UC Berkeley, Department of Geography

GEOG 80, An Introduction to Geospatial Technologies: Mapping, Space, Power

Instructor: **John Isom (he / him)**

Lecture on: Wednesday, 1:00 to 3:00

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Office hours: Monday, Wednesday, 11:00am to 1:00pm, or appt.

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**Course intro**

From the UC Berkeley course catalog: “This course offers an introduction to the increasingly diverse range of geospatial technologies and tools including but not limited to geographical information systems (GIS). Merging theoretical concepts with technical instruction, students will develop critical knowledge and skills in web-mapping, geographic information science and cartography, including how these tools take on and reinforce fundamental geographical concepts and shape our lives, our environments and, increasingly, our futures.”

And a bit more:

Geospatial information technologies can be understood as the evolution and merger of cartography and computing. But even as these two fields of science and technology seemingly constitute a powerful utilitarian hybridity, a complex history underlies both, a history in which both cartography and computation – as branches of scholarship as well as sets of methods and best practices – have long served the interests of colonial access to and control over peoples and places; the interests of the military industrial-complex’s agendas; urban and industrial development (where and for whom, and at whose expense), the movement, concentration, and sequestering of wealth through markets and untraceable accounts (which still have to have a location *somewhere* on Earth); natural-resources exploration, extraction and pollution; and of course, the surveillance of certain groups and populations.

This makes the present moment of understanding – and using – geospatial technologies ever more important, inviting insistent questions on the politics of data compilation, manipulation, and representation; data uses, abuses, and thus ethics; the viralization of fake news; and the power of putting people and places on the map that have, heretofore, been either erased or denied spatial representation: All of these topics and companion questions are crucial to our common future – human and non-human – in a digitally globalized world.

One way forward through this complex landscape of information and power[lessness] is by learning to “think geographically.” As such, this course introduces students to the foundations of geospatial sciences and technologies by:

1. Investigating critically theories and histories of key concepts in geospatial sciences, including but not limited to location and position, space and place, distance and direction, data classification, map projections, representation and semiotics, and how we measure / describe / characterize space.
2. Developing skills and critical proficiencies in the use of geospatial technologies and the production of maps via common mapping platforms, including visual design principles, cartographic representation, and spatial data analysis.
3. Exploring the application of geospatial technologies across a range of fields and geographically based professions, including cartography, remote sensing, geocomputation and digital geographic research not only in the sciences but across the arts and humanities.

At the end of the semester, you will understand how modern digital maps work, how they came to be, and what they are used for. You will have produced at least one map for your portfolio, and you will understand the technical and theoretical underpinnings of spatial data and geographic information systems / sciences / surveillances. You will have proficiency in one major mapping web application, and most of all, you will be better at exercising critical awareness, understanding, and use of these skills and tools and why and when to use them.

**This is an introductory course in which no experience with geographic theory nor computer mapping is expected.** The class is not enough if you are seeking technical fluency in GIS or web development, but it is an awesome starting point for the GIST Minor (<https://nature.berkeley.edu/advising/minors/gist>), a minor or major in geography (<https://geography.berkeley.edu/academics/undergraduate-studies>), and for more specialized geospatial and digital geographic courses.

**In lecture and in lab, we are all committed to working collaboratively in a supportive learning environment**

* You, I, and we are part of a learning community. When we meet, we agree to work, collaborate, and support each other – emotionally, culturally, learning-ly, if you will – in a safe and inclusive learning environment, in lecture and especially in lab.
* You, I, and we participate as peers and colleagues as we explore, inquire, challenge and critique what we read, what we learn, what we create and revise.
* You, I, and we support each other’s efforts at intellectual and practitioner mastery of concepts and skills central to this course. We recognize that, in learning, **practice makes more proficient**.
* You, I, and we engage in these practices with diplomacy and mutual respect. We will have moments of differing. In such moments, we are respectful of the evidence-based arguments and positions that we each take, especially when those positions differ from our own.

**Course websites**

The GEOG 80 bCourses page is an essential resource in this course. It provides access to each week’s listing of lecture slides, readings, discussion topics and prompts, assignment deadlines, and other vital info and resources.

In addition, student participation in lecture and lab includes posting to the bCourses weekly DISCUSSIONS page topics and questions, based on lecture and from your WRS readings notes (see next page), beginning in week 04. Details during the first couple of lab meetings.

Finally, please ***check your official UCB email regularly***, especially the day before we meet AND the day that we meet, for lecture and for lab. You never know what might come up that you to be same-day aware of.

