- Position In Fertility Management
- Position In Socio-Cultural And Economic Aspects Of Reproductive Health
- Position In Public Health Aspects Of Reproductive Tract Infections
- Position In Public Health Genomics

MASTER OF SCIENCE (MSc.) IN REPRODUCTIVE BIOLOGY

- Position Human Genetics
- Position in Embryology and Anatomy of Reproductive Tract
- Position in Contemporary issues in Reproductive Biology
- Position in Reproductive Endocrinology
- Position in Principles of Immunology
- Position in Principles of Toxicology
- Position in Molecular Biology
- Position in Fetal Medicine
- Position in Assisted Reproduction
- Position in Reproductive Failure

MASTER IN PETROLEUM GEOSCIENCE

- Position In Upstream E& P Business
- Position In Reservoir Modelling And Reserves Calculation
- Position In Geology And Field Development Planning

MASTER OF GEOSCIENCE MINERAL EXPLORATION.

- Position In Prospecting Techniques
- Position In Data Analysis And Integration
- Position In Exploration Project Management
- Position In Concepts And Principles
- Position In Prospecting Techniques
- Position In Data Analysis And Integration
- Position In Exploration Project Management

MASTERS IN PLANT BREEDING

- Position in Descriptive statistics.
- Position in Research Implementation Skills
- Position in Principles of Cultivar Development (3 CU)

- : Position in Physiological Genetics
- Position in Practical Plant Breeding Methods (2 CU)
- Position in Utilization and Conservation of Plant Genetic Resources (2 CU)

- Position in Plant Ecology and Evolution (2 CU)
- Position in Principles of Population and Evolutionary Biology (3CU)
- Position in Quantitative and Biometrical Genetics (3 CU)
- Position in Environnent Impact Assissent (2 CU)
- Position in Plant Cell and Tissue Culture (2 CU)
- Position in Biopolicy, Biosafety and Bioethics (2 CU)

- Position in Agronomy and Crop Physiology (3 CU)
- Position in Climate Change and its Impacts(2CU)
- Position in Disease Management and Epidemiology (3CU)
- Position in Crop Pest Ecology and Management (3CU)
- Position in Programme planning and management (2CU)

MASTER OF ENVIRONMENTAL MANAGEMENT

- Position in Introduction to Environmental Management
- Position in Contemporary Environmental Challenges in Africa
- Position in Environmental Assessment and Analysis
- Position in Remote Sensing in Environmental Planning and Management
- Position in Geographic Information Systems (GIS) Application in Environmental Planning and Management
- Position in Techniques of Investigation in Environmental Management
- Position in Planning for Disaster Preparedness and Management
- Position in Environmental Planning Law
- Position in Air Pollution, Prevention and Control
- Position in Waste Management
- Position in Surface and Ground Water Management
- Position in Surface and Ground Water Management
- Position in Climate Change Impacts, Adaptation and Mitigation
- Position in Marine and Coastal Zone Management
- Position in Introduction to IWRM
- Position in Urban Planning and Environmental Management
- Position in Social and Ethical Dimensions of Environmental Management
- Position in Planning for Conflict Resolution and Management
- Position in Energy Resources Planning and Management
- Position in Energy Resources Planning and Management

2. Qualifications and Experiences
3. Remunerations and Benefits
4. Application Procedure
5. Further Information

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1. Short-term/Part-time Positions

MASTER OF HEALTH SCIENCES (MHS) IN REPRODUCTIVE HEALTH

- Position In Epidemiology And Biostatistics

History of Epidemiology. Definition, basic principles, uses and application of epidemiology. Introduction to epidemiological studies. Measures of association. Inferential epidemiology and statistics. The concept of multiple determinants of diseases. Notification and Surveillance. Concepts of association and causation. Epidemics and Epidemics curve. Evaluation of diagnostic and screening tests – specificity, sensitivity, validity and predictive values. The application of epidemiology to health care delivery and systems development.
Descriptive statistics. Use of summary indices. Probability theory. Probability distribution. Binomial terms. Sampling distribution. Statistical hypothesis. Choice of test statistics. Analysis of variance. Correlation analysis.

- Position In Gender Issues In Reproductive Health

The concept of gender versus sex, gender analysis frameworks. Gender-related concerns in reproductive including gender-based violence, male preference, widowhood rites, male sexual and reproductive health issues. The role of gender-disaggregated data in evidence-based programming. Empowerment of females and interventions to address gender-related reproductive problems. Engendering reproductive health service delivery.

- Position In Monitoring And Evaluation Of Reproductive Health Programmes

Introduces students to the concepts, study, design and method for monitoring and evaluation of reproductive health programmes. Equips students with tools to undertake real life monitoring and evaluation of programmes. Establishes a framework, rationale and basic concept essential to conducting needs assessment to guide programme implementation and process and outcome evaluation. Develops skills in identification of data sources, collection of primary data using qualitative, quantitative and mixed methods.

