

Creating a MOOC to Teach Basic GIS

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NEARC Spring Meeting – UMass Amherst

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.

The screenshot shows the edX website homepage. At the top left is the edX logo. To its right is a search bar labeled "FIND COURSES". Further right are navigation links: "ABOUT", "BLOG", "JOBS", "LOG IN", and "SIGN UP". The main banner features a photograph of students sitting on a brick ledge, with a white box overlaid containing the text "The Future of Online Education" and the tagline "for anyone, anywhere, anytime". A video player icon is visible on the right side of the banner. Below the banner is a section titled "EXPLORE FREE COURSES FROM edX UNIVERSITIES" which lists logos for various partner institutions: MIT (Massachusetts Institute of Technology), HARVARD UNIVERSITY, Berkeley (UNIVERSITY OF CALIFORNIA), THE UNIVERSITY of TEXAS SYSTEM, McGill, Australian National University, WELLSLEY, GEORGETOWN UNIVERSITY, UNIVERSITY OF TORONTO, EPFL (ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE), TUDelft, and RICE.

- At Pace University, the new dean in the Computer Science school used Udemy.com to create his MOOCs.



The screenshot shows the Udemy website interface. At the top, there is a navigation bar with a 'Discover' button, a search bar, and links for 'Teach Online', 'Login', and 'Sign Up'. The main content area features a video player on the left showing a man in a suit speaking. To the right of the video, the course title 'International Technology Services in the Knowledge Economy' is displayed in large white text. Below the title, the course description reads: 'Knowledge Economy; International Management of Services; Entrepreneurship and Innovation; and 24-Hour Knowledge Factory.' A prominent orange button with the text 'Start Learning Now Free' is positioned below the description. A 'Wishlist' link is also visible. The course is attributed to 'DR. AMAR GUPTA'. The description text states: 'In particular, the course will analyze the 24-Hour Knowledge Factory model in detail. This model envisages that a professional in the US will work from the usual work day from 9 am to 5 pm. At the end of the work day, the professional will transfer the work to a colleague in China or Australia who will then work from 9 am to 5 pm, based on the clock in that country. At the end of the latter's work day, the work will be transferred to a colleague in Poland or Romania who will work from 9 am to 5 pm based on the clock in Eastern Europe. Finally, the work will be transferred back to the original professional in the US, who will feel that a magic fairy was working hard while the professional was asleep. Students with background in information technology will be encouraged to study the issue of new technical concepts that will foster the above type of collaboration. Other students will be encouraged to study the economics, business, legal, political, and other aspects of such knowledge-oriented frameworks based on the student's interest and background.' The category is listed as 'Technology'. On the right side, a section indicates '80 users are already taking this course' and shows a grid of user profile pictures. Below this, there is a section for 'Average Rating' and 'Course Requirements...' which includes the instruction: 'Read Lecture 2 "Class Preparation" prior to the first lecture series on March 6, 2013.'

- Udemy is free. Each person can make up to five courses.

Discover Courses

Featured Categories Search for Courses

Trending

12 courses View All



Core Excel
Beginner / Intermediate
Microsoft Excel 2010



Core Excel - Microsoft Excel 2010 Training

Exceljet | Dave Bruns
Learn Excel faster

749 students ★★★★★ (26) \$99



MICROSOFT EXCEL 2010 COURSE: BEGINNERS/ INTERMEDIATE TRAINING



Microsoft Excel 2010 Course Beginners/ Intermediate Training

Infinite Skills
High Quality Training

34401 students ★★★★★ (354) \$99



ADVANCED EXCEL TRAINING



Advanced Excel Training - Online Excel Course

Infinite Skills
High Quality Training

33191 students ★★★★★ (103) \$99

Anybody can put up to five courses on Udemy.com. You can charge for your training.



Some people are “monetizing” their MOOCs on Udemy.

Teach a Course



Join thousands of passionate instructors who are building their brand, and making money, by teaching on Udemy.

[Learn More](#)

Udemy for Organizations



Create your company's own branded training library with Udemy's collection of 6,000 premium & free courses or create your own!

[Learn More](#)



Creating Responsive Web Design

Chris Converse
Designer and Developer at Codify Design...

3848 students ★★★★★ (68) \$150



CCNA 2013 On-The-Go Video Boot Camp With Chris Bryant

Chris Bryant
Boss Bulldog At The Bryant Advantage

3615 students ★★★★★ (208) \$125



Social Media Marketing for Startups

Dan Martell
Online marketing, social media, technolo...

3609 students ★★★★★ (21) \$19



Ruby Programming for Beginners

Huw Collingbourne
Director of Technology, SapphireSteel So...

3492 students ★★★★★ (21) \$99



Raising Money for Startups

Dave McClure
Entrepreneur, Angel Investor, Founder o...

3259 students ★★★★★ (30) \$19



Photoshop CS6 Crash Course

Jeremy Shuback
Professional Trainer to over 200,000 desi...

3107 students ★★★★★ (93) \$40



DISCOVER THE 1 THING YOU WERE BORN TO DO IN 5 EASY STEPS!

Steve Olsher
Steve Olsher - America's Reinvention.Exp...

