

2017

Alexandria University
Institute of Graduate Studies and Research



**Master
Program in
Climate Change
and
Sustainable
Development**

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Program Specification

Postgraduate Program in Climate Change and Sustainable Development (CCSD)

Please note: This specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if full advantage is taken of the learning opportunities that are provided. The detailed information on the aims, learning outcomes and content of each course is enclosed in this document.

Awarding body/institution:	Alexandria University
Name of the final award:	Master in <i>Climate Change and Sustainable Development (CCSD)</i>
Teaching institution:	Institute of Graduate Studies and Research (IGSR), University of Alexandria
Department:	Environmental Studies
Date (written or revised):	November 2016

1. Career prospects of the graduate

The Master of Climate Change and Sustainable Development (**CCSD**) offers interdisciplinary academic environment that promotes open critical inquiry of the scientific and socio-economic complexities of climate change. It is anticipated that graduates of the master program will play an influential role in the critical climate change and development capacity building efforts. They will be able to offer a unique perspective and insight having emerged from a program that is set in a country already facing many of the potential impacts of climate change. The **CCSD** prepares graduates to target jobs in the various emerging career paths in environmental economics and climate change including:

- Governmental agencies and municipalities which develop plans for climate change mitigation and adaptation.
- Consultancy companies carrying out Environmental Impact Assessment, developing, implementing or monitoring climate change mitigation and adaptation projects.
- Climate change research, teaching and information dissemination.
- NGOs and stakeholder organizations involved in climate change impacts assessment and sustainable development.

2. Graduate attributes

Holders of the **CCSD** master degree will be able to:

- Demonstrate a well developed comprehension of the multiple dimensions of climate change and the interface between environmental economics and climate change.
- Demonstrate critical awareness of current issues in sustainable development and climate change informed by leading-edge research and practice in the field.
- Exhibit critical thinking and analytical capacities steeped in research methods and based on empirical evidence and the scientific approach to knowledge development.
- Employ multidisciplinary and integrated perspectives in the analysis of problems and making decisions by establishing relevant criteria and making use of appropriate decision techniques in the context of research and professional practice.
- Distinguish ethics that guide academic research related to environmental economics and climate change and be familiar with codes of conduct and ethics that guide professional practice in these areas.
- Demonstrate competency to effectively represent technical, scientific and economic information in a variety of contexts and diverse expert and non-expert audiences.
- Learn independently and manage resources to see a task through to completion.
- Work collaboratively and effectively with others, within a range of teams and contexts, respecting individual roles and responsibilities.
- Display professional responsibility, as well as, societal and community concerns.

3. Program aims

The program aims to provide learners with:

- A curriculum which provides a broad range of subjects to facilitate the development of abilities, pursuit of interests and promotion of career development, and which gives the learner a stake in his/her study program;
- A course of study that develops the student intellectually and creatively by combining knowledge and skills for the multi-disciplinary role in effectively assessing climate change impacts, vulnerability and adaptation and their interrelationship with sustainability;
- A wide range of transferable skills and knowledge leading to employment opportunities in a variety of roles within governmental and non-governmental organizations, and leading climate research and academic institutions;
- Active and participative education through a variety of teaching and learning techniques;
- An opportunity to acquire some of the skills necessary for lifelong learning.

4. Learning Outcomes

4.1 Knowledge and Understanding

On successful completion of this program, students should be able to demonstrate knowledge and understanding of:

- Multidisciplinary aspects of the environment, natural resources, ecosystem dynamics and environmental problems including climate change.
- Climate system dynamics, climate change impacts on society and wider environment, mitigation and adaptive capacities to climate change.
- Theory and principles of environmental economics and sustainability and the interplay between climate change and sustainable development.
- Recent relevant literature in the field of climate change and sustainability with the ability to identify, reflect upon and engage critically with this literature.
- Values and principles of scientific research including truth, freedom, responsibility, integrity, collaboration and professionalism.
- Issues relating to the rights of other researchers and research subjects as confidentiality, ethical issues, attribution, copyrights, malpractice and ownership of data.

4.2 Intellectual Skills

On successful completion of this program, students should be able to:

- Think laterally from a multidisciplinary perspective about climate change and sustainability issues.
- Comprehend complex climate change and sustainability issues to generate sustainable solutions to environmental and societal problems driven by recent global climate change.
- Employ selected methodologies and tools to assess and analyse issues related to climate change and sustainability.
- Apply an agile approach in problem solving in a variety of scientific and professional contexts.
- Articulate effective reading and writing skills and master scientific language and terminology of environmental, climate change and sustainability fields.
- Identify, plan, evaluate and develop a Master dissertation topic relevant to the aims of the program and broadly concerning an array of climate change and sustainability issues.

