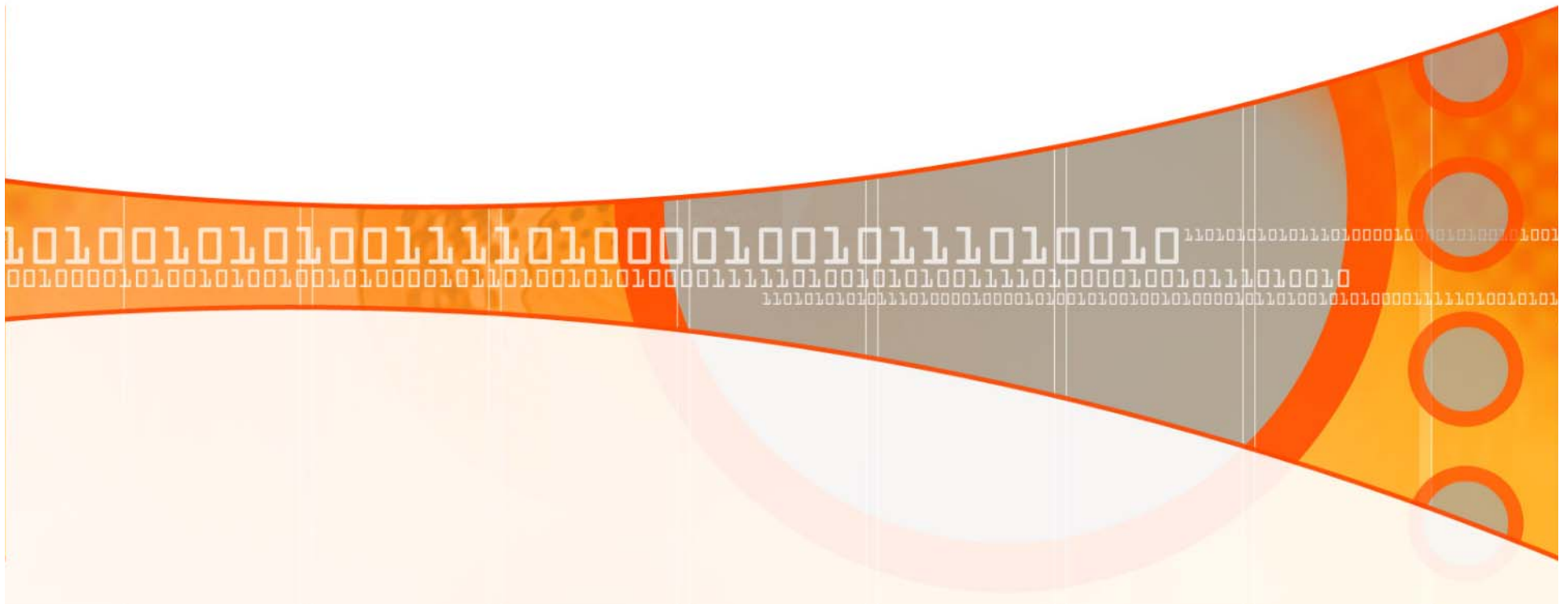# Developing Standards and Curriculum for GIS in Law Enforcement

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Importance of GIS Curriculum to CJ Programs

- *Continued push for higher education in law enforcement.*
- *Continued push for "problem-solving" and proactive policing.*
- *Use of crime mapping by law enforcement agencies increased from 14.5% in 2000 to 17.9% in 2003 (Bureau of Justice Statistics)*
- *This increased use places a higher demand on training sources.*
- *Finding personnel more difficult than affording software. (Police Foundation, 2000)*

Importance of GIS Curriculum to CJ Programs

- *Larger departments more likely to send personnel for advanced training. (Mamalian & La Vigne 1999)*

- *Smaller departments much more likely to discontinue use of crime mapping; discontinuance strongly related to staffing in technical support (Chamard, 2003)*

- *Department of homeland Security; need for regional analysis and multi-agency response strategies.*

Methodology

- *On-going data collection*
- *Current N = 26 agencies*
- *Agencies at the municipal, county, and state levels included.*
- *One state corrections agency included*

