



UNIVERSITY
of
TECHNOLOGY,
MAURITIUS

School of Sustainable Development & Tourism
in collaboration with
School of Health Sciences

MSc. Climate Change, Health and Disaster
Management
(Full-time and Part-Time)

PROGRAMME DOCUMENT

VERSION 1.2

MCCHDM v1.2

JULY 2018

MSc. Climate Change, Health and Disaster Management

A. PROGRAMME INFORMATION

Climate change includes higher temperatures, changing precipitation and runoff patterns, and extreme weather conditions, leading to reported increasing incidences of weather-induced disasters including floods, droughts, wild fires, strong winds, heat and cold waves. Such climate change agents contribute to an increase in disaster risks, thus making disaster management a vital and urgent component of any climate change adaptation programme. As a Small Island Developing State, Mauritius has been ranked as the 13th country with the highest disaster risk and ranked 7th on the list of countries most exposed to natural hazards (World Risk Report, 2017), and is highly vulnerable to the effects of climate change and its adverse impacts on socio-economic development.

This postgraduate course in Climate Change, Health and Disaster Management, unique to the Mauritian landscape, will fill the dearth of tertiary level courses in this area of serious current concern for small island developing states. The urgency of this course is being felt in the various sectors of the island including the police force, the fire services, the national coast guard division, social security, environment division, local government and other allied sectors in order to successfully adjust to changing environments and develop safe and sustainable societies.

B. PROGRAMME AIM

This postgraduate course aims to offer students with multidisciplinary knowledge and skills required to underpin successful approaches to addressing the management of climate change and disasters. Providing an overview of the interconnections between health and human security in the context of globalization and forced migration from many causes. The programme is thus to provide students with theoretical, practical and innovative knowledge and competencies to deal with the dangers and risks of climate change. It will support the professional development of those already involved in disaster management by exposing them to the climatic challenges of the 21st century.

C. PROGRAMME OBJECTIVES

- To equip students with up-to-date knowledge regarding climatic changes affecting our planet
- To provide students with the skills and competencies required to mitigate, manage and adapt to such changing conditions
- To formulate innovative ways of dealing with climate change, health and disaster management and risk reduction
- To enable students and professionals to understand the management of disasters from a humanitarian and logistic point of view
- To provide knowhow about the importance of innovation in organisations in dealing with climate change
- To develop an in-depth appreciation of the science, policies and technologies linked to climate change, including the scientific basis underpinning international agreements on carbon reduction targets
- To contribute to research in this field
- To enable students to understand the clinical challenges associated with disasters or humanitarian crises.

Part I - REGULATIONS

D. GENERAL ENTRY REQUIREMENTS

As per UTM 'Admissions Regulations' and 'Admission to Programmes of Study at Masters Level'

E. PROGRAMME ENTRY REQUIREMENTS

- a) A degree from a recognised university or any other recognised institution of higher education.
- or
- b) Exceptionally candidates holding a Diploma from an approved Institution may be admitted with at least 3 years relevant work experience.

F. PROGRAMME MODE AND DURATION

Full Time: 1½ years comprising of 3 semesters

Part Time: 2 years comprising of 4 semesters

Each academic year includes 2 semesters and each module comprises of 45 hours.

G. TEACHING AND LEARNING STRATEGIES

The programme will employ a wide variety of teaching methods, including lectures, critical discussion of scientific papers, individual or group discussions and/or projects, presentations, workshops, case studies, guest lectures and tutorials will be used with active participation of students.

Self-learning will be the key feature of the programme, enabling students to explore, investigate and research into the various topics, interact with practitioners, and work in teams on specific projects.

H. STUDENT SUPPORT AND GUIDANCE

Students will be provided necessary support and guidance through lectures and other teaching and learning strategies as per section G. Meetings with the Programme Coordinator and respective module conveners, as well as group/individual tutorials can be arranged for students.

I. ATTENDANCE REQUIREMENT

As per UTM Regulations

J. CREDIT SYSTEM

The modules will carry 3 credits and the dissertation 9 credits as per the programme structure.

1 credit = 15 hours of lecture

1 credit = 30 hours of practical/tutorials/seminars

K. STUDENT PROGRESS AND ASSESSMENT

For the award of the Master degree all modules must be passed overall with passes in the examinations, coursework and other forms of assessment.

This course is comprised of 12 (twelve) modules including the final year dissertation. All modules will have equal weighting and the dissertation carries 9 (nine) credits. Six (6) modules are assessed by exams and five (5) modules including Research Methods will be assessed 100% by coursework as follows: project-based assignments including fieldwork and presentation.

Written examinations will be of a maximum of 3 hours' duration. Continuous assessment will carry up to 50% of the total marks and will be based on seminars, case studies, class tests and/or assignments.