4.3 Professional Skills

On successful completion of this program, students should be able to:

- Recognize critical perspectives on theories, models, datasets, tools and methodologies that underpin the constituent climate change and sustainability fields.
- Apply relevant subject areas and associated research directed towards advanced and emerging issues pertaining to climate change vulnerability and adaptation.
- Assess likely biophysical and socio-economic consequences of climate change on sustainability.
- Develop competence in writing and appraising professional reports relevant to the interdisciplinary issues of climate change and sustainability.

4.4 Transferable Skills

On successful completion of this program, students should be able to:

- Demonstrate capacity for attentive exchange, informed persuasive argument and reasoning using scientifically correct language.
- Make effective use of information and communication technologies, including data processing packages while integrating relevant scientific data from multiple sources.
- Continuously evaluate his/her professional performance to ensure continuous professional development.
- Work autonomously in a self-motivated manner and exercise initiative and personal responsibility.
- Conduct effectively within a team in situations comparable to his/her work level and identify criteria and attributes for the assessment of others' performance.
- Demonstrate the ability to plan and undertake tasks, work to deadlines, and accept accountability for decisions at a professional or equivalent level.

5. Teaching, learning and assessment strategies:

Knowledge, understanding and intellectual skills are acquired through formal lectures, case studies, tutor-led seminars and a range of independent learning activities at all stages.

Lectures are used to introduce themes, theories and concepts, which are further explored in seminars. Technology enhanced learning is used, where appropriate, through the provision of online resources and other activities.

Analytical and problem solving skills are further developed using a range of appropriate 'real' and 'theoretical' case studies and problem-based learning scenarios.

Practical demonstrations are used where appropriate throughout the program to develop practical skills and to place theory in a work-related context.

The acquisition of appropriate and transferable practical skills is central to the learning strategy of the program. Initiative and independence are fostered throughout, and develop incrementally as the courses progress. Emphasis is placed on guided, self-directed and student-centred learning, with increasing independence of approach, thought and process. Learners are encouraged to plan their own work schedules and are required to meet strict deadlines through their completion of a related thesis.

A range of assessment methods is employed. Knowledge and skills are assessed, formatively and summative, by a number of methods, which may include coursework, examinations, presentations, reports and practical assignments. Thesis defence is also central to assess the achievement of the degree requirements.

6. Support for student learning

Students and their learning are supported in a number of ways:

- A comprehensive induction for new students to the program and its courses regardless of entry level.
- Student handbook and module handbook are provided.
- Personal academic advisor is allocated for each student and is responsible for pastoral support and guidance.
- Each course has an appointed course director that relates directly to enrolled students.
- Provision of study skills, ICT and professional development within modular structure.
- Each student has a University e-mail and digital library access accounts.
- Facilities and assistance offered by the library and computer staff.
- Feedback on academic progress at the end of each semester via the course director.
- Feedback is provided for all assessments.
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7. Program structure, progression and award requirements

The program runs for three academic years, starting in mid-September. At the start of the program, students take 6 core courses (12 credit points), which are the foundation upon which the whole master degree is built and ensure a common basis of knowledge across the different areas.

Through the selection of various optional courses (12 credit points), students are able to tailor their studies towards own career interests.

Finally, students undertake a piece of original research leading to a master thesis with the support of an academic supervisor.

Table (1): Courses of the CCSD Master degree

Module code	Module name	Module status	Credit Points
2001775	Fundamentals of environmental sciences	Core	2
2001776	Sustainable development	Core	2
2001777	Climate dynamics	Core	2
2001778	Climate change mitigation, vulnerability and adaptation	Core	2
2001779	Environmental economics and management	Core	2
2001780	Statistical analysis in climate research	Core	2
2001781	Economic valuation and climate change	Optional	2
2001782	Green economy	Optional	2
2001783	Geographical information systems applications in climate change	Optional	2
2001784	Remote sensing and environmental change	Optional	2
2001785	Environmental risk assessment and management	Optional	2
2001786	Community engagement and sustainable development	Optional	2
2001787	Climate change, biodiversity and ecosystems functions	Optional	2
2001788	Climate change and health	Optional	2
2001789	Urban environment	Optional	2
2001790	Geopolitics of climate change	Optional	2
2001791	Scientific research skills	Student development learning course	---