Methodology

States Represented:

Alaska	Massachusetts
Colorado	New Mexico
Georgia	South Carolina
Florida	Tennessee
Hawaii	Texas
Idaho	Utah
Kansas	Virginia
Louisiana	Wisconsin

Methodology

The following questions were asked of crime analysts/ mappers in phone interviews and e-mailed surveys:

1. *What specific training/education do your crime analysts have that prepared them for their crime mapping work in your agency? (Any and all training including on-the-job, training put on by law enforcement or private organizations, college degrees...). For all training and/or education listed, please identify where the training came from.*

Methodology

2. *What computer systems (ArcView, MapInfo, custom designed software...) are used by your agency to create and analyze crime maps?*

Methodology

3.   *What are the primary uses for the crime maps your department produces? (Distribution to officers at role call, resource deployment, investigations, training, community meetings...)*

Methodology

4.   *What training/education needs do you feel your department needs regarding current and future crime analysts/ mappers?*

What do the Practitioners Need?

Personnel

- Many departments use interns.
- Most departments surveyed hire primarily within law enforcement.

    Benefits: Criminal Justice Background

    Drawbacks: Little computer or statistical background

- Some agencies hire "civilians"

    Benefits: Computer and statistical background.

    Drawbacks: No Criminal Justice Background

- *Personnel Poaching*

What do the Practitioners Need?

Most Frequent Complaints about Personnel:

- Lack of "hands-on" experience and/or training.
- Persons with the best technological skills often leave for better-paying jobs.

Sources of Training

The most common training for current analysts/mappers included:

- *Self-taught*
- *In-house and on-the-job training.*
- *CMAP Training*
- *Various state and national crime analysis conferences*
- *On-line training offered by ESRI*

Sources of Training

Other Training:

- *"Bothering" other city departments for help.*
- *Some college mapping courses (not criminal justice related)*
- *Academy Training*

Training Needs

Training for Future Analysts/Mappers

- The majority of departments emphasize the need for:
    1. *Database knowledge: primarily Microsoft Access and Excel.*
    2. *An understanding of statistics.*
    3. *An understanding of criminology.*
    4. *Background in Criminal Justice.*

Needs from Criminal Justice Programs

"There is a serious lack of programs (graduate and undergraduate) that offer concentrations in Crime Analysis/Mapping. I think it's a field that needs supporting education…"

"I'd add in geographic profiling, psychology and criminology courses. I think that you need to have a working knowledge of criminology and especially—how the process flows (from dispatch to the courts). Not that this makes mapping easier, but you can't work in a vacuum."

What do the Practitioners Need?

" Criminal Justice programs do not come close to filling our analytical and technical requirements."

"There are plenty of skilled GIS people out there, but very few understand crime data. They often make maps that are misleading and are not really actionable for the guys on the street."

What do the Practitioners Need?

Other Skills Desired of Future Analysts/ Mappers:

- *Several departments would like to hire someone with a Bachelors or Masters in Criminal Justice.*

- *Education in Psychology (especially for profiling needs) was also mentioned.*

- *Most departments did not wish for specific software training (although when they did, ArcGIS training was the most frequently desired skill)*

Software Programs

- *By far, ArcGIS was the most commonly used software. Several agencies, although using a different system, expressed a desire to use ArcGIS.*

- *Several agencies used MapInfo or MapPoint.*

- *Other programs included Crime View, Crimestat, and custom designed programs.*

Agency uses of GIS

The most often cited uses for GIS included:

- *Crime trend analysis*
- *Hot spot analysis*
- *Criminal investigations*
- *Profiling*
- *Gang analysis*
- *COMPSTAT meetings*
- *Annual reports and crime bulletins*
- *Community meetings*
- *Role call*
- *Manpower deployment*

Agency uses of GIS

Other uses included:

- *Budgeting*
- *Census and demographic information*
- *Emergency management systems*
- *Court testimony*
- *CPTED*
- *Grant applications*
- *Linking ballistic matches*
- *Homeland security*

Agency uses of GIS

Under Homeland Security, uses included:

