

FACILITATOR AND CONTACT INFORMATION:

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COURSE DESCRIPTION:

Geography is usually considered as the world's oldest discipline, first defined and formally established by Eratosthenes in 250 BC, and has a rich tradition of scholarship that extended from 2,000 years ago to the present. Yet Geography has always embraced new technologies, research practices, instructional methods, skills, and content. How can Geography be effectively taught in the 21st Century, embracing its rich heritage and embracing emerging and exciting tools and perspectives? What content should be included? What skills should be emphasized?

Furthermore, **why** should geography be taught in the 21st Century? Why and how is geography relevant to the understanding of and decision-making in 21st Century society, the environment, and current events?

This course is designed to build (1) geographic concepts, (2) perspectives, and (3) skills for Instructors of Geography, as well as to those teaching other disciplines who seek to use geographic principles. The course 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 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**. The course will be taught through an

inquiry-driven, hands-on, problem-based format. The course includes pedagogical strategies and technological tools to teach conceptual foundations, skills, and geographic perspectives.

COURSE OUTCOMES:

→ By the end of this course, participants will be equipped 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 how to incorporate 21st Century tools** including geospatial technologies, such as dynamic web maps, charts, and data, to teach geography in an effective and dynamic manner.

COURSE POLICIES:

Regular and frequent participation is essential for the successful completion of this online course. Students must access the content early in the week to ensure that they receive the most up-to-date announcements and allow adequate time to engage in conversations with their classmates. Active participation is also vital to develop a vibrant learning community, which is essential in any educational environment, but particularly so with dynamic content such as geography and dynamic tools such as web-based maps. Completed assignments are to be submitted in the online course Dropbox (Use the module area to submit assignments; not via email) for formal assessment following provided grading rubrics.

COURSE HELP:

I (Joseph Kerski) will be available throughout the course to assist you via email or cell phone with any questions about content, tools, or anything else related to the course or, more broadly, about human geography and/or 21st Century tools in educational settings. Also, think of your classmates in terms of an excellent resource for peer assistance. Finally, the eNet Colorado staff will be a wonderful resource for you throughout the course.

COURSE CONTENT:

Fundamental to geography is the study of issues surrounding land use, natural hazards, population, economics, land use, and political issues, which will be emphasized in this course. However, as geography encompasses all that is in the world, at multiple places, scales, and time periods, it is impossible to cover its breadth in the short time that our course will run. Therefore, this course will touch on these issues but will focus on how to use 21st Century perspectives, themes, and tools to teach these issues.

Rural, Urban, Economic, Land Use, and Population Issues: Over the 5 weeks of this course, participants will deepen their understanding of and ability to effectively teach population dynamics (including such concepts as settlement, land use, age, birth rate, growth rate, and human-environment interaction), land use issues (such as zoning, sense of place), urban issues (such as historical and current development of cities, site vs. situation, and challenges facing cities), and economic geography (including industrialization, employment, measures of development).

Core Geography Themes: Embedded in studying these issues are core geography themes such as considerations of scale in patterns and processes, interpreting maps and analyzing geospatial data, understanding and explaining the implications of associations, networks, and interconnections among phenomena in places, defining regions and the regionalization process, and understanding the nature of and limitations of geographic data.

Spatial Perspectives and Tools: The spatial perspective is critical to understanding geographical content and processes. Being competent and confident in the application of the spatial perspective to geographical understanding enhances and strengthens our ability to communicate and teach about human geography. A number of powerful web mapping and related tools are now available for the geography instructor, and this course builds familiarity and confidence in using these tools through a series of hands-on activities.

