

ED 589: Teaching Geography in the 21st Century

Instructor of Record:	Dr. Teresa Yohon
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Course Credit:	2.0 graduate credits
Dates & Times:	Online, Asynchronous: Beginning June 2017 (and be offered Spring, Summer, Fall and Winter Sessions thereafter). The participant must spend a <u>minimum</u> of six to eight hours per week over five weeks in the LMS completing course requirements.

COURSE DESCRIPTION:

This asynchronous course is designed to build geographic concepts, perspectives, and skills for those teaching Geography, as well as to those teaching other disciplines who seek to use geographic principles. The goal of this course is to enable and equip educators to teach the subject of geography in engaging and informed ways. It will also help educators and their students to understand why and how geography is relevant to 21st Century life. The course will include population, land use, urban, economic, health, natural hazards, and other themes. Running throughout the course will be a focus on scale, systems thinking (such as climate, watersheds, and energy systems), critical thinking, time and space, and place, through an inquiry-driven, hands-on, problem-based format. It will also be beneficial as a refresher course to those who may have taught Geography in the past or who may be teaching it at the present time. The course includes pedagogical strategies and technological tools to teach conceptual foundations, skills, and geographic perspectives.

As this is intended to be a practical, hands-on course, you will have the opportunity to be immersed in a variety of activities that will build your skills and perspectives. We will use a variety of web-based mapping tools to put concepts, issues, and themes of geography into practice, helping to make your instruction more engaging, efficient, inquiry-driven, and interactive. These tools are powerful and yet are easy to use. We will spend most of our time with ArcGIS Online (<http://www.arcgis.com/home>) from Esri, because it is so easy to use,

powerful, and available to schools, but we will also use and discuss Show Mapping Worlds, Worldmapper, GapMinder, the Urban Observatory, the Change Matters Landsat Viewer, and a few others as time permits.

STUDENT LEARNING OUTCOMES:

Upon completion of this course, the student will be able to:

1. Identify, describe, and discuss the urban, economic, land use, natural hazards, health, and population issues foundational to geography at different geographical and temporal scales.
2. Apply geographic principles to effectively teach geography with the geographic perspective.
3. Understand and demonstrate how to incorporate geospatial technologies, including dynamic web maps, charts, and data, to teach geography in an effective and dynamic manner.

TEXTS, READINGS, INSTRUCTIONAL RESOURCES

A series of short readings from geography educators will be used throughout the course, including:

- Besussi, Elena, Chin, Nancy, Batty, Michael, and Longley, Paul. 2010. The structure and form of urban settlements. In *Remote Sensing of Urban and Suburban Areas 13, Remote Sensing and Digital Image Processing 10*, T. Rashed and C Jurgens, eds. Dordrecht: Springer.
- Gritzner, Charles F. 2002. What is where, why there, and why care? *Journal of Geography* 101(1): 38-40. http://apcentral.collegeboard.com/apc/members/courses/teachers_corner/155012.html
- Gritzner, Charles F. 2003. Why Geography? *Journal of Geography* 102(2): 90-91. http://apcentral.collegeboard.com/apc/members/courses/teachers_corner/50150.html
- Kerski, Joseph J. 2012. *Earthzine*. Spatial environmental education: Teaching and learning about the environment with a spatial framework. <http://www.earthzine.org/2012/09/24/spatial-environmental-education-teaching-and-learning-about-the-environment-with-a-spatial-framework/> Fall 2012 issue.
- Kerski, Joseph J. 2013. *How can GIS help teaching and learning AP Human Geography?* Esri Education Community. <http://blogs.esri.com/esri/gisedcom/2010/09/10/how-can-gis-help-with-ap-human-geography-part-1-of-2/> and <http://blogs.esri.com/esri/gisedcom/2010/09/17/how-can-gis-help-with-ap-human-geography-part-2-of-2/>
- Kerski, Joseph J. 2013. *A working definition of spatial thinking*. Esri Education Community. <http://blogs.esri.com/esri/gisedcom/2013/05/24/a-working-definition-of-spatial-thinking/>

- Kerski, Joseph J. Explore locally with your senses, curiosity, and the spatial perspective. 2012. Esri Education Community. <http://blogs.esri.com/esri/gisedcom/2012/06/29/explore-locally-with-your-senses-curiosity-and-the-spatial-perspective/>
- Danielson, Stentor. 2009. Population. In *Overview of Human Geography* e-text. <http://debitage.net/humangeography/population.html>
- Tschakert, Petra, Zimmerer, Karl, King, Brian, Baum, Seth, and Wang, Chongming. 2014. Vulnerability to Natural Hazards. <https://www.education.psu.edu/geog030/node/379>

COURSE REQUIREMENTS:

In order to receive a Passing grade, the participant must complete the following course requirements:

1. Course activities:
 - a) Attend orientation session and participate in course forum discussions, projects, and activities.
2. Online activities: Each student will complete the following:
 - a) Assigned readings, links, videos and research on resources.
 - b) Complete all Sessions and Lessons/ Activities.
 - c) Reply to all discussion forums within each of the orientation and 6 modules using the course posting self-assessment rubric as a guideline.
 - d) Respond to at least two other postings within each module discussion forum sharing your ideas and thoughts.
 - e) Complete and submit Geography Action Plan
 - f) Participate in final sharing session

GRADE DISTRIBUTION AND SCALE:

Grade Distribution:

Attendance at Orientation/face-to-face Session	10%
Online Module Discussions	30%
Action Plan	50%
Final Sharing Showcase	10%

Grade Scale:

90-100%	A
80-89%	B
79% and below	F

CLASS SCHEDULE:

All of these tools reside online, in the cloud, and run as “Software as a Service” (SaaS). To use them effectively, you need a fairly new version (no more than a year out of date) web browser and a broadband Internet connection. To make most effective use of web mapping tools in your web browser, you should turn off unnecessary search and other toolbars in that browser, such as “Ask” toolbars and other types of toolbars that you may have installed while downloading software.

