COURSE SYLLABUS

SPATIAL ANALYSIS FOR ENVIRONMENTAL STUDIES

Total credits: 02 - of which : theory: 1 – practical lab: 1 – self-study: 6

Course ID: MT 03077

EXPECTED LEARNING OUTCOMES

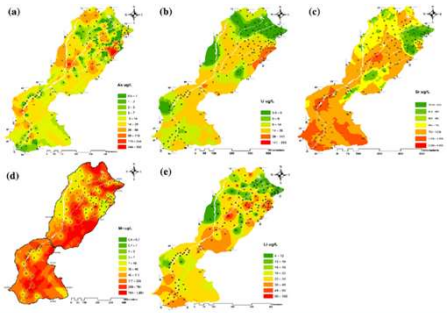
Indicator	Upon the completion of the course, students are able	Expected outcomes of the BSc's program
Knowledge		
CELO1	To understand the theory of random distribution of environmental properties over space: the continuity or discreteness of environmental properties when analyzing data	ELO3: Evaluate the impact of natural resource exploitation and emissions on environmental quality..
CELO2	To understand the spatial and temporal dependences and interactions of environmental properties	ELO3: Evaluate the impact of natural resource exploitation and emissions on environmental quality..
CELO3	To understand what is semi-variogram and how a semi-variogram model works	ELO3: Evaluate the impact of natural resource exploitation and emissions on environmental quality..
CELO4	To understand how spatial and temporal models of environmental properties would work, i.e. the continuous vs. discrete model, and the interpolated vs. extrapolated model	ELO3: Evaluate the impact of natural resource exploitation and emissions on environmental quality..
CELO5	To understand how to apply geo-statistics on designing and collecting environmental samples, such as those for air quality, soil properties and organism populations	ELO6: Apply systematic, critical, and creative thinking in solving problems in the environmental and related fields.
Skills		
CELO6	To be able to analyze and understand the spatial and temporal interactions of environmental properties	ELO6: Apply systematic, critical, and creative thinking in solving problems in the environmental and related fields.
CELO7	To be able to propose suitable semi-variograms for concerned environmental properties/parameters	ELO10: Use modern technology, equipment, and techniques in the management and protection of the environment and natural resources
CELO8	To be able to handle problems related to environmental field samples and sample analysis	ELO6: Apply systematic, critical, and creative thinking in solving problems in the environmental and related fields.
CELO9	To be able to recalibrate semi-variogram model parameters using field samples to interpolate and map environmental properties	ELO10: Use modern technology, equipment, and techniques in the management and protection of the environment and natural resources
CELO10	To be able to perform spatial analysis of environmental problems and to conduct environmental planning	ELO10: Use modern technology, equipment, and techniques in the management and protection of the environment and natural resources
Ethics and attitude		
CELO11	To have a quality mindset of studying and enriching knowledge	ELOS11: Define a clear career orientation; possess a passion for one's career and a sense of lifelong learning.enviro

OVERALL COURSE CONTENTS

Chapter 1. Introduction of geo-statistics

Chapter 2. Semi-variogram analysis and model

Chapter 3. Geo-statistics application on field samplings in environmental research



STUDYING REQUIREMENT

- Expected self-study from student with provided course materials through e-learning and library
- Student participitation in class discussion is required
- In-computer-lab practices and individual assigment must be completed

COURSE EVALUATION

- Score of 10

Participating in in-class discussion (10%)	Individual assignment (30%)	Exam (60%)

STUDENT COMMITMENT

- Student must attend at least 75% of the theory classes and complete all 6 in-lab practice sections in order to fullfil the 10 percent of the total score and to be able to qualify for the final examination.
- Student is expected to read through all provided materials, to complete an individual assigment and may be requested to present his/her work and reads and asked to participate on group discussion.
- Mid-term evaluation is based on the completion of individual on-computer assignment

COURSE TUTORS

Course main lecturer: **Nguyen Thi Thu Ha**

Email: nttha.cnmt1@vnua.edu.vn

Co-lecturer: **Tran Nguyen Bang**

Email: trannguyenbang@vnua.edu.vn