- Position In Fundamentals Of Reproductive Health

The course introduces students to the technical and public health aspect of each of the key elements of reproductive health, including safe motherhood; family planning and contraceptive services; unsafe abortion; adolescent sexual and reproductive health; reproductive tract infections; gender-based violence, female genital cutting and other reproductive rights issues. Managerial and policy issues relating to reproductive health field will also be critically analysed and discussed.

- Position In Contemporary Issues In Reproductive Health

This course will address contemporary issues in reproductive health and will also provide opportunities to consider evolving themes relevant to advancing reproductive health in Africa. The course may take various forms, including topic presentation by faculty members, students' presentation, guest lecture, field trips, case studies and other participatory approaches that will foster student learning.

- Position In Demographic Methods

Sources of demographic data. Rates and Standardization. Measurement of Mortality, Fertility, Migration, Reproduction, Family Planning and Nuptiality. Life table theory and techniques for their construction. Multiple Decrement Tables. Competing Risks. Following Follow-up Survivorship Tables Applications. Stationary and stable Populations Model Life Tables. Parity Progression Ratios. Birth Interval analysis. Population estimates and Projection Methods.

- Position In Research Methodology

Types of research investigation. General and specific purposes of research. The research process. Data processing. Interpretation of results. Report writing. Ethical issues in research.

- Position In Behavioural Issues And Interventions In Reproductive Health

The course will consider the foundations of human behaviour, cultural and social influences on human behaviour, social-psychological determinants of human behaviour, and relevant behaviour change theories and intervention frameworks. It will also discuss approaches in behaviour change communication and related interventions.

- Position In Strategic Leadership And Management

Core leadership disciplines of personal mastery, mental models, shared vision, systems thinking and team learning. Promoting institutional (community) change through analysis of critical constraints, establishing strategic objectives and key moves and developing a learning organisation for program implementation and management in RH. Managing the health team. Promoting household production and health.

- Position In Public Health Communication

Use of communication methods to positively influence health-related behaviour of individuals, populations and organisations for the purpose of promoting reproductive health. Specific approaches in health communication, including social marketing, risk communication, enter-educative approaches, decision theories, and media advocacy. Use of appropriate materials for low literate populations and public speaking.

- Position In Ethics, Law & Reproductive Health

Health Policies. Health Care Laws. Legal Considerations in cases of Rape, Incest, Abortion, Adoption, Spousal abuse etc. Reproductive Health and the Constitution. Ethical principles and application, ethical dilemmas in Reproductive Health

- Position In Reproductive Health Surveillance

Concept of surveillance and fundamentals of effective surveillance system. Basic challenges in organising effective reproductive health surveillance in sub-Saharan Africa. The application of surveillance principles to priority reproductive health issues, including maternal health, adolescent reproductive health and reproductive tract infections.

- Position In Public Health Informatics

The focus of the course is the systematic application of information and computer science and technology to public health practice, research, and learning. It will deal with the issues of collection, storage, analysis of public health data and the application of data for surveillance and health interventions.

- Position In Health Policy Development And Advocacy

Definitions of health policy, types of policies, and frameworks for policy development. Building coalitions and networks for advocacy.

- Position In Maternal And Newborn Health

Maternal and perinatal morbidity and mortality. Health care practices utilised to prevent, diagnose and treat the morbidities/mortalities. Review of fundamental components of strategies to reduce maternal/perinatal morbidity/mortality including behaviour change intervention. Development of community level intervention including use of community health extension workers (CHEWs), traditional birth attendants (TBAs) etc. Policy and programmatic interventions.

- Position In Community Organisation And Community Development

Discussion of key concepts, including community, community organisations, community development, community engagement and involvement Community entry approaches, and community engagement. Use of stakeholder analysis in community development efforts, frameworks and principles for community engagements, bottom-up approaches in community reproductive health programming.

- Position In Adolescent Reproductive Health

Growing-up Girl. Rights of a girl-child. Changing pattern of a girl's reproductive system. Skills acquisition; In-school & out-of-school outreach programmes. Balanced gender relationship. Values and decision-making. Communication skills. Leadership skills. Economic empowerment. Child labour; abuse; trafficking; prostitution. Youth friendly services. Teenage pregnancy. Stakeholders' responsibilities in adolescent reproductive health. Financing ARH.

- Position In Public Health Principles And Practices

Global review and historical trends in Public Health. History, organisation and functions of international health organisations. International health regulations. Port health services. Foundation of health education. Application of health education theories and concepts. Development of social welfare services in Africa. Social security and the provision of social services for the aged. The nature of behavioural science – concept of culture, society and self – including process of socialisation, personality, symbolic interactionism, primary group formation and the structure of action. Community structure, culture and health. Social class and health disorders. Social disorganisation and health. Family health.