**Lecture and lab**

This course consists of a LECTURE component and a LAB component. This syllabus focuses on lecture aspects of the course; your lab instructor will provide you with a detailed lab syllabus related to assignments, activities, requirements, due dates, readings, and the like. That said, here’s a bit more about lab:

Each week during your lab section you will undertake a series of exercises designed to teach you skills in geospatial visualization and analysis. It's essential to add here that this is a course designed for a range of students – from experienced data scientists to those who studies focus on arts and humanities – and, of course, those who have never made or worked with maps before. We have thus chosen to evaluate lab activities and assignments in a low-stakes way, and using a “practice makes proficient” approach as each next assignment and activity in lab builds previous ones. Coming to and participating in lab is necessary if you wish to pass the course.

**Readings**

This course combines theoretical and technical LECTURE-based readings with much shorter, “relevance” LAB-based readings, short videos, etc. All readings appear as PDFs or URLs on either the LAB or LECTURE bCourses page. As such, you don’t need to purchase any of the texts that the readings come from.

Each week has assigned reading(s) that support the material in lecture in more detail and in lab. It is essential that you complete each week’s readings ***by noon on Monday each week***. In lab you will have the opportunity to ask questions about concepts that you don’t understand during in-lab discussion. Please refer to the weekly calendar, below, and to bCourses in order to determine what readings to complete each week.

**Weekly Readings Summaries (WRSs)**

Making sense of and summarizing what you read – a scholarly article, a book chapter, a report, etc. – is a valuable skill, in university and in professional life. It’s also useful for engaging the ideas of authors and to help you to define and shape your own thoughts and responses to a reading: To read, think, and write critically.

In this course we have one weekly reading for LECTURE topics, and one or more very short weekly readings for LAB. You will be required to submit weekly readings summaries, called WRSs, for the lecture readings (but NOT for lab readings). In weeks 02 and 03 the GSIs and I will show you how to do these WRS notes, in part by providing you with a notes-taking method that you can use to help with compiling core information about a reading. Then, in lab each week, your instructor will set aside time for a low-stakes check-in and discussion about the core topics in each week’s lecture reading.

There are **ELEVEN** **discussion-designated LECTURE readings** that take place in weeks 02-12 this semester. You must submit **hand-written** Weekly Readings Summaries (WRS) notes for ANY EIGHT LECTURE readings (but again, NOT for LAB readings) in these twelve weeks – which means that you don’t have to submit WRSs for three of the weeks. To become familiar with what to do, everyone must complete WRS notes for week 02 and week 03; you’ll then complete SIX more of your choice. Note that the WRSs are a low-stakes assignment, so we’ll take a “practice makes [more] proficient” approach to mastering how to do them.

Finally, I want to stress that even though you don’t have to submit WRS notes for three of the lecture readings, and that you do not have to submit WRS notes for any of the lab readings: The lab instructors and I expect you to be prepared every week, which means having read every article.

**Critical essay**

At the end of the semester, you will submit a critical essay that engages at least three LECTURE readings; at least three LAB readings; and relevant notes / topics / concepts from at least three lectures. As such, your WRS notes will be an EXCELLENT source of info for how you choose to approach the essay. **The essay is due Wednesday, Dec. 14, by midnight.** Several weeks before the essay is due, I will provide a detailed prompt to guide you.

**Lecture exam**

The lecture exam is scheduled final-exams week. The exam will consist of some number of short-answer topics. I will provide a study guide and sample topics at least one week before the exam.

**Lab final project**

The final project is a mapmaking project. It is your opportunity to explore a topic that you’re interested in and to apply the geospatial skills that you have learned during the course. You are expected to not only demonstrate technical proficiencies in the mapmaking, but also to demonstrate an understanding of the conceptual and critical concepts that you have learned through lecture topics, lecture readings, lab readings, and assignments.

In week 10 of the semester, you will submit a one-page document called a scoping document. The goal of the scoping document is to provide a description and characterization of your topical focus along with any relevant sub-topics. The scoping document functions as a kind of road map, as if to say, "It’s my best sense, currently, that I am going to focus on the following region, topic, and time frame; I think I will be framing these research questions; I think these data kinds of sets will be important,” and so on.

Your GSI and I will then use the scoping document as a starting point for helping to guide your work, from collecting data to helping it to take shape in the final weeks of the semester.

