Boğaziçi University
GED 554 Information Technology and Geographic Information System
Spring 2016

Instructor: Name: Aslı Doğru
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Course Data:
Day/Hours: TBA
Place: Kandilli Campus

Course Description:

Course Objectives:
- learn fundamental concepts of GIS and IT
- understand and apply simple to complex analyses of geospatial data
- make maps and present findings
- gain familiarity with capabilities of IT in GIS

Ref. Books:
- GIS fundamentals : a first text on geographic information systems / Paul Bolstad (BOUN Library)
- Datums and map projections for remote sensing, GIS, and surveying / Jonathan C. Iliffe (BOUN Library)
- Getting to Know ArcGIS Desktop, ESRI

Computer Usage: Students are required to use software for process and analysis geospatial data.

Evaluation Method: Exercises+Presentations : 50 % of the assignments
Final Exam: 50 % of the final grade

Contribution of the Course to Program Outcomes:
This course is intended to contribute to the following program outcomes:
✓ (a) An ability to apply knowledge of mathematics, science and engineering
✓ (b) An ability to design and conduct experiments, as well as to analyze and interpret data
✓ (c) An ability to design a system, component, or process to meet desired needs
   (d) An ability to function on multi-disciplinary teams
✓ (e) An ability to identify, formulate and solve engineering problems
✓ (f) An understanding of professional and ethical responsibility
   (g) An ability to communicate effectively
   (h) The broad education necessary to understand the impact of engineering solutions in a
global and societal context
   (i) A recognition of the need for, and ability to engage in life-long learning
   (j) A knowledge of contemporary issues
✓ (k) An ability to use the techniques, skills and modern engineering tools necessary for
engineering practice
Course Content:

**Weeks 1-2**
Introduction and planning

**Weeks 3-4**
Discussion Topics: What is a GIS? Getting Data into ArcGIS
Conceptual Overview
Overview of the Applications of GIS
Introduction to the ArcGIS Interface
Lab Exercise 1: Spatial Analysis of Data Using ArcGIS

**Week 5-6**
Discussion Topics: Displaying Themes, Working with Tables
GIS Data, Data Models, Databases
Lab Exercise 2: Data Entering in ArcMap and Shapefile Creating in ArcCatalog, and Mapping

**Week 6-7**
Discussion Topics: Creating and Editing Shapefiles
Raster Data Model
Georeferencing
Lab Exercise 3: Georeferencing a Raster Dataset

**Week 8-9**
Discussion Topics: Querying and Analyzing Themes
Lab Exercise 4: Creating Topology / Defining a Projection / Buffering

**Week 10-11**
Discussion Topics: Spatial Selection
Reclassification, Dissolve, Overlay
Statistics
Lab Exercise 5: Spatial Joins

**Week 12-13**
Discussion Topics: Creating Layouts
Scales-Labels-Annotations-Measuring
Mapping Numerical Data
Symbolization
Lab Exercise 6: Making Maps for Presentation