



University of Buea – Buea, Cameroon

MASTERS DEGREE IN DISASTER RISK MANAGEMENT AND SAFETY

Objectives of the degree programme

The Masters degree in Disaster Risk Management and Safety (DRM) is a multi-disciplinary programme with courses covering aspects of the Pure Sciences, Social Sciences, Arts and the Physical Sciences. The programme is meant to train learners to become well equipped professionals with the fundamental DRM theoretical knowledge, competence in the use of DRM tools, and to be well-versed in the practices pertinent to the DRM profession. Graduates are expected to work in the field as DRM professionals in disaster-prone and disaster-torn areas, as well as serve as DRM professionals in the capacity of coordinators, managers, and facilitators. The programme also trains learners to carry out or facilitate training programmes for DRM personnel from Municipal Councils, the Department of Civil Protection and its Regional Organs, the Army, the Media, etc. Graduates may also wish to continue to PhD degrees in related issues or in certification programmes as well as work in or set up private consultancies on DRM and Safety.

Teaching Staff

Head of Department: Nkwatoh Athanasius Fuashi, PhD (Ibadan, Nigeria)
Associate Professor, Forest Resources Economics and Management

Academic Staff Members

Ayonghe Samuel Ndonwi, PhD (London, UK)
(Dean, Faculty of Science)
Professor, Environmental Geology and Applied Geophysics

Manga Veronica Ebot, PhD (Buea, Cameroon)
Lecturer, Environmental Impact Assessment

Longonje Simon Ngomba, PhD (York UK)
Lecturer, Environmental Economics and Management

Melle Maurice Ekane, PhD (Ibadan, Nigeria)
Lecturer, Wildlife Ecology and Ecosystem Management.

Mabel Nechia Wantim PhD (Ghent) Buea.
Assistant Lecturer, GIS and Remote Sensing, Disaster and Environmental Risk Management

Asong Fred Zisuh PhD (Cottbus Germany)

Assistant Lecturer, Environmental Resource Management.

Mbua Roy Lyonga PhD (Cottbus Germany)
Assistant Lecturer, Environmental Resource Management.

Ayuk Elizabeth, PhD (Buea)
Assistant Lecturer, Botany

Part-Time Staff

Prof. Njilah Isaac Konfor PhD (Leeds, England)
Associate Professor, Natural Hazards and Disasters, UY1, Yaounde

Prof. Yenshu Emmanuel V PhD (Yaounde, Cameroon)
Dean, FSMS
Professor, Sociology - Demography

Prof. Balgar Sounders PhD (Buea)
(VD/PAA/FSMS)
Associate Professor, Geography

Yinda Godwin Sendze, PhD (Ibadan, Nigeria)
Lecturer, Soil Fertility and Urban Waste Management

Ngwabi Martin Ngwa, PhD (Canada)
Lecturer, Environmental Technology and Engineering

Fantong Wilson PhD (Japan) Yaounde
Maitre de Recherches, IRGM, Yaounde.

Dr Ekpongbang Alex PhD
Senior Instructor, Law, Faculty of Law and Political Sciences

Ms Ntali Mirabel M.Sc. (Dar es Salaam, Tanzania)
Disaster Risk Management Expert
Mrs. Yap Mariatou (Department of Civil Protection, Yaounde)

Employment opportunities

The programme provides a good basis for both national and international employment opportunities. The graduates will find positions in Universities, Non-Governmental Organization (NGOs), research institutes, national and international agencies dealing with disaster risk reduction and safety activities. Graduates could also work in the Ministry of Territorial Administration (Department of Civil Protection), Ministry of Armed Forces, Ministry of Environment and Nature Protection, in Municipal Councils, in Cooperations (as environmental impact assessors), or could serve as policy consultants and experts to government and private sector departments.

Admission requirements

Admission into this masters degree programme is open to candidates from any discipline within the Pure Sciences, Social and Management Sciences, Arts, Education, etc with a Bachelor degree (minimum second class) or its equivalent from a recognized academic institution.

Graduation Requirements

To obtain the M.Sc. degree in Disaster Risk Management (DRM) and Safety, the candidate must pass at least 96 credits of course work from the compulsory and elective courses outlined below. The candidate must also undergo an internship/placement in a recognized institution/industry during the second year prior to conducting a research project which will be submitted as a thesis and defended. The student shall also be expected to satisfy any other requirements of postgraduate studies that Senate may prescribe.

Teaching Space

The extension of the U-Block C that is currently used by the MSc students in Natural Resources Management as well as the spaces allocated to the Department in the new Professor Victor Anomah Ngu building will be used for teaching of the programme.