- Position In Fertility Management

Population Dynamics and National development in African countries. History of Contraception. Traditional Methods of Birth control. Periodic Abstinence as a method of Birth Control. Spermicides. Barrier Methods of Contraception. Oral Hormonal contraceptives. Injectable Hormonal Contraceptives. Hormone Implants.

- Position In Socio-Cultural And Economic Aspects Of Reproductive Health

Analyse the correlates of fertility and other reproductive health behaviour in societies and child bearing in individuals and couples including differences in timing of first birth, and family size, ethnic groups, zones etc. Theories of fertility changes at societal levels. Macro and micro economic models within and between households, implications of these models on policies, programs relating to population and its dynamics. Mortality, health, fertility and how they influence the understanding of demographic transition economic growth and resource allocation. It also includes an economic appraisal of reproductive health programmes.

- Position In Public Health Aspects Of Reproductive Tract Infections

Overview of RTIs, including their epidemiology and public health burdens. Classification and detection of infectious agents related to the reproductive tract infections. Treatment modalities of RTIs, including syndromic and laboratory-based management. Prevention and public health control ofRTIs.

- Position In Public Health Genomics

History of public health genetics, gene and inheritance, gene-environment interactions, metabolic disorder and screening in public health, impact of genetics on primary, secondary, and tertiary prevention, phenotypic versus genotypic prevention.

- Position In Statistical Methods In Epidemiology

Epidemiological methods in the investigation of aetiology of diseases. Design in the control of case control studies. Prevalence and longitudinal studies including controlled trials. The collection and

analysis of vital statistical and of morbidity data. Measuring mortality, morbidity, disability and quality of life. Quantitative measures to determine risks. Epidemiologic and statistical association. Standardization of rates and life tables. Use of registers. Record linkages and general practice records. Examples of the use of epidemiological methods in the study of particular diseases. Validity of diagnostic tests.

MASTER OF SCIENCE (MSc.) IN REPRODUCTIVE BIOLOGY

- Position In Human Genetics

The structure and behaviours of DNA. DNA: replications, mutations, gene expression. Regulation of gene transcription.DNA processing. Translation. Chromosomal autosomal anomalies. Abnormalities of sex chromosomes. Gene abnormalities producing diseases. Disorders with polygenic inheritance. Population genetics. Sickle cell and other haemoglobinopathies. Prenatal diagnosis.

- Position In Embryology And Anatomy Of Reproductive Tract

Overview of embryonic development. Development of the urinary system. Sexual differentiation. Development of the gonads (Male and Female).The genital duct systems. Differentiation of the urogenital sinus, bladder, urethra etc. The differentiation of the external genitalia. Anatomy of the abdominal wall. The inguinal region. The male and female genitalia. The breast.

- Position In Contemporary Issues In Reproductive Biology

This course will address contemporary and emerging issues in the field of reproductive biology with relevance to Africa. The course may take various forms, including topic presentation by faculty members, students' presentation, guest lecture, field trips, case studies and other participatory approaches that will foster student learning.

- Position In Reproductive Endocrinology

Biochemistry of steroid hormones. Gonadotrophic hormones. Biochemistry of pregnancy and the puerperium. Contraception. Control of gonadal development in males and females. Biochemistry of the semen. Laboratory investigations of male and female infertility.

- Position In Research Methodology

Types of research investigation. General and specific purposes of research. The research process. Data processing. Interpretation of results. Report writing. Ethics in medical research

- Position In Principles Of Immunology

Immunology concepts. Antigens.The lymphoid system. Immune system. Immunoglobulins. Diagnostic serological tests. Fractionation procedures. Immuno electrophoresis. Viral immunology. Immunosuppression. Immune complex diseases. Complement system. The major histocompatibility system.

- Position In Principles Of Toxicology

This course introduces students to the properties of toxic substances, the toxic mechanisms of drugs and chemicals, common and uncommon side effects of drugs and medicines, the fate and reactions of foreign chemicals in human bodies, clinical toxicology, the identification and evaluation of toxicity, and health risk assessment methodologies

- Position In Introduction To Molecular Biology

Basic Concepts in molecular epidemiology, Hereditary Material.DNA Replication,

Transcription and Translation, Gene Expression, Mutations and Polymorphisms, Somatic versus Germline Mutations, Types of Mutations, Causes of Mutations, Mendelian and Non-Mendelian Inheritance Patterns Population Genetics.

