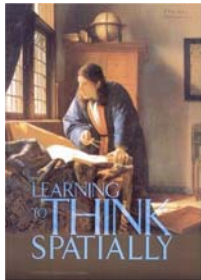



Cultivating Spatial Intelligence in Bite-Sized Chunks





John P. Wilson
AAG Annual Meeting
Los Angeles
12 April 2013




Geography → spatial transition

- Guiding principles
 - Spatial is cross-cutting (spatial literacy)
 - Geographic information science
 - Geospatial technologies
 - Scientific discovery (cross-disciplinary collaboration)
 - The spatial sciences combine fundamental science and enabling technologies (like statistics?)
- Need for a three-pronged approach
 - Administration
 - Faculty
 - Students

Spatial @ USC


- Four new undergraduate courses
- Ten new graduate courses
- New Minor in Spatial Studies
- New B.S. in GeoDesign
- New Online M.S. & Graduate Certificate Programs in Geographic Information Science & Technology
- New Ph.D. in Population, Health & Place?
- Enhanced support for spatially enabled research & teaching across the university






Early Opportunities ...

- Creating a Spatial GE Requirement
 - Lofty goal
 - Related opportunities – quantitative reasoning, other avenues?
- Creating "Spatial" GE Classes
 - SSCI 265 – The Water Planet
 - GEOG 101 – World Regional Geography
 - Others?
- Creating Exciting "Spatial" Electives
 - SSCI 101 – Workshops in Spatial Analysis (10 weeks / 2 units)
 - Tailored to student interests



The Power of Web Maps

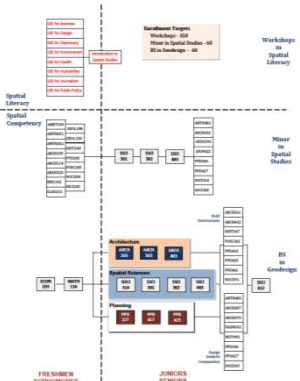



The Class of 2017




Spatial Pathways for Undergraduate Students

Bite-sized chunks
Multiple entry & exit points
Multiple pathways






Tailored to Specific Audiences

- New 2 unit courses**
- "Workshops in Spatial Analysis"
 - GIS for Business
 - GIS for Design
 - GIS for Environment
 - GIS for ...
- New 4 unit courses**
 - The Water Planet
 - Maps & Spatial Reasoning
 - Principles of Geographic Information Science
 - Spatial Sciences Practicum
- GIS help desk**

Continuously build fresh go-to-market strategies

What is going on in this trade area?
 What are the general retail trends in this area?
 Where are the competitors?
 Who are those competitors?
 Where is business being generated?
 Where are the highest traffic volumes?
 Where are people living?
 Where are they going to work?
 How are they traveling to work?



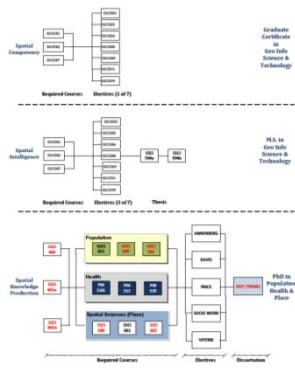

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Spatial Pathways for Graduate Students

Core geographic information science foundation

Enabling geospatial technologies


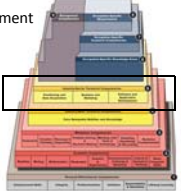
Multiple applications





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GIST @ USC ...

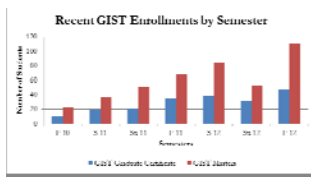
- Core courses**
 - Concepts for Spatial Thinking
 - Spatial Databases
 - Geospatial Data Acquisition**
- Electives**
 - Spatial Analysis
 - Spatial Modeling
 - Geospatial Technology Project Management
 - GIS Programming & Customization
 - Remote Sensing for GIS
 - Cartography & Visualization
 - Web GIS
 - Mobile GIS
 - Geospatial Data Integration
- Master's Thesis







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The GIST success story ...

- Partnership with Embanet-Compass Knowledge Group
- Relies on asynchronous learning model
- Uses virtual desktops & servers for "hands-on" components

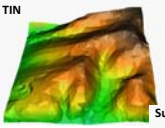




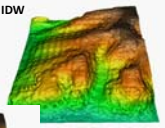

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One-Stop Solutions / Building DEMs

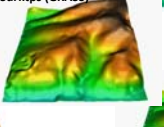
TIN



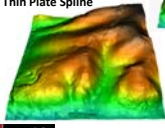
IDW



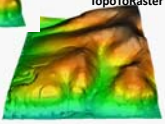
Surf.tps (GRASS)




Thin Plate Spline



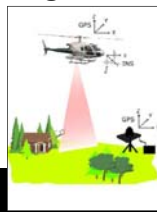
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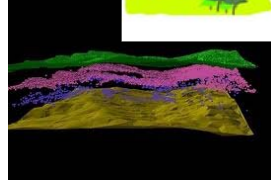




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LiDAR / Spatial Filtering

- Light Detection And Ranging**
- Measures distance to, or other properties of a target, by illuminating target with light, using pulses from a laser
- Three components
 - Airborne scanning laser rangefinder
 - Differential GPS
 - Internal Navigation System
- Generates millions of points at relatively low cost ...






12

Geographic information infrastructure

- Contains knowledge describing natural and human environments on Earth
- Includes multiple components
 - Data
 - Data models that provide structure to the data
 - Models and analytic tools that show predictions or suitability
 - Geospatial workflows
 - **Web maps | Storytelling**
 - Metadata, which describes the aforementioned components, and is key to **sharing, discovery and access**
- Relies on web & **mobile** environments to make these ways of thinking about the world more accessible



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Questions ...

Project for Public Spaces

Placemaking plans



City-wide strategic plans



Capacity building and cultural change



Placemaking 101

**Lighter
Quicker
Cheaper**

<http://www.pps.org/>

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