INTRO TO GIS
LANDSCAPE ARCHITECTURE DESIGN
STUDIO
GIS, a Science that involves the geographic space that allows a better understand of the environment, events and relation of cause and effect.
Visualize, question, analyze and interpret data to understand relationship, pattern and trends.

POWER OF MAPPING
ANSWER TO BASIC QUESTIONS

- In this place what are the characteristics?

- Such features, where are they located?
TIMELINE

- Static Map -> Digital (data) -> Functionalities (Tools) -> Methodologies (Analysis) -> Visualization (Communication) -> Collaboration (Crowdsourcing)
GIS SCIENCE

• Resources to:
  - Collect data
  - Data processing
  - Data presentation
  - Analysis
  - Simulation of scenarium
WORKFLOW – GEODESIGN APPROACH

- 1 – Have a question.
- 2 – Define area of study
GETTING DATA

Images from the web
TYPES OF DATA

TOMLIN 1990:44 “yes, raster is vaster and vector just seems to be more correct.”
EXTENSIONS

VECTOR
- Shapefile
- Feature Class
- DXF
- DWG

RASTER
- GeoTIFF
- JPG2
- IMG
- SID
VECTOR DATA

- Shapefile
  - SHP
  - SHX
  - DBF

- DWG / DXF
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2D VS 3D
COORDINATE SYSTEM
Cities has been using technology to influence the way citizens make decisions.
USES

- Landscape Redevelopment

Solar envelope
LANDSCAPE IMPACT

SEA LEVEL RISE

Figure 3.1: Existing Policy Heights from South End of Burrard Bridge

Figure 3.2: Proposed Burrard Gateway from South End of Burrard Bridge
SCENARIOS OF CHANGING URBAN PARAMETERS
EXAMPLES OF GIS USES IN CITIES

- Businesses—find suitable location for a new store
- Transportation planners—find areas of congestion, future need
- Demography—study population growth/decline
- Police/firefighters—find fastest route to incident
- Managers – Best place to the city growth
- Schools Manager – Is there any overload area/school
TRANSPORTATION OUTREACH PLANNER

• Explore here
SOFTWARES

LibGuide: Open Source Geo tools, Crowd-sourcing geo-spatial data and wiki-style mapping

https://library.fiu.edu/friendly.php?s=gisdataservice

https://library.fiu.edu/MappingInstructionalResources

DATABASE

- FIU GIS CENTER
- MIAMI COUNTY GIS
- CITY DATA
- DATA USA
- CENSUS BUREAU
- Simply Analytics
LET’S START!
Catalog and toolbox

Data View

Table of contents
THE TABLE OF CONTENTS

- Viewing mode
- Place layers in data frames
- Change draw order
- Access layer properties
- Turn layers on/off
- Change symbol properties
ARCCATALOG
ARCTOOLBOX
GETTING AND OPENING DATA

LibGuide: Open Source Geo tools, Crowd-sourcing geo-spatial data and wiki-style mapping

ESRI Census Data
STARTING IN ARCGIS
SETTING THE COORDINATE SYSTEM

View data in any coordinate system or projection

- USA Equidistant Conic
- World Mercator
- Unprojected GCS
CAD FILE can be added in ArcMAP.
Grab it and push to Data View
OPEN STREET MAP

- Good option for areas you don’t have a lot of data.
Approximately 107,000 results (0.50 seconds)

ArcGIS Editor for OSM - 10.3.x Desktop
https://www.arcgis.com/home/item.html?id=... Traduzir esta pagina
ArcGIS Editor for OSM that supports using OpenStreetMap data in ArcGIS. Description: Note, there is now a 10.4 release of this toolbox, available here.

ArcGIS Editor for OSM - 10.2.x Desktop
https://www.arcgis.com/home/item.html?id=... Traduzir esta pagina
After installing, launch ArcMap and you should see an 'OpenStreetMap Toolbox' installed under your system toolboxes in the catalog browse window.

ArcGIS Editor for OSM - 10.1 Desktop
www.arcgis.com/home/item.html?id=... Traduzir esta pagina
After installing, launch ArcMap and you should see an 'OpenStreetMap Toolbox' installed under your system toolboxes in the catalog browse window.

ArcGIS Editor for OpenStreetMap | Overview - Esri
www.arcgis.com Products Traduzir esta pagina
Access, Edit, and Analyze OpenStreetMap Data. ArcGIS Editor for OpenStreetMap (OSM Editor) is a free, open source add-on for ArcGIS for Desktop that helps...

