UNIVERSITY GRADUATE PROGRAMS
Silliman University
Dumaguete City

MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE
2009 CURRICULUM

CORE COURSES		(15 Units)
ES 101	Elements of Research	3
ES 102	Ecosystems	3
ES 104	Air, Water and Soil Interactions	3
ES 103	Environmental Laws and Policies	3
ES 105	Environmental Impact and Resource Assessment	3
MAJOR COURSES		(9 units)
ES 111	Socio-cultural Impacts on the Environment	3
ES 112	Environmental Economics and Sustainable Development	3
ES 113	Soil / Air Chemistry and Waste Management	3
ES 114	Environmental Parameters and their Determinations	3
ES 115	Environmental Toxicology	3
ELECTIVES		(6 units)
ES 121	Hydrography and Mapping	
ES 122	Urban Development and Planning	
ES 123	Occupational Health Hazards	
ES 124	Economics of Natural Resources	
ES 125	Aquaculture and the Environment	
ES 126	Travel and Tourism Industry Management	
ES 127	Exotic Species and the Environment	
ES 128	Water Quality Management	
ES 129	Land Use	
ES 130	Special Topics in Environmental Science	
300	Masters Thesis	6
	TOTAL NUMBER OF UNITS	36

Course Description

ES 101 Elements of Research 3

An introduction of the basic principles of scientific research including techniques in the collection, analysis and presentation of data

ES 102 Ecosystems 3

Focuses on the different ecosystems, their components and interactions between them, with special emphasis on coastal ecosystems.

ES 104 Air, Water and Soil Interactions 3

An overview of the basic principles involved in the chemical and physical basis of environmental science; includes the entry and fate of the different pollutants in the environment

ES 103 Environmental Laws and Policies 3

An overview of the existing international and national laws which are relevant to the environment

ES 105 Environmental Impact and Resource Assessment 3

Identification of parameters for consideration in EIRA; factors considered in the selection, modification and development of EIRA methods; analysis of impacts on the environment.

ES 113 Socio-cultural Impacts on the Environment 3

Different cultural settings of people, their historical and present-day utilization of the resources; the evolution of behavior towards the environment and its utilization; the roles and effects of major socio-cultural factors of population growth and other demographic process (fertility, mortality and immigration) on the status of the environment.

ES 112 Environmental Economics and Sustainable Development 3

Analyzes the intrinsic value of natural resources; the profits derived from a development enterprise as against the long term of mitigation and regeneration of damaged ecosystems.

ES 113 Soil / Air Chemistry and Waste Management 3

Soil chemistry, its alterations by land and cultivation practices and as a receptor of waste products; also includes elements and compounds present and emitted to the atmosphere as a result of man's activities and a comparison of the mechanism of classical and photochemical smog formations.

ES 114 Environmental Parameters and their Determinations 3

Overview of the parameters in assessing the quality of the environment; includes the sociological, biological, chemical and physical parameters

ES 115 Environmental Toxicology 3

An overview of the various toxic and lethal substances that are produced in industrialization and urbanization or naturally produced by the environment (red tides); includes heavy metal pollution. The concept of bioaccumulation will be discussed and various classic cases will be cited (ex., Minamata Disease, cadium poisoning). Cyanide fishing, pesticide use and other practices that release toxic or lethal substances to the environment and their effects will be included.

ES 124 Economics of Natural Resources 3

Includes natural resource valuation concepts, cost-benefit analysis of natural resources, environmental and natural resource accounting

ES 121 Hydrography and Mapping 3

Focuses of the measurements of physical characteristics (conditions, boundaries and others) of waters and marginal lands; includes techniques in mapping of the coastal zone and its resources; includes the use of computer programs such as Google Earth and mapping programs such as autocad, surfer and others.

ES 129 Land Use 3

Overview of the use of land in the upland and coastal environments with emphasis on the landscape approach to coastal management

ES 125 Aquaculture and the Environment 3

Study of existing aquaculture and mariculture techniques; design, management and economics of the techniques and the impacts of these techniques to the environment (includes water management, land conservation, use of chemicals)

ES 126 Travel and Tourism Industry Management 3

The identification and development of features in the locality that have a tourism potential; requirements for the development of the site (feasibility studies, information collection and dissemination); management techniques involved travel and tourism, identification of potential effects to tourism on the locale.

ES 128 Water Quality Management 3

Biological and chemical characteristics of water, methodologies of water analysis (coliform counts, total suspended solids and sedimentation, phosphates and nitrates); significance of water quality to the coastal zone and its inhabitants.

ES 130 Special Topics in Environmental Science 3

Deals with specials topics like biodiversity and biogeography, the current environmental issues like climate change and global warming and recent advances in the various fields of environmental science

ES 122 Urban Development and Planning 3

Urban development and planning gives an overview of the changes and environmental problems which accompanied urbanization. The course will also deal with the environmental basis of urban development planning.

ES 123 Occupational Health Hazards 3

Will cover the different hazardous substances that a person may be subjected to in and around industrial plants with emphasis on the total health impact on both short- and long- term effects to even low levels of toxicants; includes the health effects on noise, particulates, mineral fibers and radioactivity.

ES 127 Exotic Species and the Environment 3

The course will deal with the significance of endemic species, the effects of introduction of exotic or non-endemic species and their possible repercussions to natural endemic populations in terms of disease introduction and translocation.

ES 300 Masters Thesis 6