For the final project itself, you will create what’s come to be known as a Story Map, using ArcGIS Online. The Final Project will assess your ability to:

1. Understand and explain key geospatial theories and critiques;
2. Ground your geospatial data and design in a critical analysis of the history and development of geospatial technologies;
3. Use relevant kinds of geospatial analysis and visualization methods to tell a story and / or make an argument;
4. Make deep and *reflective* links between your technical design and decision-making, and core geospatial theories and concepts.

**Attendance, participation, and preparation**

Attending class and lab is about showing up to participate, and participation is about being prepared: Having read the readings, watched any lecture videos, completed assignments, and so on, *before we meet*.

I take attendance in lecture, and GSIs take attendance in lab. Not always, but we do take attendance. It’s your choice to come to lecture and lab, or not; I respect your own decision-making about this.

However, in this course, missing more than a couple of class and / or lab meetings starts to add up. Showing up for class is like showing up for work: If you can’t get to work, you do your best to contact your supervisor ***before*** you are scheduled to arrive. Same here.

As such, here’s my attendance / absence policy, for each day of lecture and lab:

* Everyone gets **ONE unexcused lecture absence** and **ONE unexcused lab absence**, no questions asked.
* After that, each unexplained / unexcused absence CAN DROP (at the instructor’s discretion, on a case-by-case basis) your final course grade by up to 3% per unexplained / unexcused absence.
* More than FOUR unexcused absence means that one can fail the course, at the instructor’s discretion.

What’s the difference between unexplained and unexcused? Some explanations are compelling excuses, and some aren’t. All three instructors are pretty reasonable with regard to this distinction, but only if you work with us. So, please contact your instructor in advance to tell us what’s going on. Our paramount role is to help you achieve that which you aspire to in the course. Talk to us...

* You are responsible for work that you miss for every lecture / lab meeting that you miss.
* Finally, arriving late or leaving early without letting me know; doing homework from another course; engaging in activities unrelated to class: ***not acceptable.***

**Deadlines policy**

During the semester, it’s likely going to happen that you will get slammed with assignments, exams, and even at your job. Your lecture and lab instructors get it that this happens. However: if you don’t contact your instructor to say that an assignment will be late, why it will be late, and when you expect to submit it, we will assume that you won’t be submitting it.

Non-communication about late submissions ***can mean***, at the instructor’s discretion, a zero grade for the assignment. In turn, assignments submitted late with permission will receive a reduction in grade unless your instructor decide otherwise: again, we will work with you on this, but you need toinform us before it’s due.

**Assessment and grading**

Your overall course grade is based on the following table’s lecture deliverables and lab deliverables:

|  |  |
| --- | --- |
| **Course deliverables**  | **% course grade** |
| Final project, including scoping document | 15% |
| Critical essay  | 10% |
| Course exam  | 20% |
| Attendance / participation in lab and lecture (see the attendance policy, above) | 15% |
| Lab assignments | 20% |
| Weekly Readings Summaries (WRSs) and in-lab discussions of readings | 20% |

97% through 100%: A+ 87% through 89%: B+ 77% through 79%: C+ 67% through 69%: D+

93% through 96%: A 83% through 86%: B 73% through 76%: C 63% through 66%: D

90% through 92%: A- 80% through 82%: B- 70% through 72%: C- 60% through 62%: D-

**The C.A.G.E. Lab and access to an effective computing device**

The Cartography and GIS Education Lab – The C.A.G.E. Lab – is in 535 McCone Hall; turn left as you exit the elevators. Hours for access are on both Lab doors. Berkeley Student Technology Services has information about access to all campus computing labs: <https://studenttech.berkeley.edu/services/computer-labs>.

While you can do all lecture and lab assignments using campus computers, if having access to an effective device becomes difficult, you can contact Student Technology Services for details on getting a free loaner device – <https://studenttech.berkeley.edu/devicelending> – or through the Student Technology Equity Program, found here: <https://technology.berkeley.edu/STEP> .

**Student collaboration in lab and on assignments**

One of the joys of this course is lab time, and in particular the shared joys and challenges that you encounter as you work on assignments. I am a huge fan of students helping each other – on-the-fly suggestions, insights, etc. – because learning often works best in a two-heads-and-four-heads-and-more-heads-are-better-than-one approach. Your lab instructor will promote such kinds of collaboration.

In strong contrast to collaboration and academic support of each other is ***academic dishonesty***. What is academic dishonesty? It is the ***intentional act of deception*** in any one or more of the following areas:

* ***Cheating***: use or attempted use of unauthorized materials, information or study aids.
* ***Fabrication***: falsification or invention of any information designed to enhance or promote your or another’s person’s academic standing.
* ***Assisting***: helping another student commit an act of academic dishonesty.
* ***Tampering***: altering or interfering with evaluation instruments & documents.
* ***Plagiarism***: representing the words, work, or ideas of another person as your own.