- Position In Fetal Medicine

Principles of monitoring maternal well being. Drugs and pregnancy. Biophysical methods of fetal assessment. Biochemical methods of fetal wellbeing and fetal scalp blood sampling. Physiology of lactation. Neonatal hyperbilirubinaemia including bilirubin assays. Maternal mortality. Perinatal mortality. Physiology of lactation. Breast milk and artificial infant formulae.

- Position In Assisted Reproduction

The human semen. Semen analysis. Artificial insemination. Fertilization by micro-insemination. Super ovulation and its monitoring. Methods of polypeptide hormone assays. Methods of steroid hormone assays. Other laboratory assays in Obstetrics and Gynaecology. In vitro fertilization and embryo transfer. Gamete donation. Other assisted reproductive technologies.

- Position In Reproductive Failure

Overview of infertility. Evaluation of infertile couples. Ethical issues in embryo manipulation. Human cloning and ethics. Abortion. Abortion laws. Post abortion care. Adoption. Fostering.

MASTER IN PETROLEUM GEOSCIENCE

- Position In Upstream E& P Business

The course will give you an overview of basin delineation, stratigraphic framework and geophysical techniques for petroleum exploration and production. The course provides both a theoretical understanding of hydrocarbon occurrence and practical experience in hydrocarbon prospecting. The course will be a combination of theory and practical exercises. promote deeper understanding of hydrocarbon occurrence
develop skills in hydrocarbon prospecting
enhance analytical skills in surface and sub-surface logging

- Position In Reservoir Modelling And Reserves Calculation

The course will give you an overview of reservoir modelling and computer aided petroleum production practices. The course provides both a theoretical understanding of reservoir delineation and practical experience in the application of computer aided modelling to petroleum production practices. The course will be a combination of theory and practical exercises. promote deeper understanding of reservoir delineation
develop skills in computer aided modelling
apply computer aided modelling practices to petroleum production
Delineating The Reservoir & Making The Reservoir Model
Building A (Computer Assisted) Static Reservoir Model.
Production Geology Practices

- Position In Geology And Field Development Planning

The course will give you an overview of petroleum production techniques, petroleum economics, as well as risk assessment and management. The course provides both a theoretical understanding of petroleum economics, as well as risk assessment management and practical experience in petroleum production techniques. Introduction To Reservoir Engineering Principles, Introduction To Surface And Subsurface Production Techniques, Development Geology, An Introduction Cashflow Elements and Profitability Indicators, Sensitivity Parameters and Risk Perception, Investment Decisions
Unconventional Resources

MASTER OF MINERAL EXPLORATION GEOSCIENCE

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- Position In Prospecting Techniques

The course will give you an overview of prospecting techniques in mineral exploration. The course provides both a theoretical understanding of prospecting and practical experience in geophysics, geochemistry, remote sensing and photogeology. The course will be a combination of theory and practical exercises.

- Position In Data Analysis And Integration

The course will give you an overview of ore evaluation as well as data integration and management. The course provides practical experiences in data acquisition, management, analysis , interpretation and reserve calculation. The course will be predominantly practical exercises.

- Position In Exploration Project Management

The course will give you an overview of project formulation and management in exploratory techniques. The course provides both a theoretical understanding of and practical experience in mineral economics, resource exploitation and feasibility studies as well as environmental assessment and contract negotiation. The course will be a combination of theory and practical exercises.

- Position In Concepts And Principles

Ore deposit Modelling, Regional Metallogeny, Fluid-phase Petrology, Applied Geochronology
Applied Structural Geology

- Position In Prospecting Techniques

Exploration Geophysics, Exploration Geochemistry, Remote Sensing and Photogeology

- Position In Data Analysis And Integration

Ore Evaluation and Reserve Calculation, Geostatistics, Data Management, Databases and GIS
Integrated Methods in Exploration and Discovery

- Position In Exploration Project Management

Mineral Economics, Resource Exploitation and Feasibilities Studies, Environmental Impact Assessment/ Evaluation, Regulatory and Legislative Framework Analysis, Contract Negotiation

MASTER OF ENVIRONMENTAL MANAGEMENT

- Position in Introduction to Environmental Management

Man-environment interactions, components of the environment and associated problems with the use of resources. The rural and urban environments; sustainability issues in environmental management. Social and economic dimensions in environmental management. Preventive and contingency planning.

- Position in Contemporary Environmental Challenges in Africa

Human-environment interactions. Sustainability and environmental challenges. Hydro-meteorological and geological hazards. Definitions, causes, characteristics, occurrence, processes, spatial variations. Environmental and human consequences, economic implications, management options, mapping, monitoring and policy options of hazards such as droughts, floods, tropical cyclones, coastal erosions, soil erosion, landslides, earthquakes, volcanic eruptions, etc. Deforestation, desertification and forest fires. Environment, poverty and development; Property rights and access to resources; Vulnerability and

adaptation to natural hazards and climate change; Trans-boundary issues and environmental politics. Oil spills.

