

Introduction to Coastal GIS

Held on Tues, 1/8/13 through Thurs, 1/10/13

Location: Roger Williams University, Bristol, RI

Audience: The intended audiences for this course are federal and state personnel, municipal staff and officials, and NGOs. This course is not open to private companies or students..

Description: This three-day NOAA Coastal Services Center instructor-led course provides students with knowledge and skills to successfully use ArcGIS version 10.1 desktop software. Framed in a coastal management context, the course begins with geographic information system (GIS) fundamentals and introduces tools and techniques useful for addressing coastal issues. In addition to lectures, demonstrations, and exercises in ArcGIS, the course incorporates small group activities and class discussion to reinforce concepts learned in lecture and exercises.

At the conclusion of this course, participants will be able to:

- Understand basic GIS concepts and terminology
- Explore spatial data in ArcGIS using basic navigation tools
- Use ArcGIS tools and methods to create and edit spatial data
- Analyze spatial data using basic selection and geoprocessing tools
- Design a map that incorporates basic elements

Cost: \$70.00. This cost includes class materials and a light breakfast, lunch, and afternoon snacks each day.

Program Coordinator, at jennifer@nbnerr.org or 401-222-4700, x 7413.

Course Instructor: **Michael Rink**

Geo On The Go, LLC provides GIS training and consulting services to customers throughout the US. The company is headed by Michael Rink - a GIS Analyst and Instructor who has over 25 years of experience in GIS technologies. Mike worked eight years at the NC state government GIS data clearinghouse. He then worked at NOAA's Coastal Services Center for over 10 years as a GIS Analyst and Instructor. Mike formed Geo On The Go in 2006 as his own consulting company to provide quality GIS training and geoservices to professionals across the US. Mike received his BS degree in Geography at Appalachian State University and a Masters in GIS degree through Pennsylvania State University. Additionally, Mike is an Esri-authorized instructor in various ArcGIS courses and is a registered GIS Professional (GISP) as established by the GIS Certification Institute.

Introduction to Coastal GIS

Course Outline

Course Schedule

- We will begin each morning at 8:30 and end at 5:00 PM
- We will break for lunch at approximately 12:00 PM for 1-hour
- Each day will include a 15-minute morning and afternoon break

Course Objectives

At the conclusion of this course, participants will be able to:

- Understand basic GIS concepts and terminology
- Explore spatial data in ArcGIS using basic navigation tools
- Use ArcGIS tools and methods to create and edit spatial data
- Analyze spatial data using basic selection and geoprocessing tools
- Design a map in ArcMap that incorporates basic map elements

Day 1

Course Introduction

- Instructor and Student Introductions
- Logistics
- Course Objectives
- What to Expect

Module 1 – GIS Theory and Basics

- **Lecture:**
 - What is GIS?
 - Modeling Spatial Phenomena
 - GIS Data Properties
 - Spatial Reference
- **Demonstration:**
 - Scale, Resolution, and the Temporal Aspect of Spatial Data
- **Lecture:**
 - Data Formats
- **Demonstration:**

- Data Exploration in ArcCatalog
- **Class Activity:**
 - Class Exercise Introduction

Module 2 – Data Management

- **Lecture:**
 - Introduction to ArcCatalog
 - Data Management in ArcMap
 - Obtaining Spatial Data
 - Data Conversion
- **Exercise 1:** Obtaining Spatial Data
 1. Find Data Online
 2. Access Data Using ArcIMS
 3. Data Conversion
- **Lecture:**
 - Metadata and Data Quality
- **Class Activity:**
 - Assessing Data for Your Coastal Application

Day 2

Module 3 – Exploring Spatial Data

- **Lecture:**
 - Introduction to ArcMap
- **Exercise 2:** Exploring ArcMap
 1. Explore the Table of Contents
 2. Explore the Tools Toolbar
 3. Explore the Layer Properties Dialog
- **Demonstration:**
 - Additional ArcMap Functionality
- **Lecture:**
 - Attribute Tables
 - Table Associations
- **Exercise 3:** Exploring Tables
 1. Explore the Table Window
 2. Perform a Table Association
 3. Perform Field Calculations
- **Class Activity:**
 - Assess data attribution for your coastal application

Module 4 – Working with Spatial Data

- **Lecture:**
 - Data Creation Techniques
- **Exercise 4:** Spatial Data Creation
 1. Create a New Feature Class
 2. Digitize Point Features
 3. Add X,Y Data
- **Lecture:**
 - Map Projections
- **Exercise 5:** Spatial Reference
 1. Examine Spatial Reference Information
 2. Change Spatial Reference
- **Lecture:**
 - Editing in ArcMap
- **Demonstration:**
 - Editing Tools and Workflows
- **Exercise 6:** Editing Data
 1. Create New Polygon Features
 2. Modify Line Features
 3. Modify Polygon Features

Day 3

Module 5 – Spatial Analysis and Geoprocessing

- **Lecture:**
 - Spatial Analysis Defined
 - Selections in ArcGIS
- **Exercise 7:** Selection Tools
 1. Feature Extraction
 2. Location-based Selections
- **Lecture:** Geoprocessing
 - Geoprocessing Overview
 - Geoprocessing Tools
- **Exercise 8:** Geoprocessing
 1. Prepare Analysis Inputs
 2. Perform Overlay Analysis

- **Demonstration:**
 - ModelBuilder
- **Class Activity:**
 - Tools for your Coastal Application

Module 6 – Cartography

- **Lecture:**
 - Symbolizing Spatial Data
 - Data Classification
- **Demonstration:**
 - Classification Methods
- **Exercise 9:** Symbology
 1. Qualitative Symbolization
 2. Quantitative Symbolization

- **Lecture:**
 - Labeling and Annotation
- **Exercise 10:** Labels and Annotation
 1. Prepare Layers for Labeling
 2. Label Features
 3. Create Annotation
- **Demonstration:**
 - Additional Labeling and Annotation Features
- **Lecture:**
 - Map Design
- **Discussion:**
 - Map Critique
- **Lecture:**
 - Map Development
- **Exercise 11:** Map Layouts
 1. Set Up Data Frames
 2. Layout Map Page
 3. Add Map Elements
- **Class Activity:**
 - Create a map for your coastal application