

## Teaching with GIS, even during a pandemic, part 1: Making maps and conducting spatial analysis with ArcGIS Online

NCGE webinar

25 Feb 2021

7 pm Eastern time (GMT -5)

*Description:* This session will introduce participants to ArcGIS Online, a web-based geographic information system that is free for use by K12 teachers and their students. For the past five years, our team of teachers and university faculty have been using ArcGIS and its related tools to teach high school social studies and science. During the pandemic, we have successfully shifted our instruction online. Learn how to use ArcGIS and explore how you might bring it into your classroom.

A follow-up session will demonstrate data collection tools for bringing student-collected information into ArcGIS.

### Topics & links ([slides](#))

- What is GIS?
  - Demo map: Water infrastructure in Environmental Science class  
<https://arcg.is/1m4DvP>
- GIS as a dynamic map
  - Log into your guest account: <https://sesi-expand.maps.arcgis.com/>
  - Go to <https://arcg.is/0WzW5>
  - While you wait for everyone else to get logged in, explore the map!
- Building a map: Cholera in London, 1854
  - Add
  - Search for Layers
  - My Content → My Organization
  - Search '1854', add three resulting layers
  - Explore each layer in turn
- GIS for spatial analysis
  - Hands-on example, automated analysis
    - Using the cholera map, Change style → Heat map
    - What does this analysis suggest is the source of the cholera outbreak?
    - [ If you wish to learn more about this topic, we recommend [The Ghost Map \(Johnson, 2006\)](#). ]
  - Classroom example, 'ocular analysis'

- 9th grade Fundamentals of Science class: Where to place a wind turbine in Pennsylvania?
    - Map for explanation & analysis: <https://arcg.is/iDayD>
  - Q&A / discussion & Extensions
    - Resources for learning more
      - Many, many, MANY materials from Esri. We borrowed liberally from <https://learn.arcgis.com/>
        - Note that materials are grouped by user type -- there is a section for School Teacher, for example
        - ( ...including a 4-minute video featuring will.i.am, talking about how he learned about GIS and got interested in promoting its use in classrooms: <https://teach-with-gis-learn.gis.hub.arcgis.com/pages/will-i-am> )
      - Esri's GeoInquiries, of course: <https://www.esri.com/en-us/industries/education/schools/geoinquiries-collections>
      - Materials from our 15 years of geospatial teaching projects
        - <https://eli.lehigh.edu/> -- see 'Curriculum' sections
        - Publications & presentations: <https://eli.lehigh.edu/publications/research>
    - Want to set up an organizational account for your school? Request one here: <https://www.esri.com/en-us/industries/education/schools/schools-mapping-software-bundle>
    - Preparing for Part 2 of our webinar: [Getting ready to do data collection](#)

## Presenters

Dr. **Tom Hammond** is Associate Professor in Lehigh University's College of Education. He teaches classes in social studies education and instructional technology, with an emphasis on GIS. [hammond@lehigh.edu](mailto:hammond@lehigh.edu)

Dr. **Kate Popejoy** is a researcher in science education and technology. Her current research includes promoting spatial thinking and reasoning with GIS-integrated curricula. [popejoyPhD@gmail.com](mailto:popejoyPhD@gmail.com)

**Doug Leeson** is a doctoral student in Lehigh University's Teaching, Learning, and Technology program. He is the research assistant for Socio-Environmental Science Investigations grant. [dml519@lehigh.edu](mailto:dml519@lehigh.edu)

Dr. **Alec M. Bodzin** is Professor in Lehigh University's College of Education. He researches the design of web-based inquiry learning environments, learning with spatial thinking tools, the design and implementation of inquiry-based science curriculum, and the use of instructional technologies to promote learning. *amb4@lehigh.edu*