- Position in Environmental Assessment and Analysis

Techniques and methods of environmental management and their application to resolving problems of sustainable development. Environmental Technology Assessment; Environmental Risk Assessment, Environmental Impact Assessment, Environmental Auditing, Corporate Reporting. Risk assessment and ethics. Overview of the strengths and limitations of the techniques and methods. Social Impact Assessment. Urban Environmental Assessment: The Urban Management Programme approach. Environmental Profile: Integrated environmental management institutions, Environmental Management Systems, Environmental Management Plan; Managing environmental impact assessments, National Environmental Contingency Plan. Economic analysis in decision-making: environment, energy, and economy. Investigation of how these tools fit within legislative and institutional frameworks. Trends in the use of particular tools at project, local, regional, national and international scales.
Selected case studies - Projects that combine environmental protection and development functions.

- Position in Remote Sensing in Environmental Planning and Management

Introduction to remote sensing, nature and definition of remote sensing. Remote Sensing (Non-Photographic Imaging Systems) - principles and scope. The remote sensing process- remote sensing of the environment, in situ data collection, remote sensing data collection. Characteristics of major imaging sensor systems – the remote sensing systems. Elements of Image Interpretation. Interaction characteristics of electromagnetic radiation with: vegetation, soils, water and human settlements. Application of remote sensing data for environmental resources mapping and degradation assessment. Field visit for ground truth survey. Aerial photography and platforms; geometric properties of aerial photographs; Photo-interpretation; application of photo-interpretation for drainage pattern, relief, land use and vegetation mapping. Using Google Earth image for data collection.

- Position in Geographic Information Systems (GIS) Application in Environmental Planning and Management

GIS- definition and concepts, elements and stages of a GIS; system components and hardware/software requirements. GIS data collection and requirements, vector and raster (remote sensing) data requirements; modes of data input and conversion from other digital data sources. The map as a model of geographic data: scale, geodetic datum, coordinate and projection systems; thematic maps (topographic, soil, drainage, sea vegetation etc). Using Global Positioning System (GPS) device for environmental data collection. Spatial analysis: Terminologies used in GIS spatial data analysis (spatial awareness; spatial elements; spatial reference systems; spatial patterns; spatial analysis), Spatial data structure for GIS, formalism of spatial concepts, topology and spatial relationships, Database Management Systems (DBMS), criteria for assessing a GIS. Practicals based on relevant software applications

- Position in Techniques of Investigation in Environmental Management

Data collection procedures, Focus Group Discussions, Internet, Surveys-observation, participant and non-participant, questionnaire administration, interviewing methods. Data management and analysis. Qualitative data- thematic, content and triangulation; Quantitative data- descriptive and inferential statistics; Data interpretation.

- Position in Planning for Disaster Preparedness and Management

Disaster Risk Management (DRM) - Introduction and definitions. Disaster Risk Management Framework,

Disasters and vulnerability analysis. Environmental profiling for risk assessment. PRA Tools and field mapping. Hazard monitoring and evaluation. Mainstreaming Disaster Risk Management into development: (institutional and legal arrangements for disaster risk management). Disaster Risk Reduction and building resilient communities. Establishment of Early Warning System for DRM. Indigenous Knowledge Systems for EWS. Planning for Disaster Risk Management. Community Centred Human Resource Management. Vulnerable groups focused DRR (gender, child, disabled, etc).

- Position in Environmental Planning Law

Definitions of terminologies. Concept, evolution, purpose and structure of Environmental Law. International Agreements, Conventions and Treaties in Environmental Law. Environmental Law and International action on Management of Environmental Resources. Towards strengthening of International Agreements and covenants on transboundary Resource Management. Environmental Policy and Framework Law. Sectoral and functional environmental laws. The institutionalization of Environmental Policy, planning and management. Legislation on environmental policy, planning and development. Environmental Management Regimes. Environmental Law, Policy and Management: Retrospect and Prospect.
Case studies of contemporary and emerging environmental legal issues

- Position in Air Pollution, Prevention and Control

Types and measurement of air pollution; principles and control of air pollution, including: air pollution chemistry; Atmospheric diffusion modelling, climatology, biological, chemical and physical control treatment processes, air pollution effluent measurement and control, atmospheric dispersion.

- Position in Waste Management

Sources, characteristics and classification of municipal, industrial, agricultural and hazardous waste. Hazards of different types of waste, waste audit process, waste minimization and elimination techniques, and processes for pollution prevention, treatment, and recovery. Pollution impact on land due to non – biodegradable waste matters (glass, polythene bags, P.V.C. & other plastic materials, etc. Biological processes for environmental control; biological basis of wastewater treatment; river systems and wastewater treatment works analogy. Clinical waste management. Waste economic evaluation method, existing practices and their hazards Case studies.

