

A Geospatial Technologies Course Designed for Pre-service Teachers

NEARC
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Inception of the Course

WHO?

- Geography majors who are also pre-service teachers
- Elementary and secondary certification areas
- Required to take a "skills" course
- Completed at least 9 credits in geography

WHAT?

- To create a course that would meet the needs of the future educators in employing geospatial technology in their classrooms
- To create a course that would fulfill the “skills” or “techniques” needed for geography graduates

WHEN?

- As soon as we could research similar courses around the country in order to build the best course possible
- Goal—Fall of 2007

WHERE?

In our geography
department's great two-year
old GIS lab

WHY?

- How can our department offer the best preparation in our field for future teachers?
- Are our pre-service teachers going to take crucial geospatial technologies into their future classrooms?
- Are our pre-service teachers going to know how to apply these geospatial technologies using effective pedagogical practice?

KSC
proudly
announces

GEOG 321

**Geospatial
Technologies
for Teachers**

THE COURSE

- 4 credits
- Geospatial technologies skills
 - GIS
 - GPS
 - Remote Sensing
 - Internet based geospatial tools
- Standards-based, effective K-12 pedagogy

TEXTS

1. Malone, L., Palmer A. Voigt, C., Napoleon, E., and Feaster, L. (2005) Mapping Our World: GIS Lessons for Educators. Redlands, CA: ESRI Press.
2. Gorr, W. and Kurland, K. (2005) GIS Tutorial. Redlands, CA: ESRI Press.
3. English, K. and Feaster, L. (2003) Community Geography. Redlands, CA: ESRI Press.
4. Malone, L., Palmer, A., & Voigt, C. (2003) Community Geography: Teacher's Guide. Redlands, CA: ESRI Press.

The Students

STUDENT	MAJOR	CERTIFICATION AREA	PRIOR GIS EXPERIENCE
Casey	Geography	Elementary Ed	None
Jill	Geography	Elementary Ed	None
Tabatha	Geography	Elementary Ed	ArcGIS
Kelsi	Social Science	Elementary Ed	None
Kim	Geography	Elementary Ed	ArcView
Kristine	Special Ed (graduate student/ in-service teacher)	Secondary Social Studies	ArcView (6 years ago)
Frank	Geography	Secondary Social Studies	ArcView
Tom	Geography	Elementary Ed	None
Rachel	Geography	Secondary Social Studies	None
Sarah	Psychology	Elementary Ed	None
Melissa	Geography	Elementary Ed	None
Skip	Math (retired teacher)	Secondary	None
Kate	Social Science	Elementary Ed	None
Peter	Geography	Secondary Social Studies	None
Alicia	Undeclared	Elementary Ed	None

The Beginning

- Planning
- Fear
- Scope & Sequence
- Trepidation
- RISK Taking
- The First Class

The Syllabus

- **Course Description:**

This course offers an active exploration of geospatial technologies including Geography Information Systems (GIS), Global Positioning Systems (GPS), and Remote Sensing and their applications in the K-12 classroom environment. Emphasis is on the acquisition of geospatial technology skills and the associated K-12 pedagogy.

Course Objectives

- Acquisition of ArcGIS skills and its application in the K-12 classroom
- Acquisition of GPS skills and its application in the K-12 classroom
- Exploration of Remote Sensing applications in the K-12 classroom
- Identification and evaluation of Internet-based geospatial technology applications
- Identification and evaluation of geospatial data and resources for K-12 classroom use
- Application of sound geospatial technology pedagogy in the creation of K-12 curriculum

Learning Outcomes

- Identify and evaluate resources for K-12 instruction that utilizes geospatial technologies
- Design standards-based K-12 instruction utilizing ArcGIS, Internet-based GIS, GPS, and Remote Sensing

Are you a risk taker?

Technology = Frustration

“I am not a teacher,
only a fellow traveler of whom
you asked the way. I pointed
ahead—ahead of myself as well
as of you.”

George Bernard Shaw

CONTENT

- GIS skills
- Internet-based geospatial technologies/resources
- Remote Sensing
- GPS
- Lesson planning/presentations

GIS

- Introduction to GIS
- *MOWGLE*
- *GIS TUTORIAL*
- Some ESRI lessons
- Some Joseph Kerski lessons

Internet-based Geospatial Technologies/Resources

- Google Earth
- www.gelessons.com
- TerraServer-USA (www.terraserver-usa.com)
- National Atlas (www.nationalatlas.gov)
- Narragansett Bay Coyote Study (www.theconservationagency.org/coyote)
- Whale Net (<http://whale.wheelock.edu>)
- Google Sketchup
- NH GIS website (www.granit.sr.nh.edu)

Remote Sensing

- Journal of Geography covers
- WETMAAP (www.wetmaap.org)

GPS

- Introduction to GPS
- GPS activities on campus
- Geocaching (www.geocaching.com)
- Earthcache (www.earthcache.org)
- Degree Confluence Project (www.confluence.org)

Lesson Planning

- Each time we introduced a new technology or resource, students were asked to formulate lesson ideas
- Worked collaboratively on lesson format and rubric
- Final assessment consists of two lessons
 - One lesson will utilize GIS appropriate to grade level
 - One lesson will utilize some other geospatial technology
 - Encouraged lessons that can be interdisciplinary
 - Must be standards-based (geography + other disciplinary standard if used)
- Each student will choose one lesson to present to the class

RESULTS

(Celebrations and Modifications)

- Collaborative nature of the course
- No Community Atlas training
- More data mining needed
- Enthusiasm of students
- Excitement of being on an adventure
- Skill level of students
- Desire to make improvements
- Two new geography majors!