Equipment and materials

All equipment and materials for practical training that will be needed for the effective take off and delivery of this master's programme will be acquired using funds from the UBuea, USAID- PERIPERI U Project Budget for 2018/2019 and subsequently from funds from the budget of the Faculty of Science.

Compulsory Courses

DRM601	Natural and Anthropogenic Disasters: Forensic Assessments
DRM602	Disaster and Risk Communication
DRM603	Disaster Management and Response: Case Studies
DRM604	Research Methodology and DRM Projects
DRM605	Concepts and Methodologies of DRM and Safety
DRM606	Environmental and Social Impact Assessment (ESIA), Settlement and Management
DRM607	International and National Legal Frameworks for DRM and Safety

Elective Courses

DRM608	Geographic Information Systems (GIS) for DRM and Safety
DRM609	Emergency Planning and Support Functions
DRM610	Volcanology and Related Hazards
DRM611	Principles of Occupational Health and Safety
DRM612	Climate Change and Related Hazards and Disasters
DRM614	Disaster Resilience, Building Practices and Coping Strategies
DRM616	Remote Sensing Techniques and Applications in Disaster Risk Management

STRUCTURE OF THE PROGRAMME FOR THE MSc DEGREE IN MASTERS DEGREE IN DISASTER RISK MANAGEMENT AND SAFETY

YEAR: ONE

COURSE CODE	COURSE TITLE	CREDIT VALUE	STATUS	HOURS			PRERE-QUISITES
				L	T	P	
FIRST SEMESTER							
DRM601	Natural and Anthropogenic Disasters: Forensic Assessments	6	C	40	10	10	
DRM603	Disaster Management and Response: Case Studies	6	C	40	10	10	
DRM605	Concepts and Methodologies of DRMS	6	C	40	10	10	
DRM607	International and National Legal Frameworks for DRR&DRM	6	C	40	10	10	
{DRM609	An Elective} OR	6	E	40	10	10	
{DRM611	An Elective}		E				
TOTAL		30		200	50	50	

SECOND SEMESTER							
DRM602	Disaster and Risk Communication	6	C	40	10	10	
DRM604	Research Methodology and DRM Projects Environmental and Social	6	C	40	10	10	
DRM606	Environmental and Social Impact Assessment (ESIA), Settlement and Management	6	E	40	10	10	
DRM610	An Elective	6	E	40	10	10	
DRM612	An Elective Any 2	6	E	40	10	10	
DRM614	An Elective	6	E				
DRM616	An Elective	6	E				
TOTAL		30		200	50	50	

YEAR: TWO

First Semester

COURSE CODE	COURSE TITLE	CREDIT VALUE	STATUS	HOURS			PREREQUISITES
				L	T	P	
ENT600	Entrepreneurship	6	UC	20	10	30	
DRM693	Industrial Placement/Internship	12	C	0	60	0	
DRM695	Seminar I:	6	C	0	60	0	
DRM697	Seminar II:	6	C	0	60	0	
TOTAL		30		20	190	30	

Second Semester

DRM696	Pre-Defence Seminar	6	C	0	60	0	
DRM698	M.Sc. Thesis in Disaster Risk Management and Safety	24	C	0	0	240	
TOTAL		30		0	60	240	

SUMMARY (MSc in Disaster Risk Management and Safety)

PARAMETER	NUMBER			
	Credits	Lecture Hours	Tutorial Hours	Practical Hours
Year One	60	430	120	110
Year Two	60	20	250	270
Sub-Total	120	450	370	380
TOTAL CREDITS	120			
TOTAL CONTACT HOURS	1200			

COURSE DESCRIPTION

DRM601 Natural and Anthropogenic Disasters: Forensic Assessments

6 Credits (40 – 10 – 10)

Course Objectives: To provide students with knowledge on different types of disasters and their implications on the built environment and livelihoods of their socio-economic and mitigation strategies.

Course Contents: Classification of natural hazards and related disasters including flooding, landslides, earthquakes, volcanic eruptions, explosive crater lakes and maars, hurricanes, tsunami and drought. Anthropogenic (technological) hazards and disasters; Acid rain, air and water pollution, destruction of the ozone layer and potential global warming; nature and impacts of natural and anthropogenic disasters on the natural, built and human environment; Vulnerability analysis and warning systems: aspects of disaster management and socio-economic implications. Public perceptions of hazards and disasters. Common hazards and disasters in Cameroon; societal responses to disasters; Practical Aspects: Field trips to localities prone to natural hazard and anthropogenic hazards and disasters in Cameroon. Forensic assessments of disasters.