The lecture and lab instructors take academic integrity very seriously, and anyone found engaging in any aspect of academic dishonesty will be dealt with accordingly. You can learn more about these issues at UC Berkeley’s Division of Student Affairs, **The Center for Student Conduct**: <https://sa.berkeley.edu/conduct>.

**Student access to the course**

UC Berkeley and the Department of Geography are committed to creating accessible learning environments and reasonable accommodation for all students at UC Berkeley. Towards this end, the UCB Disabled Students’ Program provides support resources for students needing accommodation.

If you think this applies to you, please contact John Isom by email: **isom@berkeley.edu**. I also urge you to visit the DSP office, which is located in 260 César E. Chávez Student Center; you can also access DSP resources here – <https://dsp.berkeley.edu/>. Just click on the ***Students*** pulldown menu at upper left of the home page.

In turn, the mission of Counseling and Psychological Services (CAPS) is to support the emotional, psychological, educational, social and cultural development and well-being of all UC Berkeley students through a wide range of multiculturally based counseling, psychiatric, career, training, and educational services.

CAPS offers short term counseling for academic, career, and personal issues, as well as psychiatry services for situations when medication can help with counseling. <https://uhs.berkeley.edu/caps>. UCB’s Mental Health Handbook is a useful resource: <https://uhs.berkeley.edu/counseling/prevention-education-outreach/mental-health-handbook>.

**Changes to syllabus and the weekly calendar**

The weekly lecture calendar, which appears on pages 8-9 of this syllabus, is subject to change, depending upon circumstances and course needs. I will announce, in class and through the bCourses website, any changes that I make, and will do my best to assure that you have enough advance notice to adjust accordingly. I will never add more work, but I might substitute one thing for another.

**Instructional resilience**

Public-Safety Power Outages (or PSPS; more here: <https://www.pge.com/en_US/residential/outages/public-safety-power-shuttoff/learn-about-psps.page>), fires and unhealthy air, the COVID-19 global pandemic: It’s an understatement to say that the past several years in the greater Bay-Area region have been challenging not only for quality of living but also for quality of learning and instructional continuity.

The very good news is that UC Berkeley faculty, staff, and students have all learned how to adapt to these kinds of situations, and so if the need arises to temporarily shift from in-person to remote learning, or we have to adapt to temporary power outages, then we’ll all be ready. I will adapt assignments, due dates, and the like as each and any situation warrants.

**Extra credit**

While I sometimes provide an extra-credit question on an exam, I almost never offer the option of doing extra-credit assignments during the semester. Here’s why:

1. During the semester, your focus should always be on making your best effort to complete all work that has already been assigned, and ***not*** to take on extra work. Success in university is not about taking on tonnage of work; it's about achieving mastery in the work that is already in front of you.
2. It’s my responsibility to evaluate extra-credit submissions. What happens if you have a B- average in the course and your grade on an extra-credit assignment is C-? Your overall course grade goes down.
3. Most requests for extra credit come at the end of the semester, a timing that correlates strongly with anxiety about one's grade and improving one's grade. While I am glad you are focused on your grade and the quality of your work, you need to keep tabs on your grade *before* things get out of control.

**Final thoughts**

The lab instructors and I will ***always*** work with ***any*** student who wishes to make up a missed class, assignment, or exam because of a reasonable and compelling excuse. But: we need to know, in advance, that you will be out and need to make up a class, an assignment, or an exam. In turn, we urge you to talk to us, before you fall behind, before something is due.

Our number-one role is to support your learning, your efforts, your goals as you work to achieve that which you aspire to achieve, in this course and here at UC Berkeley: Personally, academically, and professionally.