7.1 Core modules

Course outline	
Course title	Fundamentals of environmental sciences
Course code	2001775
Credit points	2 CP
Course description	The course develops an understanding of the interdisciplinary and holistic nature of the environment and current environmental issues. The course addresses the complex relationships between humans and the natural systems.
Contents	<ul style="list-style-type: none"> • Ecology, human population and natural resources. • Energy resources and consumption. • Human activities and the environment (pollution of the environment, degradation and depletion of natural resources). • Global environmental change. • Conservation and restoration of environmental systems.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Ecological, economic and social dimensions of environmental issues. • Interactions and interrelationships of humans, the physical environment and the biosphere. • Approaches to environment conservation and restoration. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Develop critical awareness of various perspectives of human environmental impacts. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Develop an appreciation of how the functional units of the natural environment are interrelated. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Assess, synthesize and evaluate information fairly and objectively. • Work effectively, both individually and with others on complex issues that require holistic problem solving approaches.

Course outline	
Course title	Sustainable development
Course code	2001776
Credit points	2CP
Course description	The course aims at introducing students to the key concepts of the main challenges and pathways to sustainable development and its implications for natural resources, energy supply/demand, waste/pollution, human health and social welfare.
Contents	<ul style="list-style-type: none"> • The environment and development. • Evolution of sustainable development. • Dimensions and levels of sustainability. • Water-energy-food nexus.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Historical evolution of sustainable development concepts. • Principles of sustainable development. • Sustainable development and its components. • Levels of sustainability. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Distinguish the alternative approaches to attain sustainable development. • Analyze the impacts on socio-cultural context on sustainable development and community resilience. • Interpret the interrelationship between sustainable development and community resilience. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Assess sustainability of human activities and their impacts on the environment. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Acquire the principles of communication with audiences in formal and informal contexts. • Develop pro-environmental values and attitudes that foster environmental responsibility.

Course outline	
Course title	Climate dynamics
Course code	2001777
Credit points	2CP
Course description	The course aims at offering students with a rigorous introduction into the processes underlying climate variability and climate change, with emphasis on the atmospheric, hydrologic and terrestrial processes. The course applies this to examining the impacts of past, present and future climate processes, events and dynamics in the context of global climate change.
Contents	<ul style="list-style-type: none"> • Climate system: an introduction. • Components of the climate system and their interaction. • Atmospheric chemistry and climate (Ozone, CFCs, Nitrogen oxides and green-house effect). • Water in the earth's system and climatologic effects. • Land-climate dynamics. • Climate simulation models.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Key components of the climate system. • Basic features of the atmosphere dynamics and its interaction with the underlying ocean and land. • Mechanisms that stabilise or destabilise the climate system. • Global climate models. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Analyze the linkage between state, variability and long term evolution of the climate. • Relate complex ideas in climate change to theories within other disciplines including physics, chemistry and biology. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Apply scientific theory and physical laws and processes to real climate situations. • Design hierarchy of simple models to emulate projections of future climate change. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Articulate and present complex ideas, theories and principles by written, oral and other means within a seminar setting. • Develop independent/self-directed learning skills, including time management, working to deadlines, and keeping abreast of a wide range of literature.

Course outline	
Course title	Climate change mitigation, vulnerability and adaptation
Course code	2001778
Credit points	2 CP
Course description	The course aims at enabling enrolled students to recognize various basic concepts of climate change and to apply these concepts in assessing vulnerability to climate change impacts and evaluating potential adaptation options
Contents	<ul style="list-style-type: none"> • Climate change impacts. • Sensitivity and exposure. • Adaptive capacities to climate change. • Vulnerability assessment. • Mitigation measures. • Adaptation options. • Resilience to climate change.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Climate change area of impacts. • Vulnerability assessment methods. • Differences between mitigation and adaptation. • Mitigation measures and adaptation options. • Resilience to climate change. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Interpret the relationship between adaptive capacity and resilience. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Develop and implement vulnerability indices. • Identify and assess potential adaptation options. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Exhibit self-dependant elaboration of a seminar on specific aspects of the complex climate change problem. • Demonstrate competency for critical comments and discussions in the context of complex and controversy discussed scientific topics.