- Position in Surface and Ground Water Management

Water pollution, sources of water pollution, effects and prevention of water pollution. In-situ and laboratory analysis of water; Land pollution, sources of land pollution, effects and prevention of land pollution

- Position in Climate Change Impacts, Adaptation and Mitigation

Climate change- science and policy. Current and possible future global climatic changes. Bio-physical and social impacts of climate change. Climate change and disease epidemiology. Social and biophysical vulnerabilities to climate change. Mitigation and adaptation to climate change. Policies and measures for minimizing the impacts of climate change. Climate change and global/national economies. Mitigation-technological options, policies, and socio-economic impacts of mitigation measures. Climate change and national response. Carbon financing (REDD, CDM, PES).

- Position in Marine and Coastal Zone Management

Coastal environments, processes and management strategies. Climate change and sea-level rise, Coastal biota as environmental proxies. The African coastline. Defining the coastal zone. Importance of the coastal zone and the need for management. Environmental consideration and coastal dynamics. Preparation of action plans and implementations. Coastal Zone Management Framework and coastal management planning process. Expectations of Integrated Coastal Zone Management (ICZM). Local and international constraints/challenges of ICZM, policy, legislation and institutional framework.
Integrated Water Resources Management

- Position in Introduction to IWRM.

Concepts in IWRM: evolution of water management, rationale of IWRM. Key issues in water management, Fundamental elements of IWRM, Water use impacts and benefits. The IWRM principles: Water management based on hydrological principles, water record keeping and integrated resources management, Cross-sectoral integration, Public participation in water management, Water saving and efficiency. Implementing IWRM: Foundation for the implementation of IWRM, institutional framework, policy and legal framework. IWRM tool box: Planning process for water resource management, Rationale for IWRM planning, Objectives of IWRM planning, The governance of water. Water governance principles and legal bases. Field examples and lessons learnt.

- Position in Urban Planning and Environmental Management

Historical evolution of urban and regional planning thoughts. Urban and regional planning. Concepts, principles and techniques. The structure and function of planning agencies. Urban planning legislations: Formulation, enforcement, challenges. Integration of environmental management in planning education and practice. Urban planning tools and their application to environmental planning and management. The role of urban planning in disaster risk reduction and climate change adaptation. Development control strategies in disaster prone areas, improving planning of cities to meet environmental challenges. Case studies of planning strategies and action toward effective environmental management.

- Position in Social and Ethical Dimensions of Environmental Management

Social and ethical issues in environmental management. Disaster myths. Roles of stakeholders, information, movies and print media. Perception and preparedness. Emergency managers. Non-Governmental Organizations. Role of policy. Relief Organizations.

- Position in Planning for Conflict Resolution and Management

Meaning, types and causes of conflicts. Conflicts over resources. Conflict management and prevention: A typology of conflict prevention measures/conflict management methods. Constructive versus destructive conflict management. People-centred conflict management. The role of environmental information system and communication skills in conflict resolution and management. Managing conflict in integrated environmental management. Types of negotiations: interpersonal skills, techniques and guidelines for negotiations. Case studies.

- Position in Energy Resources Planning and Management

Energy resources inventory; consumption and conservation of energy types; economics of energy use

MASTERS IN PLANT BREEDING

- Position in Descriptive statistics.

Introduction to hypothesis testing. Design of experiments (On-station and On-farm). Design of surveys (Field social/economic and agricultural surveys, identification of target populations, data attributes and population parameters. Field sampling techniques, design of survey instruments and data collection procedures). Data management. Introduction to statistical modelling – (ANOVA, Regression, Mixed models) Introduction to multivariate analysis. Presentation and interpretation of research results.

- Position in Research Implementation Skills

Preparation, presentation, discussion and evaluation techniques and skills in seminars, meetings, workshops and conferences. Presentation preparation- content, setting, literature search, preparation of presentation aids, presentation skills, evaluation, etc. Writing research grant proposals Scientific

writing (publication and technical report), Technical reviewing of reports and papers. Scientific/Literature critiquing. Communication and dissemination of research results to different stakeholders. Marketing one self and institution/enterprise

- Position in Principles of Cultivar Development (3 CU)

: Review of genetic principles, Plant Genetic resources, Population development, Line development and recurrent selection, Maximizing genetic gain, multiple and correlated traits, Stability analysis, principal component analysis and factor and genetic homogeneity analysis, Plant breeding methods-backcrossing, cultivar development methods for dicot and monocot crop plants, Mutation breeding and hybridisation. Introduction to genetic engineering. Exploiting cytological and genetic methods in crop improvement (induction and utilization of male sterility, polyploidy, double haploids breeding, apomixes). New frontiers in cultivar development e.g. MAS and reverse genetic approaches. Variety release and variety integrity maintenance.