Outcome: Students acquire an in-depth understanding of the different types of disasters and forensic approaches of assessments, aimed at mitigation, adaptation and awareness creation

DRM602 Disaster and Risk Communication

6 Credits (30 – 20 – 10)

Course Objective: To provide an understanding of the various communication strategies and practices that are employed during a disaster.

Course Content: Communicating disaster alerts, preparedness, early warning, and response; techniques of communicating rescue/humanitarian/relief efforts; handling trauma vis-a-vis media, managing disaster information on social media, cellphone, satellite images, radio, print and audio-visual, television, flyers, and bill boards; Angling disaster information for international audiences; Investigative journalism in disaster situations; techniques of social mobilization for recovery and rehabilitation; managing risks and crises – social science perspective on risk management, methods of quantifying risk, organisational contingency planning, health and safety management, insurance and risk communication.

Outcomes: Acquired skills to manage and communicate risks and disasters before, during and after crisis periods.

DRM603 Disaster Management and Response – Case Studies

6 Credits (40 – 10 – 10)

Course Objective: To provide students with knowledge on Disaster Risk Management based on documented case studies.

Course content: Phases of disaster management; components of disaster management: genesis of disaster management in Cameroon; – laws and decrees governing civil protection; general organization of civil protection; functions in time of peace and in time of war; relationship with international organizations of civil protection; procedures of aid control and management and distribution of assistance to victims of calamities; emergency preparedness and planning process; rescue missions, safety and security; case studies.

Practical: Practical training with Civil Protection Expert and Military Personnel using case studies of the most common disasters in Cameroon and the Central African Sub-Region.

Outcomes: Acquire skills on how to prepare, mitigate, respond and recover from the impacts of disasters.

DRM604 Research Methodology and DRM Projects

6 Credits (40 – 10 – 10)

Course Objectives: To provide the comprehensive theoretical and practical methodological underpinning required to carry out post-graduate research in disaster risk management and safety through project conception and formulation of research proposals. It will also provide an opportunity for the student to gain a (1) Studies of a wide range of current and cutting - edge disaster science and management topics from up-to-date publications;

Course Content: (2) Research methods and techniques for carrying out research in the field of DRM and Safety; (3) Preparation of research proposals; (4) Research design; Experimental design; (5) DRM research methods; (6) Research execution; (7) Research data statistical organisation, analysis and presentation; (8) Report thesis

writing; (9) Research results publication. The course is a student - centred project class, in which each student will work on one or more disaster case studies of his/her choice. The project work on each case study will encompass all relevant DRR & DRM and Safety aspects from pre-disaster emergency planning management to post-disaster recovery and rehabilitation needs. Practical Aspects: With guidance of the instructors, students can choose case studies to work on based on past disasters or hypothetical disasters designed by the instructors.

Outcomes: Students acquire skills in Research Project proposal writing, execution and presentation of results in theses, scientific articles, etc.

DRM605 Concepts and Methodologies of DRM

6 Credits (40 – 10 – 10)

Course Objectives: To orientate the students on the foundations and approaches of DRM and Safety.

Course Content: The course is organised as a series of four self-contained workshops, each of which is meant to address an important aspect of DRM and Safety; fundamentals of DRM; fundamentals of disaster planning; fundamentals of emergency management; disaster risk management; professional communication on DRM issues; Computers and ICT applications will be highly utilized.

Outcomes: Students should have acquired broader understanding of the fundamental concepts of DRM and Safety for application in real life contexts.

DRM606 Environmental and Social Impact Assessment, Settlement and Management (ESIA)

6 Credits (40 – 10 – 10)

Objective: To introduce the concept, conduct, good practices and implementation of ESIA with respect to national and international impact assessment frameworks and standards.

Content: The concept of ESIA; ESIA as a management tool; ESIA best practices; steps in carrying out ESIA; preparation of terms of reference (ToR); baseline studies; prediction of impacts; mitigation measures; comparison of alternatives, public involvement and the review of process; design and implementation of full impact/auditing studies; preparing ESIA reports; quality and review of ESIA reports; consultation and participation; ESIA and decision making; monitoring; evaluation; and auditing; field training of students on ESIA processes and reporting.

Outcome: Provide students with skills to be professionals in Environmental and Social Impact Assessment at different levels of DRM and Safety.

DRM607 International and National Legal Frameworks for DRM and Safety

6 Credits (40 – 10 – 10)

Course Objective: To provide insights into the laws and regulations governing disaster risk reduction internationally and nationally.

