

**DIG 270: Digital Maps, Place, and Space**  
Fall 2022      T/R 3:05-4:20 PM      Chambers 1003

Instructor:            Dr. Jakub Kabala  
Email:                 [jakabala@davidson.edu](mailto:jakabala@ davidson.edu)  
Office:                 Dana 263 & <https://davidson.zoom.us/j/92164968295>  
Office Hours:         M/T 12:00 – 1:30 PM, after class & by appointment

### **Course Description**

This course introduces students to digital methods of representing and analyzing space, as well as to the abiding humanistic questions underlying their use. Students will read and write about cognitive and symbolic spatial patterns, the history of cartography, projections and ethics, the uses and misuses of map-making, and cutting-edge applications of spatial analysis to humanities, politics, popular culture, and other fields. Through a series of regular and cumulative coding assignments over the entire semester, students will become comfortable representing and analyzing cartographic data in the Wolfram Language. Along the way, they will submit a series of small exercises and pursue their own interests through substantial projects in spatial storytelling and spatial data analysis. The final project will give students an opportunity to build on and deepen their earlier work.

### **Learning Outcomes**

I hope that students in this course to learn to...

1. discuss the outlines of cartographic history;
2. read maps mindfully by understanding the implications of technical features chosen by cartographers;
3. interpret spatial data by identifying both its limits and affordances;
4. use the Wolfram Language to represent space, place, and spatial data with clear intentions; and
5. cultivate a sense of curiosity about the world and its representations.

### **Course Requirements**

Contributions to our intellectual community (14%). These may take various forms, including:

- engaging actively and courteously in discussions
- sharing and collaborating on code during class meetings
- contributing code, reflections, or questions to our ongoing class Google Doc on a weekly basis
- attending office hours with feedback, questions, and ideas about course material

4 Exercises (4% each ~ 16% total). Working with a partner, you will complete a series of small and creative exercises to deepen your understanding of concepts and facility with coding. Some class time will be devoted to these. [Due Sep 6, Sep 23, Oct 7, and Nov 10.](#)

Midterm Project #1: Spatial Storytelling (20%): Working with a partner and building on map-making skills gained in the first part of the course, you will design and create a spatial story in the Wolfram Language. It will have a minimum of 4 chapters, each containing a combination of

map, media, text, and other features; it will also be accompanied by a brief written report. This project will require you to synthesize our study of qualitative space. [Due Oct 13.](#)

Critical Map Review (10%): Working with a partner, you will prepare a formal presentation in which you critically review a major existing digital mapping project before the class. You will receive a template to follow. [Due between Oct 25 and Dec 6.](#)

Midterm Project #2: Spatial Data Analysis (20%). Working with a partner and building on map-making skills gained in the second part of the course, you will locate and study a spatial data set of interest to you. You will create at least 4 maps to help you visualize, analyze, and understand your research question and data; you will also situate your research in some area of scholarship. This project will require you to synthesize our study of quantitative space. [Due Nov 22.](#)

Final Project (20%). Working alone, you will revisit one of your two Midterm Projects in spatial storytelling or data analysis and deepen it both via additional mapping and written reflection. Details to come. [Due Dec 16.](#)

### **Course Materials**

All course readings and coding assignments will be posted at <https://moodle.davidson.edu>. You will also find many online resources devoted to digital mapping and spatial analysis in the humanities. I encourage you to bookmark these and browse through them regularly. For starters:

1. Maps Mania (<http://googlemapsmania.blogspot.com/>).
2. Wolfram Community GIS Forum  
<https://community.wolfram.com/content?curTag=geographic%20information%20system>
3. Humanities GIS Projects (<http://geohumanities.org/gis>)
4. humanitiesGIS Zotero group (<https://www.zotero.org/groups/7412/humanitiesgis>)
5. A Literary Atlas of Europe (<http://www.literaturatlas.eu/en/publications/>)
6. Stamen projects (<https://stamen.com/work/>)
7. Nasa Earth Observatory (<https://earthobservatory.nasa.gov/>)
8. David Rumsey Map Collection (<https://www.davidrumsey.com/>)
9. CityLab's Maps posts (<https://www.citylab.com/posts/maps/>)
10. CartoNerd (<https://cartonerd.blogspot.com/>)

### **Pair Programming**

Research indicates that students learn programming especially well when working in pairs around one screen, something known as “pair programming.” In this practice, you will switch roles frequently, but at any one time, only one of you will be typing, while the other will be thinking out-loud and guiding the other. We will use pair programming for all in-class work, exercises, and projects.

