

**CORE CURRICULUM FOR ONLINE MASTER OF SCIENCES  
IN ENVIRONMENTAL SCIENCE**

<b>CORE REQUIREMENTS</b>		
<b>Course #</b>	<b>Course Name</b>	<b>Credit Hours</b>
EVSC 0500	Biostatistics I	3
EVSC 0504	Environmental Science II	3
EVSC 0507	Introduction to Geographic Information Systems	3
EVSC 0545	Remote Sensing Principles and Applications	3
EVSC 0570	Agrometeorology	3

<b>REQUIRED – 8 CREDITS</b>		
EVSC 0600	Environmental Science Seminar	2
EVSC 0700	Graduate Project	6

<b>ELECTIVES - 9 CREDITS</b>		
EVSC 0517	GIS Applications	3
EVSC 0552	Environmental Management	3
EVSC 0555	Soil Chemistry	3
EVSC 0560	Hydrology and Water Resources Management	3
EVSC 0580	Environmental Regulations	3
EVSC 0590	Soil/Environmental Microbiology	3
EVSC 0610	Climate Change and Climate Modeling	3

**SUMMARY**

**Total Required Core Courses: 15 credits**

**Total Other Required: 8 credits**

**Total Required Electives: 9 credits**

**TOTAL CREDIT HOURS REQUIRED FOR DEGREE: 32 credits**

## **COURSE DESCRIPTION**

EVSC 0500. BIO-STATISTICS 1: 1st Semester. 3 credits. Statistical methods in scientific research. An introductory course in statistics dealing with the application of various methods of analyzing research data to include sampling, randomization, the normal distribution, "t" test, linear regression, correlation, Chi-Square, and analysis of variance of random design. Laboratory assignments require the use of pocket calculators and the University's time share computer.

EVSC 0504. ENVIRONMENTAL SCIENCE II. 2nd Semester. 3 credits. Problems related to the presence of biologically active substances and potential hazardous synthetic chemicals in the environments. Strategies in minimization and management of these hazards will be discussed. Pesticides, radiation hazards, industrial chemical and potential biological hazards will be considered. Prerequisites: EVSC 0404 or Permission of Instructor.

EVSC 0507. INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS. 1st Semester. 3 credits. Introductions to GIS concepts. Basic theoretical concepts, computer cartography, geodatabase system, editing spatial data, spatial analysis, mapping and visualization. Familiarity with ArcGIS software.

EVSC 0552. ENVIRONMENTAL MANAGEMENT. 2nd Semester. 3 credits. Skills to provide leadership in managing and protecting the environmental from hazards resulting from anthropogenic activities. Course will combine understanding of origin and fate of pollutants with social, economic and legal framework for sustainable management and tools to manage effects of contaminants originating from biological, chemical and industrial settings.

EVSC 0580. ENVIRONMENTAL REGULATIONS. 2nd Semester. 3 credits. Problems related to understanding of law and regulations governing the presence of biologically active substances and potential hazardous synthetic chemicals in the environments. Strategies in minimization and management of these hazards. Pesticides, radiation hazards, industrial chemical and potential biological hazards.

EVSC 0517. GIS APPLICATIONS. 2nd Semester. 3 credits. Research applications of GIS. Fundamental concepts of using ArcGIS Spatial Analyst tools to process, create, model, analyze and display raster data, and to integrate GIS and Remote Sensing. Prerequisite EVSC 0507.

EVSC 0545. REMOTE SENSING PRINCIPLES AND APPLICATIONS. 1st Semester. 3 credits. Fundamental concepts and principles of remote sensing, energy sources electromagnetic radiation, sensor systems, satellite image types including multispectral, hyperspectral, thermal and radar data acquisitions, image resolution types and image processing techniques, image classification, ground referencing, and GIS integration.

EVSC 0560. HYDROLOGY AND WATER RESOURCES MANAGEMENT. 2nd Semester. 3 credits. Theories and principles of hydrologic cycle, hydrologic systems, hydrologic processes, surface and subsurface water, hydrologic measurement and analysis, types and sources of point and nonpoint sources of pollution, the transportation and fate of pollutants, hydrologic modeling and computer applications for water resources management for pollution control and sustainable water use.

EVSC 0570. AGROMETEOROLOGY. 1st Semester. 3 credits. Application of climatological information for the purposes of improving farming practices and increasing agricultural productivity in both quantity and in quality.

EVSC 0590. SOIL/ENVIRONMENTAL MICROBIOLOGY. 1st Semester. 3 credits. Description, location, taxonomy, abundance and significance of the major groups of soil microorganisms, major biochemical transformations carried out by the organisms; major biochemical transformations carried out by the soil micro flora and their relationships to soil fertility and environmental pollution are examined. Prerequisites: CHEM 0320 or Permission of Instructor.

EVSC 0600. ENVIRONMENTAL SCIENCE SEMINAR. 1st and 2nd Semesters. 1-2 credits. Lectures from visiting scientists, and other organizations on topics related to environmental science. Presentation of

proposals for thesis and technical reports by students on research in environmental science and related areas. This is a unique type of seminar in which knowledge from different areas will be integrated and students will write technical reports from the notes of the lectures combined with literature research.

EVSC 610. CLIMATE CHANGE AND CLIMATE MODELING. 2nd Semester. 3 credits. Solid foundation for science students in all disciplines for our current understanding of global warming and important natural climate variations; essentials of how climate models are constructed.

EVSC 0700. GRADUATE PROJECT. 1st and 2nd Semesters, Summer. 6 credits. Research in thesis problems under the direction of a major advisor. Students in this program will be required to select research problems on a specific topic concentrating on the investigation of problems of environment and its quality.