Course Content: Disaster Risk Reduction in Disaster Management, Law and Institutions; Hyogo and Sendai Frameworks for Action; Responsibilities; Accountability and Liability for DRR; DRM and Law on Specific Hazards; Early Warning Systems and Risk Mapping; Regulation of the Built Environment; Building codes, land tenure, land use planning and law; Regulation of the Natural Environment; Environmental management, ecosystem (e.g. forest) management and exploitation; DRR Education and awareness creation.

Outcome: Students will acquire knowledge and understanding of the laws applicable to disaster management at the global, regional, sub-regional levels and in Cameroon as well as the liability of those charged with DRM and Safety at these levels.

DRM608 Geographical Information Systems (GIS) for DRM and Safety

6 Credits (40 – 10 – 10)

Course Objectives: To elaborate on the application of GIS in DRM and Safety and provide an understanding of key principles of GIS.

Course Content: GIS and Remote Sensing in DRR and Management; Definition of terms; Components of GIS as a system; Essential elements for effective GIS operation; GIS and Remote Sensing Applications; Main benefits of today's GIS; Importance of GIS and Remote Sensing in DRR and Management and Role of GIS during disaster phases.

Outcomes: Skills are acquired in the functional and understanding of at least one GIS software package and its application in the areas of disaster risk management and safety.

DRM609 Emergency Planning and Support Functions

6 Credits (40 – 10 – 10)

Course Objectives: To enable the students to learn emergency planning management as practiced in the real – world based on critically researched and analysed documented case studies.

Course Contents: Studies of several carefully selected different and contrasting case studies on emergency planning management. (The case studies will supplement and complement taught course material selected from various aspects of emergency planning management. The case studies will be presented by course instructors or invited guest lecturers). Discussions focused on incident aetiology (cause), management approaches adopted, and the appropriateness as well as effectiveness of the responses selected. Various theoretical and practical dimensions of emergency planning management with a particular focus on the applications of different management techniques to disaster incidents. An in depth look at theoretical and practical aspects of the following: evacuation, crowd control, planning aspects pertinent to emergency and post-traumatic stress syndrome. Communication and feedback issues on emergency control, early warning and resource mobilization and utilization.

Outcomes: Students acquire skills on developing emergency plans that can be implemented during disasters and crisis conditions to curb situations.

DRM610 Volcanology and Related Hazards

6 Credits (40 – 10 – 10)

Course Objectives: To investigate volcanic processes and various categories of volcanic hazards.

Course Content: Characteristics of eruptive products; factors determining the “violence” or explosiveness of a volcanic eruption; nature of volcanic eruptions; volcanic gases and eruption columns; dynamics of eruption clouds; the structure of volcanoes and volcano loading and substratum response; modeling lava flow emplacement and ash dispersal; tephra chronology; impact of volcanoes on past and present human civilizations; types of volcanic hazards (primary, secondary and tertiary), impacts of volcanoes on climate; beneficial aspects of volcanic eruptions; historical examples. Practical Aspects: Field trip to some of the volcanoes of the Cameroon Volcanic Line especially Mt. Cameroon, to the explosive crater lakes of Cameroon.

Outcome: Students acquire knowledge on volcanic hazards and disasters especially with respect to understanding their nature and modeling their extents and impacts.

DRM611 Principles of Occupational Health and Safety

6 Credits (40 – 10 – 10)

Course Objectives: To address human health and safety aspects pertinent to DRM work environments and application of risk assessment to disaster -time occupational health and safety.

Course Content: Essence and main considerations of Occupational Health and Safety (OHS) in the context of Disaster Risk Management and Safety; Technical aspects and implications of accidents; Causes, implications and remedial measures of work environment hazards; Considerations of some site/environment/disaster specific OHS hazards; Occupation health and safety risk assessment techniques and procedures; General OHS promotion and enhancement strategies; Basic DRM OHS protective gear; Practical Aspects: DRM OHS project: A project focusing on OHS risk assessment and for a selected disaster work environment.

Outcomes: Students are equipped with the types of personal protective equipment and skills on how to use them during normal time and during disaster time.

DRM612 Climate Change Impacts and Related Hazards and Disasters 6 Credits (40 – 10 – 10)

Course Objectives: To investigate the impacts of climate change on the environment and on livelihood and the consequent impacts as hazards and disasters.

Course Content: Global warming and climate change; climate variability; negative and positive impacts of climate change; agriculture and food insecurity; climate change and water resources; droughts, floods, landslides and degradation of the environment; poverty and inequality due to climate change; exacerbated conditions of hazards, exposure and vulnerability; lessening the impacts of climate change: people-centred and multi-sector approach, building resilience to multiple, cascading and interacting hazards and creating culture of prevention and resilience; climate change mitigation and adaptation in developed and developing countries; modeling future trends and impacts of climate change and possible consequences.