- *Critical infrastructure data collection*
- *Critical infrastructure protection*
- *Hazard Modeling*
- *Situational awareness*
- *Special security event planning*
- *Critical incident management*

Research in Crime Mapping Pedagogy

"Althausen & Mieczkowski's (2001) "Spatial Crime Analysis" course (Journal of Criminal Justice Education)

Process

- *Cross listed course with CJ and Geo*
- *Elective*
- *Prerequisites included: Theory, Statistics, Computers and Geography*
- *Lab component*

Problems

- *CJ students lost on the Geo terminology and concepts*
- *GEO students lost on criminology*

Overall success

Case Study #1: Curry College

- *Nontraditional Student Populations*
- *Quinn Bill Certified*
- *Large concentration of police officers enrolled in Continuing Education Program at the undergraduate and graduate levels*
- *Primary complaints of students:*
  1. *No connection between academics and their jobs.*
  2. *Few elective courses that provide useful information and hands-on training*

Curry Crime Mapping Course

- *Strong enrollment on two campuses*
- *90-95% Law Enforcement*
- *Special Topics (no prerequisites)*
- *Students without Statistics and Criminology struggled more.*
- *Undergraduate course, students brought in their own data.*
- *Students are beginning to use GIS in their Masters Thesis Projects.*

Case Study #2: Century College

- *POST Certified Law Enforcement Degree Program*
- *ISLET Grant (National Science Foundation)*

  www.isletinitiative.org

- *GOALS*

1. Develop AS Degree in Investigative Sciences

2. Extend the impact and reach of new educational materials for wider regional, and national use.

Century College Curriculum

- *Technical Writing for Law Enforcement (Applied writing skills)*
- *Criminalistic Forensics (Biology and chemistry-based)*
- *Crime and Incident Mapping for Public Safety (GIS/GPS technology-based)*
- *Computer Forensics (Computer technologies)*
- *Homeland Defense – Anti-terrorism (counter-terrorism technologies)*
- *Interview, Interrogation, and Investigation (Investigative Sciences)*

Century College

- *CJS 2091 and 2092 Crime and Incident Mapping for Public Safety*
- *Required for new Criminal Justice A.A.S.*
- *Current students include Director of Homicide Research*
- *Service learning project*
- *Developing GIS/Cartography class*
- *Currently developing certificate in Crime Mapping and Analysis*

Possible Issues

- *Instructor availability*
- *Curriculum process*
- *Possible "ownership" issues*
- *Software issues (Curry)*

CJ Programs Offering courses/ certificate programs in GIS

Search Process

- *http://www.geo.hunter.cuny.edu/capse/projects/nij/crime.html*

- *http://www.allcriminaljusticeschools.com/find/*

- *http://search.degreeinfo.com/*

- *http://www.petersons.com/distancelearning/code/search.asp?sponsor=*

- *http://spatialnews.geocomm.com/education/links/*

- *www.google.com*

- *List of Presenter's Colleges from MAPS Conferences*

CJ Programs Offering courses/ certificate programs in GIS

States

Arizona	*Kentucky*
Arkansas	*Massachusetts*
California	*Minnesota*
Colorado	*Oregon*
Connecticut	*Pennsylvania*
Florida	*Texas*
Idaho	*Virginia*
Illinois	

CJ Programs Offering GIS (With crime analysis focus)

- *Range from 2-day intensives to full semester courses.*
- *Certificates at the graduate and undergraduate levels.*
- *Most GIS courses teaching ArcGIS*
- *Crime Mapping courses taught under Special Topics, Crime Analysis, and Research Methods titles.*
- *Several are cross-listed with Geography*
- *About half required prerequisite courses: Computer and Database courses, Criminology, Statistics, and Research Methods most common. Some required a specific class status or a number of courses.*
- *A few colleges offered crime analysis/crime mapping courses on-line.*

Strengths to adding GIS to CJ Curriculum

- *Many future and current police officers already obtaining college degrees.*
- *CJ programs already incorporate Criminology, Statistics, and other problem-specific courses into curriculum.*
- *Cross-listed courses could expand potential hiring base.*
- *On-line, intensive, and traditional options allow for flexibility.*
- *Students could geocode and provide maps for agencies without analysts.*