### **Late Work**

This course Due dates are listed in the Course Schedule below. Any work handed in past the due date will be penalized by 1/3 of a grade for each day that it is late.

## Grading

Each assignment will be evaluated according to the following letter-grade standards:

A: Work that is extraordinary (A) or excellent (A-). Such work demonstrates full command of the subject material, close attention to detail, and substantial intellectual initiative on the part of the student.

B: Work that is very good (B+) or good (B), or has some good parts (B-). Such work shows solid understanding of the subject material, with room for growth.

C: While it demonstrates some understanding of material, C-level work has substantial room for improvement in content, initiative and/or execution.

D: Work that is unsatisfactory. The student has made an attempt, but the work does not show understanding of the material or intellectual initiative.

F: Work that fails to meet the requirements of the assignment.

## Academic Integrity and Honor Code

Anything you hand in for this course is work pledged according to the Davidson Honor Code. If you have any questions, doubts, or concerns about what this means, please speak with me. I urge you to consult the “Using Sources & Avoiding Plagiarism” guide at our library’s website:

<https://davidson.libguides.com/citation/plagiarism>.

## Inclusive Learning

“The college welcomes requests for accommodations related to disability and will grant those that are determined to be reasonable and maintain the integrity of a program or curriculum. To make such a request or to begin a conversation about a possible request, please contact the Office of Academic Access and Disability Resources, which is located in the Center for Teaching and Learning in the E.H. Little Library: Beth Bleil, Director, [bebleil@davidson.edu](mailto:bebleil@davidson.edu), 704-894-2129; or Alysén Beaty, Assistant Director, [albeaty@davidson.edu](mailto:albeaty@davidson.edu), 704-894-2939. It is best to submit accommodation requests within the drop/add period; however, requests can be made at any time in the semester. Please keep in mind that accommodations are not retroactive” (official Davidson College statement).

## Schedule

Unless otherwise specified, all readings and assignments are due in class on the day they are listed; special due dates are marked in blue font. NB: DMWL = Kabala, *Digital Mapping with the Wolfram Language* (open-source textbook available on Moodle); citations to all other readings may be found at the end of the syllabus; all PDFs and/or links are on Moodle. I may occasionally adjust readings and topics based on the flow of the course and your interests; make sure to check Moodle for the most up-to-date details.

## Unit I: Space and Quality

T	Aug 30	Introduction: Digital Maps, Place, and Space
R	Sep 1	Memories in Maps <ul style="list-style-type: none"><li>- J. Foer, <i>Moonwalking with Einstein</i>, c. 5: “The Memory Palace” &amp; c. 7: “The End of Remembering”</li><li>- Install <i>Mathematica</i> 13.1 &amp; explore Staff Picks at Wolfram Community’s GIS forum (link on Moodle).</li></ul>
T	Sep 6	Memory Palaces <ul style="list-style-type: none"><li>- Code: DMWL, c. 1: Basic Wolfram Language (WL) Programming</li><li>- <a href="#">Exercise 1: Memory Palace Exercise due in class</a></li></ul>
R	Sep 8	Narratives in Maps <ul style="list-style-type: none"><li>- J. Brotton, <i>A History of the World in Twelve Maps</i>, c. 3: “Faith”</li><li>- Explore the Hereford <i>Mappa Mundi</i> (link on Moodle)</li><li>- Code: DMWL c. 2: GeoGraphics (begin)</li></ul>
T	Sep 13	Qualified Space <ul style="list-style-type: none"><li>- R. Guénon, <i>The Reign of Quantity &amp; the Signs of the Times</i>, c.1: “Quality and Quantity” &amp; c. 4: “Spatial Quantity and Qualified Space”</li><li>- C. Twinch, “To be heard, read and seen”</li><li>- Code: DMWL c. 2: GeoGraphics (end)</li></ul>
R	Sep 15	Centers and Peripheries <ul style="list-style-type: none"><li>- M. Baghos, “The Symbolic World of Göbekli Tepe”</li><li>- J. E. Brown, <i>Teaching Spirits</i>, c. 3: “Fixing a Center: Native American Sacred Geography”</li><li>- Code: DMWL c. 3: Plotting Points</li></ul>
T	Sep 20	Networks and Territories <ul style="list-style-type: none"><li>- M. Smith, “Networks, Territories, and the Cartography of Ancient States”</li><li>- C. Maier, “Transformations of Territoriality, 1600-2000.”</li><li>- Code: DMWL c. 4: Plotting Polygons</li></ul>
R	Sep 22	Paths ~ Lines <ul style="list-style-type: none"><li>- Explore: Peutinger Map (link on Moodle)</li><li>- Code: DMWL c. 5: Plotting Lines</li><li>- <a href="#">Exercise 2: Hereford Map Exercise due F, Sep 23 EOD</a></li></ul>
T	Sep 27	Projections and Ethics <ul style="list-style-type: none"><li>- M. Monmonier, <i>Rhumb Lines &amp; Map Wars</i>, c. 1: “Bearings Straight–An Introduction”, c. 9: “Wall Maps and Worldviews”, c. 10: “Size Matters,” &amp; c. 11: “Points of View”</li></ul>

