ESRI Italia
Intelligenza del Territorio

www.esriitalia.it

Si certifica che **Valerio De Luca**

ha frequentato il corso

"ArcGIS Desktop III – Processi ed Analisi" Rel. 10

presso il Centro di Formazione

Esri Italia - Roma

dal 12 Marzo 2012 al 13 marzo 2012

Docente

Bruno Ratti
Presidente ESRI Italia S.p.A.

Roma lì, *13 marzo 2012* Corso n° *2178*

Copyright © 2009 ESRI Italia S.p.A. Tutti i diritti sono riservati. Tutti i nomi e marchi di ESRI sono nomi e marchi registrati da ESRI Inc.
Gli altri nomi e marchi citati sono nomi e marchi registrati dai rispettivi proprietari.

ArcGIS® Desktop III: GIS Workflows and Analysis

Copyright © 2008-2010 Esri

All rights reserved.

Course version 2.1. Version release date July 2010.

Printed in the United States of America.

The information contained in this document is the exclusive property of Esri. This work is protected under United States copyright law and other international copyright treaties and conventions. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, except as expressly permitted in writing by Esri. All requests should be sent to Attention: Contracts and Legal Services Manager, Esri, 380 New York Street, Redlands, CA 92373-8100 USA.

EXPORT NOTICE: Use of these Materials is subject to U.S. export control laws and regulations including the U.S. Department of Commerce Export Administration Regulations (EAR). Diversion of these Materials contrary to U.S. law is prohibited.

The information contained in this document is subject to change without notice.

U. S. GOVERNMENT RESTRICTED/LIMITED RIGHTS

Any software, documentation, and/or data delivered hereunder is subject to the terms of the License Agreement. The commercial license rights in the License Agreement strictly govern Licensee's use, reproduction, or disclosure of the software, data, and documentation. In no event shall the U.S. Government acquire greater than RESTRICTED/LIMITED RIGHTS. At a minimum, use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in FAR §52.227-14 Alternates I, II, and III (DEC 2007); FAR §52.227-19(b) (DEC 2007) and/or FAR §12.211/12.212 (Commercial Technical Data/Computer Software); and DFARS §252.227-7015 (NOV 1995) (Technical Data) and/or DFARS §227.7202 (Computer Software), as applicable. Contractor/Manufacturer is Esri, 380 New York Street, Redlands, CA 92373-8100, USA.

@esri.com, 3D Analyst, ACORN, Address Coder, ADF, AML, ArcAtlas, ArcCAD, ArcCatalog, ArcCOGO, ArcData, ArcDoc, ArcEdit, ArcEditor, ArcEurope, ArcExplorer, ArcExpress, ArcGIS, ArcGlobe, ArcGrid, ArcIMS, ARC/INFO, ArcInfo, ArcInfo Librarian, ArcLessons, ArcLocation, ArcLogistics, ArcMap, ArcNetwork, ArcNews, ArcObjects, ArcOpen, ArcPad, ArcPlot, ArcPress, ArcReader, ArcScan, ArcScene, ArcSchool, ArcScripts, ArcSDE, ArcSdl, ArcSketch, ArcStorm, ArcSurvey, ArcTIN, ArcToolbox, ArcTools, ArcUSA, ArcUser, ArcView, ArcVoyager, ArcWatch, ArcWeb, ArcWorld, ArcXML, Atlas GIS, AtlasWare, Avenue, BAO, Business Analyst, Business Analyst Online, BusinessMAP, CommunityInfo, Database Integrator, DBI Kit, EDN, Esri, Esri—Team GIS, Esri—The GIS Company, Esri—The GIS People, Esri—The GIS Software Leader, FormEdit, GeoCollector, Geographic Design System, Geography Matters, Geography Network, GIS by Esri, GIS Day, GIS for Everyone, GISData Server, JTX, MapIt, Maplex, MapObjects, MapStudio, ModelBuilder, MOLE, MPS—Atlas, PLTS, Rent-a-Tech, SDE, SML, Sourcebook·America, Spatial Database Engine, StreetMap, Tapestry, the ARC/INFO logo, the ArcGIS logo, the ArcGIS Explorer logo, the ArcPad logo, the Esri globe logo, the Esri Press logo, the GIS Day logo, the MapIt logo, The Geographic Advantage, The Geographic Approach, The World's Leading Desktop GIS, Water Writes, www.esri.com, www.geographynetwork.com, www.gis.com, www.gisday.com, and Your Personal Geographic Information System are trademarks, registered trademarks, or service marks of Esri in the United States, the European Community, or certain other jurisdictions.

Other companies and products mentioned herein may be trademarks or registered trademarks of their respective trademark owners.