Course outline	
Course title	Environmental economics and management
Course code	2001779
Credit points	2 CP
Course description	The course aims at introducing students to the economic structure of environmental problems and environmental policy in changing resource use pattern.
Contents	<ul style="list-style-type: none"> • Economics and the environment: an introduction. • Environmental problems from an environmental perspective. • Environmental policy instruments. • Resource analysis (price and quantity of paths of environmental resources).
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Economic aspects in interdisciplinary environmental issues. • Sub-optimal use of resources in market economy. • Economic instruments in environmental policy. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Depict the economic framework of environmental problems. • Distinguish effectiveness, feasibility and political acceptability of different environmental policy instruments. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Implement cost benefit analysis in the environmental field. • Determine the economically optimal use of environmental policy instruments. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Use proficiently information and materials from a variety of sources and make effective oral and written presentations.

Course outline	
Course title	Statistical analysis in climate research
Course code	2001780
Credit points	2 CP
Course description	The course aims at introducing students to basic statistical concepts relevant to environmental science and to provide experience in the correct use and interpretation of the various statistical methods used in the analysis of climate observed and model simulated data.
Contents	<ul style="list-style-type: none"> • Data collection methods and tools. • Descriptive statistics & inferential statistics. • Probability concepts & hypothesis testing. • Multiple correlation and regression analysis. • Time series analysis. • Statistical methods in climate research.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Data collection and exploration methods. • Data analysis methods. • Modelling relationship between variables. • Forecasting and uncertainty. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Interpret the results of statistical analysis of climate research data. • Distinguish pitfalls of different statistical analyses methods. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Apply adequate statistical methods in analysis of data in climate and environmental research. • Relate statistical results and global/regional environmental processes. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Demonstrate competence in critical and self-contained usage of statistical software in research questions related to climate change issues.

7.2 Optional Modules

Course outline	
Course title	Economic valuation and climate change
Course code	2001781
Credit points	2 CP
Course description	The course provides enrolled students with the perspectives of the economic valuation of natural resources and environmental changes, economic valuation techniques and how to apply these techniques in valuing climate change impacts.
Contents	<ul style="list-style-type: none"> • Principles of economic valuation. • Public goods and market failure. • Economic value and economic valuation. • Ecosystem functions: services and goods.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Component elements of economic value. • Techniques of economic valuation. • Interrelationship between public goods, services and market failure. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Interpret climate change phenomena from an economic perspective. • Distinguish value and price. • Elaborate the concepts and methodology of valuing climate change impacts and adaptation options. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Apply economic valuation techniques in valuing climate change impacts. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Acquire proper data to value climate change impacts. • Identify individual and collective goals, take responsibilities and perform in an appropriate manner.

Course outline	
Course title	Green economy
Course code	2001782
Credit points	2 CP
Course description	The course introduces participants to the different concepts and facets of green economy. The course also provides a scientific understanding on which the transition to a green economy can be based including the principles of environmental sustainability and the societal responses required to implement these in practice.
Contents	<ul style="list-style-type: none"> • Green economy: definitions, concepts and approaches. • Conditions advancing green economy. • Green development policy and key economic sectors. • Opportunities, challenges and constraints conflicting transformation towards green economy. • Green economy and climate change.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Conceptual framework and principles of green economy. • Challenges and opportunities to advance resource efficient and socially inclusive development. • International and regional green initiatives and support services to foster green development. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Distinguish the interplay between international trade law, macroeconomic policies and green economy measures. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Distinguish relevant planning processes in support of a green transformation. • Apply the green economy concept to a real world economic, policy and/or personal context. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Develop an adaptable and flexible approach in academic and professional contexts.

Course outline	
Course title	Geographical information systems applications in climate change
Course code	2001783
Credit points	2 CP
Course description	The course provides enrolled students with the main principles of spatial analysis and geographical information systems and their applications in assessing vulnerability to climate change impacts, as well as, adaptation options.
Contents	<ul style="list-style-type: none"> • Spatial Analysis: Theory and practices. • Geographical Information Systems: A conceptual framework. • Spatial and non-spatial data. • Steps of developing an GIS. • Vector and raster data handling. • Applications of GIS in climate change.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Principles of spatial analysis. • Components and functions of GIS. • Methodologies of developing an GIS. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Differentiate spatial and non-spatial data sources. • Develop analytical spatial analysis models to quantify environmental and climate change related issues. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Build Geo-databases through integrating data from different sources. • Develop spatial analysis models for decision-making in the context of climate change vulnerability and adaptation. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Communicate effectively GIS analysis results through various means. • Exhibit self-dependent, problem-oriented and targeted scientifically based inquest.