L. EVALUATION OF PERFORMANCE

Master of Science	42 Credits
Postgraduate Diploma	33 Credits
Postgraduate Certificate	18 Credits

Grading

Grade	Marks x (%)
A	$70 \leq x \leq 100$
B	$60 \leq x < 70$
C	$50 \leq x < 60$
D	$40 \leq x < 50$
F	< 40
A-D	Pass
F	Fail

M. AWARD CLASSIFICATION

Overall weighted mark (%)	Classification
CPA \geq 70	Master of Science with Distinction
$60 \leq$ CPA $<$ 70	Master of Science with Merit
$40 \leq$ CPA $<$ 60	Master of Science
CPA $<$ 40	No Award

N. PROGRAMME ORGANISATION AND MANAGEMENT

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Part II - PROGRAMME STRUCTURE AND SYLLABUS OUTLINE

O. PROGRAMME STRUCTURE AND PLAN – FULL-TIME

YEAR 1							
Semester 1				Semester 2			
Code	Core Modules	Hrs L + T + P	Credits	Code	Core Modules	Hrs L + T + P	Credits
ENVT 5801B	Global Climate Change and Governance	2+2+0	3	ENVT 5802B	Climate Change: Mitigation and Adaptation	2+2+0	3
SSDV 5105B	Demography, The Environment, and Challenges of Sustainability	2+2+0	3	STAT 5301B	Research Methods	2+2+0	3
ENVT 5114B	Natural Resource Management	2+2+0	3	ENVT 5803B	Smart Climate and Disaster Response Technologies	2+2+0	3
OPS 5701B	Disaster and Risk Reduction	2+2+0	3	UPLN 5301B	Risk Based Land Use Planning	2+2+0	3
YEAR 2							
Semester 1							
Code	Core Modules	Hrs L + T + P	Credits				
SSDV 5603B	Risk Perception, Communication, and Human Behaviours	2+2+0	3				
ENVT 5702B	Local and Global Health Disaster Management	2+2+0	3				
SSDV 5604B	Humanitarian Logistics and Social Resilience	2+2+0	3				
DISS 5000B	Dissertation		9				
Total number of credits: 42							

P. PROGRAMME STRUCTURE AND PLAN - PART- TIME

YEAR 1							
Semester 1				Semester 2			
Code	Core Modules	Hrs L + T + P	Credits	Code	Core Modules	Hrs L + T + P	Credits
ENVT 5801B	Global Climate Change and Governance	2+2+0	3	OPS 5701B	Disaster and Risk Reduction	2+2+0	3
SSDV 5105B	Demography, The Environment, and Challenges of Sustainability	2+2+0	3	ENVT 5802B	Climate Change: Mitigation and Adaptation	2+2+0	3
ENVT 5114B	Natural Resource Management	2+2+0	3	STAT 5301B	Research Methods	2+2+0	3
YEAR 2							
Semester 1				Semester 2			
Code	Core Modules	Hrs L + T + P	Credits	Code	Core Modules	Hrs L + T + P	Credits
ENVT 5803B	Smart Climate and Disaster Response Technologies	2+2+0	3	ENVT 5702B	Local and Global Health Disaster Management	2+2+0	3
UPLN 5301B	Risk Based Land Use Planning	2+2+0	3	SSDV 5604B	Humanitarian Logistics and Social Resilience	2+2+0	3
SSDV 5603B	Risk Perception, Communication, and Human Behaviours	2+2+0	3	DISS 5000B	Dissertation		9
	Dissertation						

Total number of credits: 42

Q. NON-PRESCRIPTIVE MODULE OUTLINE

YEAR 1 SEMESTER 1

ENVT 5801B: Global Climate Change and Governance

Introduction to Climate Change, Understanding our Past Climate, Long-term Temperature Change, Factors Affecting Climate Change, Global Warming, Global Change, Potential Environmental and Socioeconomic Global Impacts of Climate Change, Multilateral Environment Agreements including Rio Declaration on Environment and Development, International reports and agreements: United Nations Conference on the Human Environment, Brundtland Commission Report, Earth Summit, Agenda 21, Convention on Biological Diversity, ICPD Programme of Action, Earth Charter, Millennium Declaration, Millennium Ecosystem Assessment, Rio Summit, Kyoto Protocol, BASEL Convention, Rotterdam Convention, Montreal Protocol Mitigation / adaptation strategies with particular interest to vulnerabilities of SIDS, Paris Agreement, International law and trade.

SSDV 5105B: Demography, the Environment, and Challenges of Sustainability (100% Coursework)

Introduction to Malthus theory of demography and its corollaries; The Neo-Malthusian catastrophe; The relationship between demography and economic and sociological concepts; Demographic aspects of climate change, adaptation and mitigation; Environmental concerns and issues for the 21st century; Environment and climate change; Preemptive and proactive approach to environmental issues for climate change and natural disasters; Trends and issues in sustainability and development; Impacts of natural disaster on development; Global imbalances, global warming and the challenges of sustainable development; Sustainable disaster management; The links and relationship between sustainable development and disaster risks.

ENVT 5114B: Natural Resource Management

Definition of Natural Resources, Need for natural resources management , Concept of natural resources management – sustainable land management, Forest Management, Water Resources Management, Wildlife conservation, Approaches and strategies of natural resources management – adaptive management, community based NRM, Precautionary approach, Integrated approach, Conservation of biodiversity, Integrated Coastal Zone Management, NRM frameworks, Ownership regimes, Case studies on sustainable tourism, sustainable agriculture and Fisheries etc.