- J. B. Harley, “Can there be a cartographic ethics?”
  - Code: DMWL c. 6: Cartographic Projections & (optional) DMWL c. 7: Cartographic Grids
- R Sep 29 Historic Maps
- Study archival collection of historical maps of Davidson (on Moodle)
  - Code: DMWL c. 8: Geo-rectification
- T Oct 4 Cartographic Lies
- M. Monmonier, *How to Lie With Maps*, c. 7: “Maps for Political Propaganda” & c. 8: “Maps, Defense, and Disinformation: Fool Thine Enemy”
  - Code: DMWL c. 9: Cartographic Propaganda
- R Oct 6 Deep Mapping
- K. Markides, *Riding with the Lion*, c. 3: “Mysteries”
  - M. Sample, “Location Is Not Compelling (until It Is Haunted)”
  - Code: DMWL c. 10: Deep Mapping
  - [Exercise 3: Mapping Davidson due F, Oct 7 EOD](#)
- T Oct 11 *No Class: Happy Fall Break*
- R Oct 13 Spatial Storytelling Day
- Work on Midterm Project 1: Spatial Storytelling

### Unit II: Space and Quantity

NB: Readings in this unit will be generated mostly by you, the students. Working in pairs, you will prepare an oral presentation offering a critical analysis of some digital mapping project of interest to you and your partner, to be delivered before the class between Oct 25 and Dec 6 (a sign-up sheet will be circulated). In advance of your presentation, you will post a link to your chosen digital mapping projects on the class Google Doc, which all others will read and study in preparation for discussion.

- T Oct 18 Introduction to Data
- [Midterm Project 1: Spatial Storytelling due in class](#)
- R Oct 20 Perspectives on Data
- M. Monmonier, *How to Lie with Maps*, c. 10: “Data Maps: Making Nonsense of the Census”
  - Code: DMWL c. 12: Intermediate WL Programming: Table & Map

T	Oct 25	Evaluating Spatial Data <ul style="list-style-type: none"> <li>- K. Hepworth and C. Church, “Racism in the Machine: Visualization Ethics in Digital Humanities Projects”</li> <li>- Code: DMWL c. 12: Intermediate WL Programming: Booleans &amp; Select</li> </ul>
R	Oct 27	Importing Spatial Data <ul style="list-style-type: none"> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- Code: DMWL c. 15: Working with CSV Data I</li> </ul>
T	Nov 1	Manipulating Spatial Data <ul style="list-style-type: none"> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- Code: DMWL c. 16: Working with CSV Data II</li> </ul>
R	Nov 3	Organizing Spatial Data <ul style="list-style-type: none"> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- Kenneth Field, <i>Thematic Mapping</i>, selection</li> <li>- Code: DMWL c. 13: Spatial Data and WL Entities</li> </ul>
T	Nov 8	Visualizing Spatial Data <ul style="list-style-type: none"> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- M. Monmonier, <i>How to Lie With Maps</i>, c. 11: “Color: Attraction and Distraction”</li> <li>- Explore Color Brewer (on Moodle)</li> <li>- Code: DMWL c. 14: Data Maps (begin)</li> </ul>
R	Nov 10	Mapping Change over Time <ul style="list-style-type: none"> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- M. Bostock, “Methods of Comparison, Compared”</li> <li>- Code: DMWL c. 14: Data Maps (end)</li> <li>- <a href="#">Exercise 4: Mapping Change due F, Nov 11, End of Day</a></li> </ul>
T	Nov 15	Patterns and Shapefiles <ul style="list-style-type: none"> <li>- Moretti, <i>Atlas of the European Novel</i>, selection</li> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- Code: DMWL c. 19: Working with Shapefiles I</li> </ul>
R	Nov 17	Functions and Shapefiles <ul style="list-style-type: none"> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- Code: DMWL c. 20: Working with Shapefiles II</li> </ul>
T	Nov 22	Open Day <ul style="list-style-type: none"> <li>- 1 digital mapping project posted on class Google Doc</li> <li>- <a href="#">Data Project due End of Day</a></li> </ul>
R	Nov 24	<i>No Class: Happy Thanksgiving</i>