Outcome: Students will have acquired skills in strategizing to cope with the impacts of climate change at local, national and regional levels.

DRM614 Disaster Resilience, Building Practices and Coping Strategies

6 Credits (40 – 10 – 10)

Course Objective: To understand the significance of resilience in disaster risk reduction.

Course Content: Recognizing and promoting resilience; individual resilience building as a task of disaster risk reduction; adult education's contribution to psychological resilience-building strategies; case study of specific hazards and community resilience in Africa and other parts of the world.

Outcome: Students develop skills to facilitate resilience programmes within communities and agencies.

DRM616 Remote Sensing Techniques and Applications in Disaster Risk Management

6 Credits (40 – 10 – 10)

Course Objectives: To enable students learn how to generate information about the Earth from remote sensing and data stored in Geographic Information Systems for applications in Disaster risk management

Course Contents

Geographic information and spatial data types, Determining and mapping position, spatial data entry and preparation, spatial data analysis. Spatial data visualization, Quality assessment of spatial data, The electromagnetic spectrum, Sensors and platforms, Geometric aspects of remotely sensed data, Image enhancement and visualization, Image classification and interpretation. Spatial Data Requirements in Disaster Management, Hazard, Vulnerability (Physical and Socio-Economic Vulnerability) and Risk Assessments (Multi-Hazard Risk Assessment), Spatial Information in Disaster Planning, Identification and Preparedness, Spatial Data Availability for Disaster Risk Mapping and Database Generation. Change detection and Monitoring of hazards. Digital Elevation Model (DEM) and generation, Disaster Risk (zoning, quantification and mapping) Hazard (zoning, quantification and mapping) Elements at risk mapping, Vulnerability mapping.

Outcome: At end of course, the student will have good knowledge of remote sensing packages that have relevant applications to DRM and be able to use them.

DRM693 Industrial Placement/Internship

6 Credits (0 – 60 – 00)

Objectives: To provide practical training on various aspects of Disaster Risk Management and Safety at an institution whose activities are related to it.

Content: Identify various Ministerial Departments Institutions, Corporations in Cameroon involved in DRM and safety and environmental management, study the functioning of these Structures and spend a cumulative two months (at least) internship at any of these institutions for training, practical and prepare a report which is submitted for evaluation.

Outcomes: Students acquire skills from experts through such exposure.

DRM695 Seminar I

6 Credits (0 – 60 – 00)

Objectives: To provide training on how to compile and present scientific results with a focus on Disaster Risk Management and Safety themes.

Content: Identify various themes of research in Disaster Risk Management and Safety (based on the areas covered during course work) and provide selected literature for each theme; compilation and presentation of the literature in a seminar for evaluation.

Outcomes: Students understand how to carry out literature review and present the findings orally.

DRM697 Seminar II 6 Credits (0-60-0)

Objectives: To elaborate on how to develop a research proposal and present it for peer review/evaluation.

Content: Essential components of a good research proposal; Literature review on a topic selected by the student for his/her MSc thesis. Presentation of individual research proposals for students' end of course theses. Knowledge from DRM606 is used to prepare a costed research proposal for the MSc thesis which is budgeted for presentation and defence in front of a panel

Outcomes: Develop and submit a written research proposal as well as present a talk on a proposal that should be related to a core DRM and Safety theme. Students acquire practical skills on executing a research proposal prepared for their MSc theses.

DRM696 Pre-Defence Seminar 6 Credits (0-60-0)

Objectives: To evaluate and prepare the individual MSc thesis research results and interpretations thereof and ensure its suitability for a defence.

Content: Presentation and discussion of research work and results; identification of new findings in the work, evaluation of methods used; highlights of the innovative contribution of the research and the relevance of the work to science and society.

Outcomes: M.Sc. Thesis in DRM in which student demonstrates an understanding of his/her own work and usefulness of its results.

DRM698 M.Sc. Thesis in Disaster Risk Management 24 Credits (0-0-240)

Objectives: To demonstrate an understanding experience in the conception and execution of a research proposal and defending it in front of a constituted panel.

Content: The design of an executed research project; field and laboratory experimentation, data collation analysis interpretation and discussions; compilation of the research document based on an institutional guideline; evaluation of the written research document during an oral defense.

Outcomes: Students acquire skills on the conception of a research project, execution and production of a thesis defending it in front of a panel.