Course outline	
Course title	Remote sensing and environmental change
Course code	2001784
Credit points	2 CP
Course description	The course introduces enrolled students to remote sensing techniques and their practical applications in monitoring environmental change in general and climate change in particular.
Contents	<ul style="list-style-type: none"> • Remote sensing: theoretical background. • Image pre-processing and enhancement methodologies. • Image processing techniques. • Land use change syndromes. • Applications of remote sensing techniques in climate change.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Key concepts of remote sensing. • Different forms of remotely sensed data. • Remote sensing applications in relation to climate change. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Analyze pros and cons of using remote sensing techniques in climate change arena. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Process remote sensing imageries for assessing spatial aspects of climate change. • Develop analytical models for delineating various environmental changes and their impacts. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Formulation and presentation of research questions in the context of remote sensing. • Accommodate multiple demands for commitment of time and resources.

Course outline	
Course title	Environmental risk assessment and management
Course code	2001785
Credit points	2 CP
Course description	The course covers risk assessment from the human, environmental and institutional perspectives. Enrolled students will be familiarized with the concept of risk assessment in complex environmental problems in general and climate change driven risks in particular. The course also promotes an analytical understanding of hazard, vulnerability and risk analysis for current and potential environmental events.
Contents	<ul style="list-style-type: none"> • Risk assessment concepts: hazards and risks. • Risk assessment and risk management. • Application to human and environmental risk assessment. • Risk communication.
Learning outcomes	<p>A. Knowledge & Understanding</p> <p>On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Principles of environmental risk assessment. • Environmental hazards impacts on human and ecosystems. • Key fundamentals of risk assessment tools and methodologies. • Interplay of risk management and the law. <p>B. Intellectual skills</p> <p>On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Critically discuss the assumptions and reasons for risk assessment. • Distinguish the limitations, uncertainties and potentials of risk assessment methods. <p>C. Professional skills</p> <p>On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Apply commonly used hazard, vulnerability and risk assessment methodologies in different environmental contexts. • Formulate remedial hazard and risk management plans. <p>D. Transferable skills</p> <p>On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Communicate ideas of risk assessment and management in different research and work contexts. • Analyze the interrelationships of events and ideas from several perspectives.

Course outline	
Course title	Community engagement for sustainable development
Course code	2001786
Credit points	2 CP
Course description	The course aims to enable students to critically evaluate and inform the development of strategies to engage with communities and to apply approaches to empower groups and communities to address key factors core to sustainable development goals.
Contents	<ul style="list-style-type: none"> • Defining the community concept. • Approaches to community work in sustainable development. • Community empowerment. • Techniques for effective community participation and engagement. • Asset based community development. • Case studies of global community development approaches.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Values and principles of community development approaches in the context of sustainable development. • Approaches and techniques for community participation and engagement. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Review the theoretical frameworks which underpin a community led-approach to sustainable development. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Evaluate the use of community development approaches to facilitate participation, ownership and capacity. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Promote and enhance individual's ability to articulate their own needs, solve problems and mobilize resources.

Course outline	
Course title	Climate change, biodiversity and ecosystems functions
Course code	2001787
Credit points	2 CP
Course description	The course aims to equip enrolled students with innovative knowledge and skills in biodiversity conservation and gain awareness of the challenges a changing climate poses for ecosystems, conservation biology research and management.
Contents	<ul style="list-style-type: none"> • Ecosystem processes and dynamics. • Mechanisms by which climate change impacts biodiversity and ecosystems. • Ecosystems resistance and resilience capacity to different changes including climate change. • Mitigating and adaptive solutions to climate driven biodiversity loss.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Processes by which climate change affects natural and managed ecosystems. • Risks from climate change and other interacting pressures on biodiversity, ecosystem goods and services, and human well-being. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Distinguish most prone ecosystems to impacts of climate change. • Appraise the major approaches to modeling ecosystem and species responses to climate pressures. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Explore methods and tools for assessing climate impacts to ecosystems, species and human livelihoods. • Correlate the interactions among development, ecosystem processes and climate change using a case study approach. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Use interdisciplinary scientific literature to develop transferable skills in critical writing, in oral and visual presentation, and in teamwork.