YEAR 1 SEMESTER 2

OPS 5701B: Disaster and Risk Reduction

Hazards and Disasters: Range and Scope; Disaster Policies: History and Institutions; Preparedness and Planning: Social, Economic, and Political Vulnerabilities, Disaster Planning and Policy Strategies: Local and International Level; Community Resilience, Comprehensive Emergency Management Plans, Communication and Risk Management; Disaster Response: Planning for Response; Disaster Recovery and Rebuilding.

ENVT 5802B: Climate Change: Mitigation and Adaptation (100% Coursework)

Impacts and Adaptation: Resource crisis - food, agriculture, water, energy, infrastructure, Tourism and recreation, education; The role of Governments, Business, NGOs, other Institutions and the general public in adapting to, and mitigating climate change; Hazards mitigation tools and planning; Sustainable Cities - strategy, design and implementation; Impact assessments; Approaches to climate change adaptation; Policy and governance for adaptation; Decision-making and planning for mitigation and adaptation; Climate Change mitigation strategies; Adaptation measures: sustainable economy, individual adaptation (low carbon lifestyle); Delivering adaptation actions and measures; Future climates: coping with uncertainty.

STATS 5301B: Research Methods (100% Coursework)

Research Concepts: Research issues, problems, questions, hypotheses; Measurement and Scaling in Research: Reliability, validity; Research Design and Survey Methods, questionnaire design; Ethics in Research; Techniques for Literature Review; Qualitative Methods: designing, gathering, processing and analysing qualitative research information; Quantitative Methods: Introduction to Statistics, Data Description, Hypothesis Testing, t-tests and ANOVA; Data analysis with SPSS; Reporting and presenting research.

YEAR 2 SEMESTER 1

ENVT 5803B: Smart Climate and Disaster Response Technologies (100% Coursework)

Technology Development & Application for climate resilience and efficient use of resources in key sectors (Energy, Agriculture, Built Environment, Transport and Industry among others): Renewable energy systems, smart grid, methane reduction innovations, mechanization of agricultural processes,

biotechnology applications, vertical farming, green building, remote sensing technologies, low emissions transport technologies, Carbon capture and storage technologies. Smart Technologies for Emergency Response and Disaster Management: New Sensing Technologies and Devices, Communication Networks, Mobile and Wireless Technologies, Cloud Computing Systems, Big Data Analysis.

UPLN 5301B: Risk Based Land Use Planning (100% Coursework)

Land Use Planning and Sustainable Urban Development; Institutions and Policies in land Use planning; Planning legislations; methods and tools: building codes, standards, zoning, land pooling and land readjustment; land use principles, land use measures, Managing Growth in Peri-Urban Areas; Social Equity and Land Use Planning; Climate Change; Risk mapping, assessment, and planning (RiskMAP); Risk analysis techniques; Risk, hazards and vulnerability assessment; Societal risk; Flood risk sensitive; hazard mitigation planning; architecture and urban environment; geospatial data production; Digital flood insurance rate maps; Mapping information platform; disaster resilient development: making cities resilient (MCR); resilience scorecard tool; trends and barriers in urban risk reduction.

SSDV 5603B: Risk Perception, Communication and Human Behaviours

Risk Perception & Attitude, Risk Interpretation & Action, Human Psychology & Disaster Management, Human Behaviour in Disaster & Emergency Situations, Role of Community, Appropriate Communication Strategies, Risk Communication Theory & Best Practices, Role and Influence of Media, Communication Evaluation in Disaster Management.

YEAR 2 SEMESTER 2

ENVT 5702B: Local and Global Health Disaster Management

Local and global disaster management in relation to health. The role of an epidemiology team: Conduct of epidemiological investigations, preparedness, surveillance and response. Analyze current public health vulnerability and risk management systems. The medical impact on community surge and traumas. Public health preparedness capabilities and health care disparities, Analyze the role of immunization in halting the spread of infectious diseases. Basic first aid skills in humanitarian assistance, clinical challenges associated with disasters or humanitarian crises and their management. The principles of disaster response and the related ethical and legal issues in mental health. National and International public health's role in the Response Framework in recovery planning.

SSDV 5604B: Humanitarian Logistics and Social Resilience

Introduction to Humanitarian Logistics: Water, Sanitation & Hygiene Promotion, Food Security & Nutrition, Health Services, Shelter and Settlement; Approaches and Perspectives on Humanitarian Logistics; Financial Strategy; Humanitarian Aids Logistics, Relief Supply Chain; private-public collaborations; Supply Chain Vulnerability and Resilience; Relief Supply Chain Management Challenges; Humanitarian response and disaster recovery efforts; Roots of resilience; Resilience Concepts and practices; components of societal and ecological resilience to climate change; Individual resilience; Building Resilience; Disaster response; Urban governance for adaptation.

DISS 5000B: Dissertation

A 15 000 – 18 000 words dissertation will have to be submitted at the end of the semester. The work submitted should conform to the School's Postgraduate Dissertation Guidelines.