Creating a MOOC to Teach Basic GIS

Peggy Minnis
Pace University
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A MOOC is a *Massive Open Online Class*

- Started by Academia’s best and the brightest and now filtering down to the trenches of Academia
- People must sign up, so they know how many are in.
- Courses are, in general, free
- Courses award no credit……….yet.
- Teachers do not interact with students
- Very much like Sunrise Semester of the 1960’s (a 6 a.m. weekday TV series of college courses offered by NYU)
NYU and CBS between 1957 – 1982 – Sunrise Semester
What was the Sunrise Semester model?

Started in 1957 between CBS and NYU as part of the educational broadcasting movement.

The majority of the 120,000 6 a.m. viewers watched it to enrich their lives.

Students paid $25 per point to get college credit (0.14% of viewers).

Courses covered topics from literature to physics.

My father and brother watched physics when my brother was a student in my father’s physics class.

http://www.youtube.com/watch?v=5_Q-Mw6qH9k

Lots of kids wound up watching it because early-morning cartoons followed it.

French in Action, by Yale’s Pierre Capretz had 52 early-morning TV shows with accompanying materials. We watched it, videotaped sessions, accumulated many VCR tapes.
2012 was the “Year of the MOOC” in education

• There were several universities that had versions of publicly-available courses, either for or not for credit.

• The big players now are Coursera’s, edX, Udemy, CourseSites

• Stanford’s launched an Artificial Intelligence (AI) course on Coursera

• MIT, Harvard, UC Berkely, University of Texas and Georgetown provide edX, which charges a base rate of $250,000 per course, then $50,000 for each additional time that course is offered.
• At Pace University, the new dean in the Computer Science school used Udemy.com to create his MOOCs.

• Udemy is free. Each person can make up to five courses.
Anybody can put up to five courses on Udemy.com. You can charge for your training.
Some people are “monetizing” their MOOCs on Udemy.
Pay to Learn
Blackboard offers CourseSites.

If a university decides to do a MOOC with CourseSites, it operates outside of the school’s Bb site.

Blackboard has people who help get the course off the ground.

Their video platforms include Kaltura or YouTube. They are veering toward Kaltura as the better alternative for streaming video (free)

Blackboard is committed to free courses on CourseSites.

Pace is a good Blackboard customer, but that doesn’t seem to be a deciding factor to get personal guidance in setting up a course.
Move Your Courses Online Free
Introducing The New CourseSites

- **Create** up to 5 course websites, free.
- **Engage** students in social learning.
- **Weave** multimedia into class content.
- **Assess** performance and manage grades.
- **Share** Open Education Resources.
- **Teach** open courses or MOOCs.

Launch Your MOOC Today

Educate.
Engage.
Free.

Get Started

Quick steps
to build your free
course online
Current Resources For GIS instruction

• ESRI has some instruction for the intrepid web searcher
• Some YouTube videos (hard to see the screen)
• Books have accompanying videos.
• ListServs help people solve GIS problems.
• Attendance-based GIS Basics Courses
• Penn State – Anthony C. Robinson - Coursera

This course is platform free and can be used for credit when a student enrolls in Penn State’s GIS Certificate Program
13 credits ($736/credit)
Tutorials for some actions are available at:

http://resources.arcgis.com/en/help/main/10.1/index.html#//00qn0000013t000000
Amazon.com now has the 10.1 workbooks. Be sure to buy a new, unused copy so that the software license is intact (180 days). They should be available May 3. They are long delayed, so my students have been using the free trial version.


A new deal is the "ArcGIS for Home Use." This is $100 for a year and might be perfect. It has all the extensions.

For the beginning of the course, we downloaded a 60-day trial version of the program from the ESRI site and used the tutorials that are available from here.

I'm going to give a presentation at the NEARC in Amherst on May 14 about creating a MOOC to teach basic GIS next academic year. This is thanks to the Verizon Corporation and their Thinkfinity grants.

(Go to the bottom of this page if you are interested in FreeTools.)

GIS VIDEOS

ArcGIS 10.1 and 10.0 Videos Scroll down for 9.3.1 videos, which sometimes work still in this edition (10.1)

There is a new video on how to use a camera with GPS capability down near the bottom.

Starting up. This is an introductory video for my class. It shows how to go to Westchester County's GIS data warehouse, download and unzip GIS data and then how to create a map of one town only and export it as a layered PDF file. (skills: download, unzip, ArcCatalog, layout, make a layered PDF)

Adding a base map. After you add in the first shapefile to set the projection on your map, you can go to File>Add Base Map and it will ask you what basemap you want to add. This is equivalent to Adding the GIS server through the catalog, but may be easier.

Clipping. ArcGIS 10.1 does it differently from 10.0. Simply go to the top line, click geoprocessing>Geoprocessing Options>unclick "Enable running processes in the background." Instead of the little box on the bottom of your screen (as in 10), there will be a processing box in front of you. You can't do any other work while it does its thing. If you enable it, it might work. Try it both ways and do what works for you.