ArcGIS Editor for OSM - OpenStreetMap Wiki
ArcGIS Editor for OSM, 10.3.x Desktop

Overview

ArcGIS for Desktop tools that support using OpenStreetMap data in ArcGIS. Load OSM files, apply symbology, contribute data back to OSM, and create network datasets from OSM data.

Description

Note, there is now a 10.4 release of this toolbox, available here.

The ArcGIS Editor for OpenStreetMap allows you to use ArcGIS tools for working with OpenStreetMap data. The desktop edition of ArcGIS 10.3 allows you to load data from OpenStreetMap and store it in a geodatabase. You can then use the familiar editing environment of ArcGIS Desktop to create, modify, do network analysis, or update data. Once you are done editing, you can post back the changes to OSM to make them available to all OSM users.

There are two instalations in this toolbox. One is compatible with ArcGIS 10.3. The other is compatible with ArcGIS 10.2 with the 64-bit background processing installed additionally, i.e., it is in the "ArcGIS Editor 10.2 x" folder. After installing, launch ArcMap and you should see an OpenStreetMap toolbox installed under your system toolboxes in the...
Now we are going to combain attribute data
Input OpenStreetMap Feature Class

Select OSM Tag Key:

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Open attribute table
TYPES OF MAPS AND REPRESENTATION
TWO KINDS OF MAPS

Reference
• Emphasis on location

Thematic
• Emphasis on attribute
TWO TYPES OF THEMATIC MAPS

**Qualitative**
- Show nominal data
- Shows distribution
- No quantities

**Quantitative**
- Show numerical data
- Show variation from place-to-place
- Generalized numbers
SEMILOGY OF GRAPHICS
Tangible  Virtual  Mental
GIS RESOURCES – FIU GIS CENTER

Education

Graduate Certificate
Classes
Free Training
ESRI Virtual Campus

Hosting of FIU GIS courses in our state-of-the-art teaching and research laboratories:

- Labs are used for instruction related to GIS, remote sensing, and spatial & statistical analysis.
- Specialized GIS and remote sensing software programs such as ArcGIS, ENVI are provided for classroom teaching.
- Most of the GIS and remote sensing courses required for completion of FIU’s GIS Certificate Program.
- Both fee-based and free workshops for FIU and its community.
VIRTUAL CAMPUS

- FREE ACCESS TO OVER 30 ESRI VIRTUAL COURSES.

- E-mail us: gisrs@fiu.edu
Certificate Program Description

Graduate Certificate in Geographic Information Systems

Dean Whitman, Director, Earth and Environment

Coordinating Committee: Zhaohui, Jennifer Fu, Library GIS Center

Jennifer Gebelein, Earth and Environment

Hugh Gladwin, Global and Sociocultural Studies

Assefa Melesse, Earth and Environment

Keqi Zhang, Earth and Environment

Xia Jin, Civil and Environmental Engineering
FREE TRAINING

• 2 workshop per semestre in both campus.
SOFTWARE LICENSES FOR STUDENTS

• Free one year license for student. Academic proposes.

• Send email to gisrs@fiu.edu:
  • ID
  • Name
  • E-mail
  • Course

Receive EVA Code and Instruction,
DATA SEARCH

Duration of User Accounts

User accounts will remain active until the end of a class, certificate, or contract, or until the user's activity is monitored through log-in files. If an account has been inactive for more than 6 months (not including a period of time in which it has been automatically disabled), the account will be deleted.

User Responsibilities and Rights

A user is solely responsible for all files created and should back up her/his work on removable media, compact disk, DVD, or USB. The GIS Center is not responsible for any lost data. A user cannot give his/her username and password to another person or sign-on anyone with his/her account details. GIS Center employees will unlock a workstation locked for more than half an hour and any unsaved work will be lost. A user cannot engage in any of the following activities:

1. Use of GIS Center resources for profit-making endeavors. (Note: Licenses may follow as a result of using educational licenses for profit-making or other types of commercial activities.)
2. Watching pornographic content, playing computer games, downloading music, participating in chat rooms or any other activity not related to studying.
4. All FIU and Library computer user rules apply to the GIS Center Accounts. Violations of any of the above will result in the immediate loss of the user account and disciplinary action as outlined in the University Technology Services (UTS) Code of Computing Practice.

Violation of any of the above will result in the immediate loss of the user account, a $200 fine, and possibly a lawsuit, which could lead to jail and/or further financial penalty. All Services offered by the FIU GIS Center, including fee-based Services, are for support of FIU Educational and Research activities.