Syllabus: Intro to GIS (Spring, 2015)

Revision v 3

Introduction to GIS will present a methodical review of the capabilities of Esri software for Geographic Information Systems (GIS).   Students will use ArcMap, ArcCatalog, ArcGIS Online, and other ArcGIS software components to conduct practical hands-on exercises in a guided week-by-week sequence. While learning practical GIS skills and software tools, the class will include background lectures and theory readings to provide context for the acquisition of practical software skills.

This class is designed to provide pre-requisite skills for students intending to proceed with Advanced GIS in the future and exploit many types of geographic information for research and field studies.

Week 1 - Introduction to GIS

Lecture: Introduction to Geographic Information Systems

Practicum: Basics of Data Management (ArcCatalog)

Textbook: Chapter 1 – "Frame the Problem"

Week 2 – Geospatial Data

Lecture: Types of Spatial Data (Many!)

Practicum: ArcGIS Online for Web Mapping

Textbook: Chapter 2 – "Preview the Data"

ArcGIS Online: LearningGIS Module 1

Week 3 –Coordinate Systems

Lecture: Managing Coordinate Systems in ArcMap

Practicum: Projection Examples and the "First Feature Class" rule

Textbook: Chapter 3 – "Choose the Data"

ArcGIS Online: LearningGIS Module 2-3

Week 4 – Geodatabases and Data Management

Lecture: Geodatabases for Data Management

Practicum: ArcCatalog Tools

Practicum: JOIN and RELATE Workflows

Textbook: Chapter 4 – "Build the Database"

ArcGIS Online: LearningGIS Module 4-5

Week 5 – Editing

Lecture: Creating Data and Using Attributes

Practicum: Editing Features and Calculating Fields

Textbook: Chapter 5 – "Edit the Data"

ArcGIS Online: Publishing maps in Geoduck.maps.arcgis.com

Week 6 – Analysis

Lecture: Basic Spatial Analysis

Practicum: Geoprocessing Tools on Desktop

Textbook: Chapter 6 – "Conduct the Analysis"

ArcGIS Online: Analysis Tools

Week 7 – Raster Analysis

Lecture: Raster Modeling

Practicum: Vector to Raster Conversion

Textbook: None

ArcGIS Online: Mobile Data Collection using Smartphone

Week 8 – Map Production

Lecture: App Publishing

Practicum: Making a Web App

Textbook: Chapter 8 – "Present Analysis Results"

ArcGIS Online: Story Mapping Templates and Apps

Week 9 – Analysis Tools in ArcGIS Online

Lecture: ArcGIS Analysis toolset

Practicum: ArcGIS Online Interactions for Analysis

Textbook: Chapter 9 – "Share Results Online"

ArcGIS Online: Webmap Interactions with Apps

Week 10 – Introduction to *ArcGIS Professional*

Lecture: Elevation In ArcGIS

Practicum: ArcGIS Professional

Supplemental Reading: TBD

Week 11: - Evaluations

Scheduled Student Assessment Conferences (Optional)