Course outline	
Course title	Climate change and health
Course code	2001788
Credit points	2 CP
Course description	The course provides participants with the ability to recognize thoroughly the linkages between climate change and health and a detailed comprehension of the methods and tools to assess and manage the impact of climate change on human health. Participants will also explore the mitigative and adaptive responses to the actual or likely impacts of climate change on public health.
Contents	<ul style="list-style-type: none"> • Climate change and health interrelationship. • Global burden of diseases attributable to climate change. • Assessment of health impacts of climate change (methods and tools). • Developing responses in the health sector to climate change.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Concept of climate sensitive diseases. • Mechanisms by which climate change affects human health. • Pertinent and updated intervention policies in the context of health impacts of climate change. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Establish baseline relationship between climate and health. • Postulate populations' vulnerability to health impacts of climate change. • Express uncertainty associated with studies of climate change and health. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Identify methodologies in assessing health risk and impacts of climate change. • Monitor climate change impacts on human health. • Estimate the co-incident benefits and costs of mitigation and adaptation. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Communicate orally and in written forms on the complexity of climate change and health from driving forces through exposures to potential health impacts. • Demonstrate an insight into the transferable nature of research skills to other work environments.

Course outline	
Course title	Urban environment
Course code	2001789
Credit points	2 CP
Course description	The course aims to introduce the enrolled students to the field of urban environment, causes of urban environment degradation and link human activities to the quality of urban environment.
Contents	<ul style="list-style-type: none"> • Elements of urban environment. • Urbanization process. • Urban land use patterns. • Urban transportation. • Municipal solid waste management. • Urban planning. • Urban sustainability and Eco-cities.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Basic features of urban environment and its elements. • Elements of urban sustainability. • Pros and cons associated with urbanization. • Reasons underlying urban development. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Differentiate between urban and rural areas. • Interpret the interrelationships between land use patterns and quality of urban environment. • Explore the framework and methodologies of urban planning. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Attain data for assessment of urban environment. • Formulate a comprehensive framework for dealing with urban environment. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Show confidence and self-awareness, reflect on own learning and be self-reliant and constructively self-critical.

Course outline	
Course title	Geopolitics of climate change
Course code	2001790
Credit points	2 CP
Course description	The course provides enrolled students with an overview of the field of geopolitics in relation to environmental agreements in general and climate change in particular. Students will examine the geopolitical elements of the emerging discourse on how to control and cope with climate change.
Contents	<ul style="list-style-type: none"> • Population, resources and political conflict. • Geopolitical elements of national power/ international relations • Implications of climate change on resources scarcity and security. • Climate change negotiation processes and global climate change agreements.
Learning outcomes	<p>A. Knowledge & Understanding On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Links between resources scarcity under climate change and political conflicts at both regional and global levels. • Tangible and intangible elements of national/regional power. • Global distribution of climate change impacts. • Climate change negotiations and policies. <p>B. Intellectual skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Examine the interrelationships between political power and spatial context. • Draw conclusion about the power and political aspects of international relations. <p>C. Professional skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Discern regulatory frameworks and conflicts associated with climate change. <p>D. Transferable skills On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Communicate effectively in context through oral presentations and written reports. • Critically review evidence including its reliability, validity and significance.

Student development learning course	
Course title	Scientific research skills
Course code	2001791
Credit points	No CP
Course description	The course is designed as a capstone research course. It is tailored to orient students to research design, critical reading and professional reporting. Students will gain practice in the challenges of thinking critically during the course of their research progress.
Contents	<ul style="list-style-type: none"> • Research ethics. • Critical thinking. • Critical reading and writing skills. • Approaches of professional reporting.
Learning outcomes	<p>A. Knowledge & Understanding</p> <p>On completion of the course, students should demonstrate systematic knowledge and understanding of:</p> <ul style="list-style-type: none"> • Scientific method for development of sound research questions. • Ethics of scientific research. • Research and professional reporting approaches. <p>B. Intellectual skills</p> <p>On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Master critical thinking skills of interpretation, analysis, inference, evaluation, explanation and self regulation. • Adopt a critical systematic approach in reading. • Apply integrated knowledge towards activities that enhance research settings. <p>C. Professional skills</p> <p>On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Develop a professional report. • Appreciate research and copyright ethics within the context of their study. • Practice various data presentation styles. <p>D. Transferable skills</p> <p>On completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Participate in a work group, where deadlines, professionalism and quality of work are of paramount importance.

8. Admission Criteria

Applicants must satisfy the University's general entry requirements to a master degree and should also demonstrate proficiency in English. Candidates may be interviewed as part of the selection process.