- Position in Physiological Genetics

Basic Plant Breeding Relationship between Genetic and Plant Physiology Biochemical and Molecular Influences on the variation in the plant physiological processes The role of environmental factors and their mediation through biochemical and molecular processes in phenotypic expression. Application of these aspects to plant breeding

- Position in Practical Plant Breeding Methods (2 CU)

Practical aspects of crop improvement from a commercial and applied perspective. Laboratory and field techniques used in breeding of field crops (self pollinated versus open pollinated crops, population improvement methods, and maintaining economic crops). Managing commercially oriented plant breeding in a wide range of crop plants Managing a Seed enterprise.

- Position in Utilization and Conservation of Plant Genetic Resources (2 CU)

Centers of origin and diversity for major crops. Use of wild germplasm in crop improvement. Methods of conservation: in-situ conservation, ex situ, cryopreservation, gene bank technology. Collection and utilization of wild germplasm; explorations; gene pools and their use in crop improvement. Domestication of wild germplasm for various purposes. Local and international conventions governing acquisition and management of wild and domesticated germplasm

- Position in Plant Ecology and Evolution (2 CU)

Ecology of plants and their communities. Effects of biotic and Climatological factors influencing global distribution of plant communities. Community structure and function. Processes of evolutionary change in plants and microbes. Comparisons of agro-systems and natural ecologies and implications for crop improvement, pests and disease management. Overview of evolutionary processes in natural and agro-ecological settings.

- Position in Principles of Population and Evolutionary Biology (3CU)

Introduction to population biology Gene structure, genetic codes and mutation Evolutionary processes in populations Neo Darwinian and Neutral theories of evolution DNA polymorphisms in populations Measures of polymorphisms (neutral and selective markers) Origin of genetic variation in populations Gene flow; mating types; selection and adaptation Population biology: analytical methods and tools Population structure: analytical considerations; Hierarchical population structure, Analysis of molecular variation, exact tests, gene diversity etc Molecular tools for analysis of variation (neural versus selective markers) Phylogenetics: Basic concepts in molecular phylogenetics Networks: Quartets of species (Split decomposition and related methods; Planning experiments to detect genetic variation in populations

- Position in Quantitative and Biometrical Genetics (3 CU)

Quantitative genetics and statistical tools Population distributions; Covariance, Regression, Correlationanalysis Causes of genetic variation: Properties of single loci; The Hardy Weinberg equilibrium; Mechanisms that generate and dissipate gametic disequilibrium Sources of genetic variation for multi-locus traits: Genetic Linkage; Recombination; Linkage Maps Components of phenotypic variation: Single locus expectation; Partitioning components of phenotypic variance Genotype x Environment interaction: Genetic correlations across environments; Two way analysis of variance; Concept of phenotypic stability Resemblance between relatives Measures of relatedness; Pedigrees; Genetic covariances between relatives The concept of heritability: Parent-offspring regression; Response to selection; Selection index Analysis of line crosses: expectations for line cross means; Heterosis; inbreeding depression; Analysis of mating designs: North Carolina (NC) Designs I, II, and III; diallel mating designs; Hayman-Jinks analysis; Effect on the mean and variance; Inbreeding depression and heterosis Marker-based analysis. Molecular markers; Genetic maps; Marker-trait association; Recombinant inbred lines. Sib Analysis; Maximum likelihood functions; Genome scanning

- Position in Molecular Plant Breeding

Principal types of molecular markers Construction of genetic linkage maps Linkage tests and estimation of recombination rates Fundamentals of genetic and physical maps Principles of Quantitative Trait Loci(QTL) mapping Genetic and Molecular basis for QTL variation Marker Assisted Reccurrent Selection

- Position in Environnent Impact Assissent (2 CU)

Selection and gene flow in natural and artificial ecologies. Models for prediction, studying adaptability and micro-evolutionary change. Variability and uncertainty of crop-to wild and wide hybridisation. Sources of gene escape. Ecological risks of genetically modified plants (virus and insect resistance). Human health and other potential hazards. Case studies of escaped genes into non targets. Survival persistence and transfer of escaped gene. Assessment of ecological risks..