Contents

Introduction

Introduction
Course goals
Using the course workbook
Additional resources
Installing the course data

1 Course workflow

Lesson introduction
Course workflow

2 Getting data into the geodatabase

Lesson introduction
What is the geodatabase?
Geodatabase elements
Adding data to the geodatabase
Coordinate systems and datums
Exercise 2: Get data into the geodatabase
    Migrate data between geodatabases
    Import a single shapefile
    Import multiple shapefiles in batch mode
    Change map projections
    Load data into a geodatabase feature class
    Create feature class from x,y data
    Create an OLE DB connection to an Access database
Lesson review
    Answers to Lesson 2 questions

3 Geodatabase behaviors

Lesson introduction
Attribute behavior
Subtypes and domains
Spatial behavior
Topology
Exercise 3: Explore geodatabase behavior
    Summarize a field in the attribute table
    Create a domain
    Apply the domain to a field
    View the new domain in the Catalog window and ArcMap
    Explore subtypes in the Catalog window
    Explore subtypes in ArcMap
    Import domains from XML
    Apply domains to subtypes
    Explore a topology in the Catalog window
    View the topology in ArcMap

Lesson review
Answers to Lesson 3 questions

4 Editing GIS data

Lesson introduction
Preparing a map for editing
Creating and editing features
Common editing tasks
Editing with behavior
Exercise 4A: Work with editing tools and tasks
Explode a multipart feature
Generalize a flood polygon
Create a new polygon adjacent to an existing one
Reshape a feature
Exercise 4B: Edit using behaviors
Edit using subtypes
Edit using range domains
Digitize a new storm feature
Edit topological data using the Error Inspector
Edit topological data using the Fix Topology Error tool
Lesson review
Answers to Lesson 4 questions

5 Aligning spatial data

Lesson introduction
Data alignment problems
Spatial adjustment methods
Georeferencing
Exercise 5A: Spatially adjust vector data
Explore adjacent data layer boundaries
Add displacement links
Adjust data using the Edge Snap method
Append data layers
Exercise 5B: Georeference a CAD layer
Examine a CAD feature class using the Catalog window
Add a CAD layer to ArcMap
Add control points using the Georeferencing toolbar
Update georeferencing information
Define the map projection
Add a CAD layer to ArcMap
Convert CAD data to a geodatabase feature class
Lesson review
Answers to Lesson 5 questions

Contents

6 Preparing for analysis

Lesson introduction
Geoprocessing toolboxes
Geoprocessing tools
Environment settings
Exercise 6: Preparing for analysis
- Explore toolbox structure
- Create a custom toolbox
- Locate tools using the Search window
- Explore tool parameters
- Work with environment settings
- Manage geoprocessing errors and warnings
- Work with tool layers in ArcMap
- Explore geoprocessing results

Lesson review
- Answers to Lesson 6 questions

7 Analyzing GIS data

Lesson introduction
Why analyze GIS data?
GIS analysis workflow
Exercise 7A: Extract and overlay data and join tables
- Extract data for analysis
- Join attributes from another table
- Locate flooded block groups
- Analyze attributes of flooded blocks
- (Optional) Graph information on flooded block groups

Exercise 7B: Perform proximity analysis
- Locate features within a single distance of the hurricane path
- Locate features within multiple distances of the hurricane path
- Find hospitals closest to shelters
- (Optional) Construct Thiessen polygons

Lesson review
- Answers to Lesson 7 questions

8 Using ModelBuilder for analysis

Lesson introduction
What is ModelBuilder?
Model elements and variables
Model parameters
Working with ModelBuilder
Exercise 8: Analyze GIS data using ModelBuilder
- Start ArcMap and modify a custom toolbox
- Create a new model and set properties
- Add the Select Layer By Attribute tool and set parameters

Add the Clip tool and set parameters
Create a feature layer
Add the Make Query Table tool and set parameters
Add the Intersect tool and set parameters
Set additional model properties
Run the model from ModelBuilder
Edit item description
Lesson review
Answers to Lesson 8 questions

9 GIS analysis projects

Lesson introduction
Course workflow
Exercise 9A: Find the best site for a new shelter
Start ArcMap and create a new file geodatabase
Create a new model and set the current workspace
Select parishes for shelter locations
Locate schools in the study area parishes
Remove schools located in flooded areas
Extract evacuation routes from study area parishes
Buffer evacuation routes
Extract schools in the evacuation routes buffer
Run the model and explore results
Select schools north of Interstate 10
Locate schools in highly populated block groups
(Optional) Create a map layout of the analysis results
Exercise 9B: Find the mileage of flooded roads
Create a new file geodatabase
Find flooded roads
Explore the Flooded Roads layer
Dissolve road features based on name
Add a mileage field and calculate geometry
Calculate the total mileage of flooded roads
Create a report of the analysis results
(Optional) Create a map layout of the flooded roads
(Optional) Calculate the total mileage of flooded scenic byways
Answers to Lesson 9 questions

Appendixes

Appendix A: ESRI data license agreement