READINGS:

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.e-education.psu.edu/geog030/node/379>

COURSE SCHEDULE:

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. 2. Begin to identify and discuss key geographic issues and themes from a spatial perspective. 3. Understand what the geographic perspective and spatial thinking are. 4. Understand relationships between ecoregions, population density, growth rates, and fertility rates. 5. Understand the demographic transition model. 6. Begin to identify and use web mapping tools to effectively teach geography 7. Understand population change from global scale to your local community. 	<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. Investigation of population density and ecoregions around the world using ArcGIS Online. 4. Hands on investigation of ecoregions of the world and world demographic data using population density and choropleth maps using ArcGIS Online. 5. Use Show Mapping Worlds to understand global demographic variables. 6. Using Gapminder to understand global population and demographic trends over space and time. 	<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 definition of geography; spatial thinking definition; ecoregion and population analysis tool; density vs. choropleth maps; highest growth rate continent.
2 Climate; Weather; Health		<ol style="list-style-type: none"> 1. Understand patterns of world climate and its relationship to latitude, altitude, seasons, and oceans. 2. Understand the difference between climate and weather. 3. Understand some of the patterns of world and 	<ol style="list-style-type: none"> 1. Watch a recorded video on this week’s topics. 2. Short readings on climate, weather, and health. 3. Examining world climate variables in ArcGIS Online. 	<ol style="list-style-type: none"> 1. Discussion Board. 2. Hands-on activities: ArcGIS Online. 3. Short quiz.

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
		USA health variables and how to analyze them with geographic tools.	4. Examining USA Temperature extremes in ArcGIS Online. 5. Investigating world bird flu patterns. 6. Investigating selected health measures in the USA.	
3 Urban and Rural Land Use and Forms		1. Understand the structure and form of urban settlements. 2. Understand differences among urban models. 3. Understand differences in rural land use and structure. 4. Understand how and why selected changes are taking place on the Earth's surface, including from natural forces and human-caused forces.	1. Watch a recorded video on this week's topics. 2. Short readings on land use and urban forms. 3. Comparing urban forms and variables using the Urban Observatory. 3. Examining regional change using the Change Matters viewer. 4. Examining change over time in communities using ArcGIS Online. 5. Analyzing rural land use patterns in ArcGIS Online.	1. Discussion Board. 2. Hands-on activities: Urban Observatory, ArcGIS Online. 3. Short quiz.
4 Natural Hazards		1. Understand the spatial patterns inherent in selected types of natural hazards and how to analyze them with geographic tools. 2. Understand vulnerability of populations to natural hazards and how to assess vulnerability.	1. Watch a recorded video on this week's topics. 2. Short readings on natural hazards and their impact on human population. 3. Investigating world earthquake patterns with ArcGIS Online. 4. Investigating tornado patterns in the USA over time and space. 5. Investigating historical hurricanes.	1. Discussion Board. 2. Hands-on activity: ArcGIS Online. 3. Short Quiz.

Week and Theme	Dates	Module Objectives	Learning Activities	Learning Assessments
5 Telling Stories with Maps; Location Analytics		<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. 3. Understand the importance of and how to apply location analytics in teaching. 	<ol style="list-style-type: none"> 1. Watch a recorded video on this week’s topics. 2. Short readings on storytelling with maps, and location analytics in geography. 3. Investigating the issue of a proposed new road through the Serengeti. 4. Examining the story of Ada Blackjack in the 1920s Arctic Ocean through ArcGIS Online. 5. Location Analysis 6. Examining the pattern of food expenditures. 7. Investigating lifestyle and consumer preference data in the USA. 	<ol style="list-style-type: none"> 1. Discussion Board. 2. Hands-on activity. 3. Your integration plan. 4. Short quiz.

DISCUSSION BOARDS:

For each week’s discussion board, I look forward to thoughtful and detailed reflections and observations that will promote interaction, peer mentoring, spatial thinking, and a rich learning experience for the entire class. That said, the discussion board does not require a “master’s thesis” length of insights!

SCHEDULE:

This course is asynchronous—there is no set schedule for when you need to complete the assignments. However, to get the most benefit from the course, it is strongly advised that you complete each week’s assignments *at some point during the week* in which they are assigned. Falling behind not only places additional pressure on you to complete more work during subsequent weeks, but more importantly, you miss the community discussion *and* your colleagues miss your important contributions. Also, the course will definitely end on the final day listed in this syllabus, so working beyond the end of the course date is not an option.

HANDS-ON ASSIGNMENT OVERVIEW:

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 in education, 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.

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.

THE BOTTOM LINE:

Ask Questions, dive in, investigate, learn, network, think geographically, and have fun!