- T Nov 29 Geocoding
- 1 digital mapping project posted on class Google Doc
  - Code: DMWL c. 17: Geocoding
- R Dec 1 Spatial Statistics
- 1 digital mapping project posted on class Google Doc
  - Code: DMWL c. 21: Spatial Statistics
- T Dec 6 Final Project Workshop
- 1 digital mapping project posted on class Google Doc
- R Dec 8 Conclusions:
- Work on your final projects
- F Dec 16 Final projects due

### Course Bibliography

*The following course readings are referenced on the syllabus and made available on Moodle.*

Baghos, Mario. "The Symbolic World of Göbekli Tepe and the First Cities: An Eliadean Approach." *The Symbolic World*. 22 February 2022.

<https://thesymbolicworld.com/articles/architecture/the-symbolic-world-of-gobekli-tepe-and-the-first-cities-an-eliadean-approach/>.

Bostock, Mike. "Methods of Comparison, Compared." *Observable*. 15 June 2018.

<https://beta.observablehq.com/@mbostock/methods-of-comparison-compared>.

Brewer, Cynthia, Mark Harrower and the Pennsylvania State University. "Color Brewer 2.0: color advice for cartography." Accessed 8 January 2019.

<https://colorbrewer2.org/#type=sequential&scheme=BuGn&n=3>.

Brotton, Jerry. *A History of the World in Twelve Maps*. New York: Penguin Books, 2014.

Brown, Joseph Epes. *Teaching Spirits: Understanding Native American Religious Traditions*. Oxford: University Press, 2001.

Field, Kenneth. *Thematic Mapping: 101 Inspiring Ways to Visualise Empirical Data*. Redlands, CA: Esri Press, 2022.

Foer, Joshua. *Moonwalking with Einstein: The Art and Science of Remembering Everything*. New York: Penguin Press, 2011.

Guénon, René. *The Reign of Quantity and the Signs of the Times*. Translated by Lord Northbourne. Hillsdale, NY: Sophia Perennis, 2002.

- Harley, J. B. "Can There Be a Cartographic Ethics?" *Cartographic Perspectives*, no. 10 (June 1, 1991): 9–16.
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- Hereford Cathedral. "Mappa Mundi." Accessed 8 January 2019. <https://www.themappamundi.co.uk/>.
- Maier, Charles. "Transformations of Territoriality, 1600-2000." In *Transnationale Geschichte: Themen, Tendenzen und Theorien*, edited by Gunilla Budde et al., 32-55. Göttingen: Vandenhoeck & Ruprecht, 2006.
- Markides, Kyriacos C. *Riding with the Lion: In Search of Mystical Christianity*. New York: Viking Arkana, 1995.
- Monmonier, Mark S. *How to Lie with Maps*. 2nd ed. Chicago: University of Chicago Press, 1996.
- . *Rhumb Lines and Map Wars: A Social History of the Mercator Projection*. Chicago: University of Chicago Press, 2004.
- Moretti, Franco. *Atlas of the European Novel, 1800-1900*. London; New York: Verso, 1998.
- Sample, Mark. "Location Is Not Compelling (until It Is Haunted)." In *The Mobile Story: Narrative Practices with Locative Technologies*, edited by Jason Farman, 68–78. New York: Routledge, Taylor & Francis Group, 2014.
- Smith, Monica L. "Networks, Territories, and the Cartography of Ancient States." *Annals of the Association of American Geographers* 95, no. 4 (2005): 832–49.
- Talbert, Richard J.A. "Peutinger map: seamless whole, in color, with overlaid layers (Map A)." 2010. <http://peutinger.atlantides.org/map-a/>.
- Twinch, Cecilia. "To Be Heard, Read and Seen." *Beshara Magazine* 12 (1990): 24 – 27.