How to Develop a Crime Mapping Course From Scratch

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Personal Background

- Interest in Crime and Locations
    - Concentric zone model by Burgess
    - Social Disorganization Theory by Shaw & McKay

- No Academic & Professional Background in GIS
    - No prior experiences in teaching or researching Crime Mapping
    - Needed to start from scratch

Settings

- Urban Commuter College in Denver, Colorado
  - About 20,000 undergraduate students
  - Non traditional students and traditional students

- Department of Criminal Justice and Criminology
  - About 1,000 CJC majors

- Crime Mapping and Crime Analysis
  - Upper division elective course
  - Archived for almost 10 years
  - Not much paper work in "unarchiving" the course

- Started to Offer in Spring 2018
  - 14 students
  - Mostly CJC majors, but some from other departments

Course Descriptions

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  - Students will define the concepts of crime mapping and develop skills to use Geographic Information System (GIS) in understanding crime problems. Students will explore applied research techniques for tactical (crime series), strategic (operations research & problem analysis), and administrative analysis (budget/crime trend forecasting). Students will also develop skills to use GIS (Crime Mapping) tools, and understand temporal and spatial statistics that lead to informed, data driven, and evidence-based criminal justice policy.

Course Objectives

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  - Upon completion of this course the student should be able to:

    1. Explore the basic and fundamental aspects of Crime Analysis, as a profession, an applied research technique and as an evidence-based policing process.

    2. Explain how analysts conduct tactical crime analysis as part of the police investigative process.

    3. Develop skills to conduct problem analysis and identify crime hotspots.

    4. Describe how analysts conduct resource allocation and operations research.

    5. Develop skills to use GIS (Crime Mapping) tools.

Prep for the Course

- ESRI Training and Texts from ESRI Press
    - *Instructional Guide for The ArcGIS Book; Map Use*
    - *Getting to Know Web GIS*

- Decision for a Platform
    - University has an organization account
    - ArcGIS Online due to not-so-steep learning curve

- US Department of Justice Publications
    - *Mapping Crime: Principle and Practice (1999)*
    - *Introductory Guide to Crime Analysis and Mapping (2001)*

- Open Educational Resources
    - *Essentials of Geographic Information System*

Course Outline

- Maps + GIS
  - Decided to use two parts in Spring 2018 semester
  - 1st Part of the Semester
    - General Introduction of Map and ArcGIS Online
  - 2nd Part of the Semester
    - Introduction to GIS
    - Application of GIS using ArcGIS Online
    - Crime Mapping using Real Data from Denver Police Department

- Class Activities and Weekly Quizzes
  - 20-30 minutes' lecture + lab assignments
  - Case studies done mostly on ArcGIS Online (15 Class Activities)
  - Weekly Quizzes based on readings (13 Weekly Quizzes)

Course Outline

- Two Exams and Two Projects
  - Crime Prevention Through Environmental Design (CPTED) Project Story Map
    - Identification of crime issues on the campus
  - Crime Mapping Project using Story Map
    - Descriptive crime mapping with real data from City and County of Denver

- Extra Credits for MOOC and Research Conference
  - Earth Imagery by ESRI (certificate was required, extra 20 pts)
  - Undergraduate Research Conference (extra 30 pts)

- Guest Lecturers
  - Guest Lecturer from Earth Science Dept. to introduce other programs and future careers
  - GIS Analysts from the City of Aurora to present real life applications of GIS

Personal Observations

- Needed Some Learning Curves
    - Instructors may have to spend quite some time on ArcGIS Online
    - Found many resources on ArcGIS.com useful (e.g., lessons, case studies, etc.)

- Challenging to Encourage Students with No Background on GIS
    - Took some time to make them get familiarized with ArcGIS Online
    - Use of real data (e.g., Denver Open Data Catalog) was beneficial for students
    - Once they get used to the system, most did a good job in using ArcGIS.com

- Needed to Expect Frequent Updates on Arcgis.com
    - Arcgis.com changes settings
    - Necessary to check ArcGIS Online Team emails (or ArcGIS blog)

Students' Feedback

- Some Wanted to Focus More on Interpretation
    - More time on crime analysis and less time on general introduction to maps
    - Too much information or processes in learning to use ArcGIS Online

- Some Wanted to Have More Time on Observing Maps
    - Some wanted to spend more time to observe "interesting maps"

- Concerns about Cumulative Learning
    - A couple of absences led to falling behind

Plan for Future Class

- Use Less Introductory Materials
  - Some students want to dive straight into Crime Mapping subjects
  - ESRI MOOCs could be beneficial for some, but may not be all

- Seek to Routes for Collaboration with Communities/Agencies
  - Use of real data from Denver Open Data Catalog

- Encourage Students to Present Research in Academic Conferences
  - Some students are fast learners and/or high achievers

Thank you!