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
0 Editable Maps; Networking		<ol style="list-style-type: none"> 1. Network with your classmates. 2. Understand what crowdsourcing is and how it can be used in your own classroom. 	<ol style="list-style-type: none"> 1. Introduce yourself in online discussion board. 2. Use an editable map in ArcGIS Online. 	<ol style="list-style-type: none"> 1. Discussion Board. 2. Hands-on activity: Add your data to an editable map.
1 What is Geography? Spatial Thinking; Demographics; Ecoregions		<ol style="list-style-type: none"> 1. Understand the core of what geography is—content knowledge, skills, perspective. (1) Gritzner, Kerski. 2. Begin to identify and discuss key geographic issues and themes from a spatial perspective. 3. Understand what the geographic perspective and spatial thinking 	<ol style="list-style-type: none"> 1. Watch a recorded video on this week’s topics. 2. Short readings on what geography is, spatial thinking, and demography. 3. Using gapminder to understand global population and demographic trends over space and time. 4. Use Show 	<ol style="list-style-type: none"> 1. Discussion Board. 2. Hands-on activities: Gapminder, Show Mapping Worlds, ArcGIS Online. 3. Short quiz: Conceptual components of the

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
		<p>are.</p> <p>4. Understand relationships between ecoregions, population density, growth rates, and fertility rates.</p> <p>5. Understand the demographic transition model.</p> <p>6. Begin to identify and use web mapping tools to effectively teach geography</p> <p>7. Understand population change from global scale to your local community.</p>	<p>Mapping Worlds to understand global demographic variables.</p> <p>5. Hands on investigation of ecoregions of the world and world demographic data using population density and choropleth maps.</p> <p>6. Use ArcGIS Online to investigate changes in population and economics in the USA by state, county, census tract, and block group.</p>	<p>definition of geography; spatial thinking definition; ecoregion and population analysis tool; density vs. choropleth maps; highest growth rate continent.</p>
<p>2</p> <p>Climate; Weather; Health</p>		<p>1. Understand patterns of world climate and its relationship to latitude, altitude, seasons, and oceans.</p> <p>2. Understand the difference between climate and weather.</p>	<p>1. Watch a recorded video on this week's topics.</p> <p>2. Short readings on climate, weather, and health.</p> <p>3. Examining world climate variables in</p>	<p>1. Discussion Board.</p> <p>2. Hands-on activities: ArcGIS Online.</p> <p>3. Short quiz.</p>

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
		<p>3. Understand some of the patterns of world and USA health variables and how to analyze them with geographic tools.</p>	<p>ArcGIS Online.</p> <p>4. Examining USA Temperature extremes in ArcGIS Online.</p> <p>5. Assessing cholera in 1854 London.</p> <p>6. Investigating world polio patterns.</p> <p>7. Investigate selected health measures in the USA.</p>	
<p>3</p> <p>Urban and Rural Land Use and Forms</p>		<p>1. Understand the structure and form of urban settlements.</p> <p>2. Understand differences in urban models.</p> <p>3. Understand differences in rural land use and structure.</p> <p>4. Understand how and why some changes are taking place on the Earth's surface, including from natural forces and human-</p>	<p>1. Watch a recorded video on this week's topics.</p> <p>2. Short readings on land use and urban forms.</p> <p>3. Comparing urban forms and variables using the Urban Observatory.</p> <p>3. Examining regional change using the Change Matters viewer.</p>	<p>1. Discussion Board.</p> <p>2. Hands-on activities: Urban Observatory, ArcGIS Online.</p> <p>3. Short quiz.</p>

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
		caused forces.	<p>4. Examining change over time in communities using ArcGIS Online.</p> <p>5. Analyzing rural land use patterns in ArcGIS Online.</p>	
<p>4</p> <p>Natural Hazards</p>		<p>1. Understand the spatial patterns inherent in a selected few types of natural hazards and how to analyze them with geographic tools.</p> <p>2. Understand vulnerability of populations to natural hazards and how to assess vulnerability.</p>	<p>1. Watch a recorded video on this week's topics.</p> <p>2. Short readings on natural hazards and their impact on human population.</p> <p>3. Investigating world earthquake patterns with ArcGIS Online.</p> <p>4. Investigating tornado patterns in the USA over time and space.</p> <p>5. Assessing hazard risk to populations in Boulder Colorado using spatial analysis tools.</p>	<p>1. Discussion Board.</p> <p>2. Hands-on activity: ArcGIS Online.</p> <p>3. Short Quiz.</p>

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
<p style="text-align: center;">5</p> <p>Current and Historical Events; Economic Geography</p>		<ol style="list-style-type: none"> 1. Understand some key “wheres” “whys” and “hows” of selected issues, past and present, in geography, and how to analyze them using geographic tools. 2. Understand how to create and use multimedia in maps, including popups and storymaps. 	<ol style="list-style-type: none"> 1. Watch a recorded video on this week’s topics. 2. Short readings on current and historical events and economic geography. 3. Investigating the issue of a proposed new road through the Serengeti. 4. Examining spatial patterns of the Titanic through story maps. 5. Examining the story of Ada Blackjack in the 1920s Arctic Ocean through ArcGIS Online. 5. Examining the pattern of food expenditures. 6. Investigating lifestyle “tapestry” data in the USA. 7. Investigating labor 	<ol style="list-style-type: none"> 1. Discussion Board. 2. Hands-on activity. 3. Short quiz. 4. Submit your Action Plan

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
			force rates and unemployment.	