Making a PDF of your work. This will allow you to email your maps to others or upload them to the Internet (on Blackboard). The PDF allows the viewer to click on layers and zoom in. There are some subtle things to do under "options" that allow the viewer to click on and off layers and labels. This is really helpful if you are making a map for non-GIS users (skills: a quick way to make a PDF with layers)

PocanticoRiverWatershedMap Creation This shows my GIS students how to find data on the Internet, download it, unzip it, take it into ArcMAP. It also shows how to clip features to a polygon (a watershed, in this case). The finished map is sent out as a PDF. Then, we make a Publisher map, send it to someone and then use ArcReader to read the portable map. If you make a file geodatabase, it works better. But, if you use a personal geodatabase, it requires a different process. You just have to choose and be consistent.

Address Locators in 10.1 This may go away in 2013, but I've been able to use it. This tells you how to add in one of the reliable address locators that allows you to geocode a table.
Pace Center for Teaching and Learning Technology hosted a program to review where educational technology was going, focusing on the MOOC.

(Held right after a snow storm. Roads bad. Low attendance.)

Afterwards, the Provost included MOOCs as suitable topics for the last Verizon Thinkfinity Grants.

No stipends for faculty, but hardware, software and student employment were granted. Stipends were removed at the last minute to fund more projects.

All funds have to be spent by August 31. Course has to be ready for fall offering.
THE PLAN

Adapt my current set of instructional videos. There are ~60 videos, constantly changing, sometimes in response to student problems or to help me remember how to do something.

Companies are constantly changing their online offerings, so I have to be vigilant about keeping an eye on how processes change

(e.g., USDA site for seamless or NLCD imagery for land uses)

ESRI changes small things that invalidate last year’s video.
Tasks before a launch:

• Define the list of topics to cover
• Develop the time frame for the course (along semester lines now)
• Develop/revise videos of operations
• Make talking head (mine or a guest) to talk about the week’s work.
• Online students don’t like to read long lectures.
• Links to resources – state, local data
• Try to make the course adaptable to each student’s region and specific interest.
• Points of diversion (route A, route B) within topics.
What would be good topics for “Basic GIS?”

Ways of looking at Earth, big view and small view
Where to buy book – installing the program
Setting up your computer to store data and find it easily
Finding data for your own area online – or Westchester
Unzipping data, storing data
Ways to add data to your map
Shapefiles vs. Geodatabases
Make a Map, learn how to zoom in, out, pan, zoom to feature
Bookmark
Base maps or using ArcGIS services
The attribute table, get to see what it holds, adding a new field
Adding online services for various reasons
Symbolizing data – colors, symbols, effects
Toolbars and Extensions
Labeling, setting extents for labels to show.
Geocoding addresses in a Excel spreadsheet – your data
Address locator of your own
Using Lat/Lon to locate places on a map
Layouts and Map Annotation, switching from Layout to Map views
Make PDFs with layers
Maps made by student in the past – projects completed
• Clipping features to map one area (e.g., one town in a county or state)
• Adding a basemap and adding GIS services
• Creating a new shapefile - point, polygon, line based on aerial images
• Adding fields, calculating geometry
• Editing a feature
• Measuring how Features Interact with the Selection tool, different ways to select
• Spatial queries
• Georeferencing, getting old paper maps onto your system (examples)
• Using GPS to map features, routes,
• Find some favorite type of thing and map all of them.
• Exporting files to Google Earth and why it is useful.
• Orthophotos
• Converting Garmin GPS data, if it works
• Camera with GPS - integrating
• Hyperlinking Photos, documents and video to spots on the map, making a new field
• Working with USGS seamless data
• Downloading DEMS from USGS seamless
• Draping aerial photos over DEMS
• Making a TIN from a DEM, if needed
• Clipping rasters with spatial analyst
• ArcScene for 3D analysis
• Extruding features in ArcScene
• Mapping a watershed in 3D in ArcScene
• Using Processed LiDAR as basis for ArcScene features
• Making a map for ArcReader with Publisher
• Downloading and using ArcReader by your “client.”
• Changing the projection of your shapefiles (why and how)
• Merging shapefiles
• Joining tables based on common attributes
• Using file geodatabases for aerial photo mosaics

OTHER TOPICS
Target audience:

- People in organizations that need to learn GIS PDQ
- Land trust volunteers
- Scouts - Are there badges for GIS?
- Conservation Commission members in towns
- People working with historical aspects of towns
- CERT volunteers
- Alumni association volunteers
- Neighborhood crime watches
- Tree groups in towns
- Watershed associations
- New college grads seeking employment
- Teachers at other institutions
Questions that are getting batted around at Pace?

• Why offer free courses for no credit?
• How to answer questions from students
• How to create interplay?
• How to establish a system for students to contact the instructor (about errors)
• How can you establish a peer-to-peer evaluation system (discussion boards)
• How do we recognize that someone has done all the work successfully?
• How can you provide for a system whereby a student can get credit for knowledge or proficiency gained through a course? (Tokens?)
• Should courses be CLEP-able?
• Should the course change from term to term
• Is there any point to competition in this enterprise?
• Should the instructor be paid? By whom? For what? (This is big for faculty.)
Technical Issues:

• not good on a phone or tablet. Laptops can be frustrating.
• Screen real estate important.
• computer screen is visible and not muddied
• teacher is clear, uses no bad words.
• not too much information at once.
• easy to skip back in a video to repeat a process
• at least one map should be produced every week in a shareable format.
• leaders should emerge who can monitor discussions
• peer evaluation and provide helpful comments on maps posted