- Position in Plant Cell and Tissue Culture (2 CU)

Introductory history of plant tissue culture; Laboratory organization Media, media components and media preparation; aseptic manipulation Basic aspects of cell growth: Cell culture; cellular totipotency; cell cycle and population dynamics; Growth patterns differentiation. Mutation and differentiation processes in plant cultures: Organogenesis; Somatic embryogenesis; Genetic control of culturability Applications to plant breeding: Haploid-Triploid production; In vitro fertilization; Zygotic embryo culture. Applications to plant breeding: Somatic hybridisation and cybridisation; Genetic transformation; Somaclonal and gametoclonal variant selection. Application to horticulture and forestry and industry Biosynthesis of hormones and elicitor molecules: Gibberellins; Abscisic acid; Cytokinins; Indole-3-acetic acid Molecular physiology of micronutrient acquisition; Plant responses to mineral toxicity. Plant cell cultures for plant transformation: Agrobacterium co-cultivation; Direct DNA uptake. Societal issues in plant biotechnology

- Position in Biopolicy, Biosafety and Bioethics (2 CU)

Review of national and international bio-policies and implications for cross border movement of germplasm. Development of bio-policy. Bio-safety and bio-hazards: recapitulation of general principles for the laboratory and environmental bio safety development. Sources of genetic erosion, application of population genetics to estimate the impacts of gene-flow, immigration, and emigration on genetic drain and introduction of exotic pests and diseases. Case studies on genetically modified organisms handling and monitoring. Plant breeders' rights, UPOV convention and intellectual property rights.

- Position in Agronomy and Crop Physiology (3 CU)

Farming systems in diverse agro-ecologies Crop growth factors (crop growth duration, length of grain filling, harvest index, tillering potential, lodging, resistant cultivars, etc) Crop growth and development including dry matter production and partitioning. Concepts of Leaf Area Index andLeaf Area Duration and the interception of PAR Crop ideotype and energy exchange in a typical green crop. Analysis of the yield/density response curves. Critical examination of photosynthetic pathways., assimilate production and partitioning Crops responses to stress and Stress Physiology (moisture stress and salinity). Improvement of drought adaptation and water use efficiency. Crop growth simulation models. Major cropping systems and biological basis of their productivity.

- Position in Climate Change and its Impacts(2CU)

Introduction to Climate Systems Weather Forecasting and Prediction Methods and Tools for Assessment of Climate Impacts and Predictions Projected Climate Changes and their Impacts: Response to Climate Change (International Negotiations) Response to Climate Change (Adaptation) Response to Climate Change (Mitigation)
Response to Climate Change (Tools) Development in a changing Climate
Overview of Financial Mechanisms to Address Climate Change

- Position in Disease Management and Epidemiology (3CU)

Review of major pathogenic groups Pathogenesis and the crop plant Overview of key concepts of epidemiology and crop loss assessment. Temporal and spatial assessment of epidemics and relevant models Evolution of novel plant pathotypes versus new varietal development (boom and burst cycles) – the intervention and mitigation steps. Genetic and physiological basis of plant resistance to diseases Design of disease management strategies

- Position in Crop Pest Ecology and Management (3CU)

Concepts of insect pest plant ecology Pest management decision making tools Ecological insect pest management, Biological control and natural enemy behavioural ecology,. Insect pest population dynamics Insect pest population regulation and key factor analysis Insect life tables integrated pest management

- Position in Programme planning and management (2CU)

Funds sourcing; Proposal development, scheduling of simple planning tools; Gantt Charts and road maps. Critical path analysis for simple and complex events, the planning cycle, team building, Stakeholder analysis tools and stakeholder management including communicating for advocacy. Monitoring and Evaluation frameworks; Impact assessment Elements of soft skills and personal mastery specifically: personal development and leadership skills will be covered.

2. Qualifications and Experiences

The programmes are offered at Masters and Ph. D levels. Qualified staff will be expected to participate in teaching/supervision/organizing practicals/clinics for agreed periods of stay starting from February 2017. Furthermore they will be expected to set and mark question scripts at the end of the semester.

Applicants must be full Professors or Associate Professors with minimum of 6 years teaching experience in recognised universities. Applicants should show evidence of handing similar courses in their institutions.

In peculiar cases candidates with prolonged experience in related industry may be considered for engagement

3. Remunerations and Benefits

Selected applicants will be entitled to the following:

i. A direct route economy return ticket from the applicant's base.
ii. Remuneration for participation in courses taught is based on USD80/hour.
iii. Daily Subsistence allowance of USD40/day will be paid to applicants

4. Application Procedure

Applicants should submit an application stating the position (s) he/she is applying for in pdf format including detailed current curriculum vitae. The CV should among others include qualifications, teaching experience/professional experience, prizes, grants/awards and publications. Contact details of a referee who can confirm the applicant's claims should be submitted with the CV.
Applicant should also submit copies of certificates and testimonials in pdf format

All submissions must be made at the website paulesi.ui.edu.ng at applicants for Short-term/Part-time positions

5. Further Information

Further Enquiries should be directed to:
The Director
Pan African University
Institute of Life and Earth Sciences
University of Ibadan
Ibadan, Nigeria
woleabatan@gmail.com/paulife@gmail.com
+234 803 3503 124/+234 701 2122 444

Closing Date for submission of application is 31st January 2017