2931 students ★★★★★ (26) \$99



Make iPhone and iPad games in 1 hour without programming

John Bura
Teacher at Udemy owner of Mammoth I...

2743 students ★★★★★ (23) \$249



Beginning App Development

The App Dojo
Learn by doing

2642 students ★★★★★ (35) \$99

Pay to Learn

Blackboard offers CourseSites.

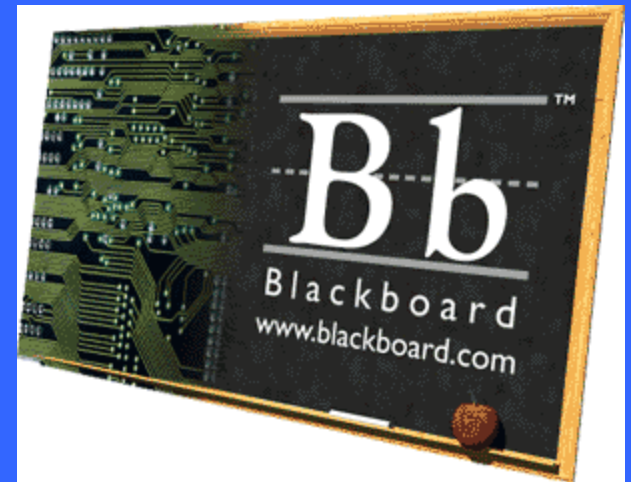
If a university decides to do a MOOC with CourseSites, it operates outside of the school's Bb site.

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.





COURSEsites
by Blackboard

Login

Sign Up ▾

[Learn More](#)

[Get Started](#)

[Hear From Users](#)

[What's New](#)

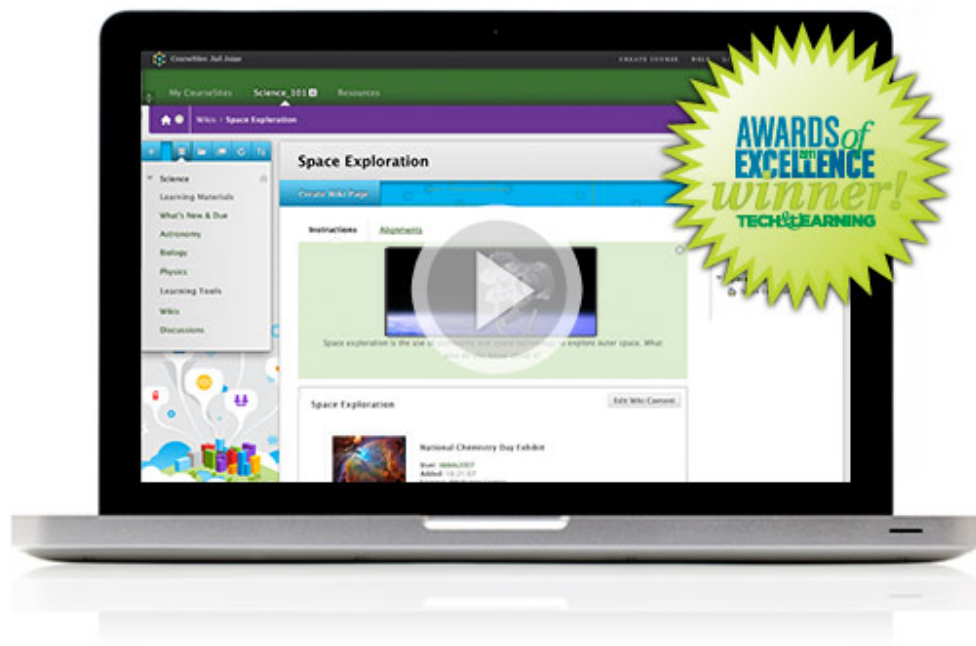
[MOOC Catalog](#)

[Blog](#)

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.

54,542

Instructors

159

Countries

12,573

Institutions

Get Started

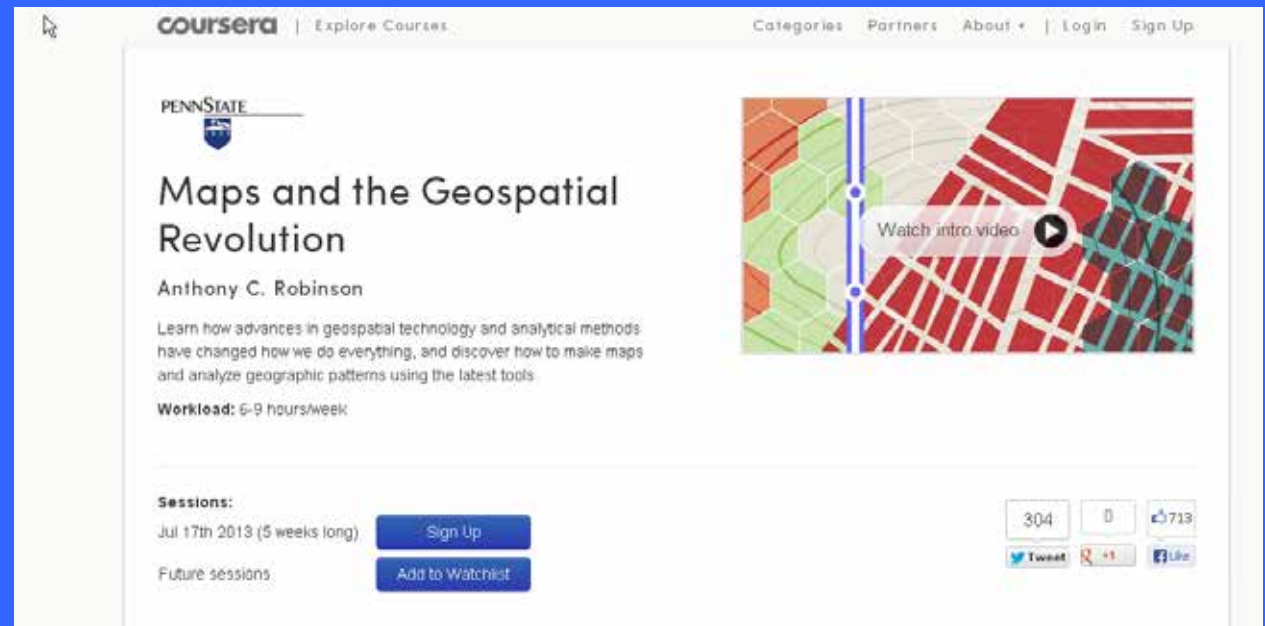
3

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.
- ListSers 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)



The screenshot shows the Coursera course page for "Maps and the Geospatial Revolution" by Anthony C. Robinson at Penn State. The page features the Penn State logo, the course title, and a description: "Learn how advances in geospatial technology and analytical methods have changed how we do everything, and discover how to make maps and analyze geographic patterns using the latest tools." The workload is listed as 6-9 hours/week. There is a "Watch intro video" button with a play icon. The page also shows session information: "Jul 17th 2013 (5 weeks long)" and "Future sessions". There are buttons for "Sign Up" and "Add to Watchlist". Social media sharing options for Tweet, +1, and Like are visible, along with counts: 304 tweets, 0 +1s, and 713 likes.

ESRI provides tutorials

The screenshot shows the ArcGIS Resources website. The top navigation bar includes 'ArcGIS Online', 'Sign In', and 'English'. The main navigation bar has 'Home', 'Communities', 'Help', 'Blog', 'Forums', and 'Videos'. A search bar is located on the right side of the main navigation bar. The page title is 'ArcGIS Help 10.1'. The left sidebar contains a 'Resource Center' with a list of links: 'Welcome to the ArcGIS Help Library', 'What's New', 'Desktop', 'Geodata', 'Services', 'Extensions', 'Guide Books', 'Mobile', 'Online', 'Developing', 'ArcGIS tutorials' (highlighted), 'Copyright information', 'License agreement', and 'ArcGIS Acknowledgments'. The main content area is titled 'ArcGIS tutorials' and contains the following text:

This topic provides a set of links to a collection of various ArcGIS tutorials used to perform a number of common tasks in ArcGIS. Find the tutorial that you would like to work through by clicking the links in the tables below.

To work through the ArcGIS for Desktop tutorials, you need to install the tutorial data from the ArcGIS for Desktop Tutorial Data setup, which is part of the ArcGIS for Desktop installation download or media. If the tutorial data has been installed on your system, look for it in C:\arcgis\ArcTutor (the default installation location). In many cases, you will need write access to that location to perform the tutorial.

The ArcGIS for Server installation does not include tutorial data. Most of the ArcGIS for Server tutorials are written in a generic way so that you can follow the steps using your own datasets.

Keep in mind that these tutorials are only a starting point for you to learn about ArcGIS. You can find additional information, help, and training at the [ArcGIS Resource Center](#).

ArcGIS for Desktop application tutorials

Tutorial	Description	Link
Database servers	This tutorial shows you how to use ArcGIS for Desktop to use database servers (instances of SQL Server Express) and the geodatabases you create on the database servers to store, access, and edit GIS data. An ArcGIS for Desktop Standard or Advanced license is required to complete the tutorial.	A quick tour of the database servers tutorial
Editing	In this tutorial, you'll learn the basics of the editing environment in ArcMap, including creating new	Introduction to the Editing

Tutorials for some actions are available at:

<http://resources.arcgis.com/en/help/main/10.1/index.html#//00qn0000013t000000>

What have I been doing? Making GIS videos since 2007

← → ↻ 🏠 webpage.pace.edu/MMinnis/GIS/ ☆ Ask ☰

Microsoft Exchange - ... NACTEL Pace Bb Pace Portal Pace Directory Pace FCBank Google PaceWeather AolMail >> Other bookmark

GIS Instructional Videos

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Pace University May 2013 update

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.

ArcGIS 10.1 Book 1, Fourth Edition by Wilpen L. Gorr and Kristen S. Kurland, ESRI Press 2013. ISBN: 9781589482593 2010 428 pages

[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 iTreeTools.)

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 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>uncheck "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 to 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. (*skill: 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 Locatorers 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.

[Click here](#) for page

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