**Welcome!!**

**Calendar of LECTURE topics and readings**

**Week Dates Topics Readings (for WRS notes for weekly in-lab discussion)**

01 Aug 24 – The grand tour **– ALL READ:** [Default tech settings you should turn off](https://www.nytimes.com/2022/07/27/technology/personaltech/default-settings-turn-off.html)

 – Intro to the course syllabus – [This Surveillance Artist Knows How You...](https://www.nytimes.com/2022/09/24/technology/surveillance-footage-instagram.html)

 – Privacy vs. secrecy

02 Aug 31 – Place and space; geospatial technologies, **– ALL READ:** Routledge, Chapter 29, Mapping Place

 techniques, and techné; geospatial existential – [More surveillance](https://www.nytimes.com/2022/11/02/technology/personaltech/security-cameras-surveillance-privacy.html)

 relationings; ethical geospatialities; public – [also read on surveillance](https://www.nytimes.com/wirecutter/blog/protect-your-privacy-in-mobile-phones/)

 places, civic spaces

03 Sept 07 – Points, lines, areas; features, attributes; scale **–** **ALL READ:** Routledge, Ch. 18: Global Positioning Systems

 – Locations, positions, [directions,](https://en.wikipedia.org/wiki/Craig_retroazimuthal_projection) distances – **FYI:** Labor Day holiday, Monday, Sept 05

 – Movement, migration, pilgrimage, navigation

 – Topo-philia, topo-graphy, topo-logy

 – Spatial reference systems (SRSs)

1. Sept 14 – [Precision](https://en.wikipedia.org/wiki/Pundit_%28explorer%29) and accuracy in mapping **–** **ALL READ:** Routledge, Ch. 11: Mapping, Surveying, and

 – More on SRSs: *Axes mundi*, Meades Ranch... Science

 – Profile, oblique, to plan / orthogonal

05 Sept 21 – Place, space, landscapes, power, mappings **– ALL READ:** *Maps Are Territories: Science Is an Atlas*,

 – SRSs and the basics of map projections; Exhibits 01-05

06 Sept 28 – Place and space, public places, civic spaces **–** **ALL READ:** Crampton, Ch. 03 Critical Cartography and GIS

 – Info, data, evidence; qualitative and

 quantitative data; other types of data

 – Cross-cultural [geo-]spatialities

07 Oct 05 – More on spatial reference systems (SRSs), **– ALL READ:** *Mapping for a Sustainable World*, sections

 coordinate systems, and map projections; 2.6 through and including 2.15

 maps and projections of power

08 Oct 12 – Maps are... **–** **ALL READ:** Unfolding the Earth

 – Common types of thematic maps **–** **ALL PERUSE:** Wood, et. al. *Seeing Through Maps*, Appendix B

 – Description, analysis, [change](http://time.com/timelapse2016/?xid=time_socialflow_facebook) over [time](https://www.nytimes.com/interactive/2016/12/09/science/mapping-three-decades-of-global-water-change.html?_r=0)

 – Guest speaker: Dr. Clancy Wilmott

09 Oct 19 – More on types of thematic maps **– ALL READ:** *Cartographies of Disease*, selections

 – Cartographic design and communication

 – Susan Powell in lecture: Finding data for final project

**Calendar of LECTURE topics and readings**

**Week Dates Topics Readings (for WRS notes and in-lab discussions)**

10 Oct 26 – History of modern geospatial sciences **– ALL READ:** 1. Map Reader, Chapter 5.8 on geo-surveillance

 modern cartography and 2. [briefing](https://en.wikipedia.org/wiki/Geo-fence) on geo-fencing

 – Isom’s model **– ALL READ:** [‘Crisis pregnancy centers’ are surveilling clients...](https://prismreports.org/2022/08/24/anti-abortion-centers-suveilling-criminalizing-clients/)

11 Nov 02 – Remote sensing: History and today **– ALL READ:** The Politics of Pixels, [Landsat @ 50 years old](https://theconversation.com/landsat-turns-50-how-satellites-revolutionized-the-way-we-see-and-protect-the-natural-world-186986),

 [Google Earth and censorship](https://www.livescience.com/60488-secretive-places-on-google-earth.html?trac=true&utm_source=facebook&utm_medium=ppc&utm_campaign=Secretive+Places+-+Lookalike+1%25+-+US+-+Desktop&utm_content=15+Secretive+Places+You+Can+Now+See+On+Google+Earth) and [planet.com](https://www.planet.com/)

12 Nov 09 – Spatial [surveillance](https://www.nytimes.com/interactive/2022/08/09/technology/ukraine-internet-russia-censorship.html), censoring, and WMDs: **– ALL READ:** The Subjectivity of Eyes in the Sky

Interpretations and misinterpretations – [The CIA declassifies maps](https://www.smithsonianmag.com/smart-news/cia-celebrating-its-cartography-divisions-75th-anniversary-declassified-maps-180961419/)

13 Nov 16 **– Critical essay due by Sunday,** 20 November **– No readings this week**

14 Nov 23 **– Thanksgiving week: Class does NOT meet**

 **– MON and TUES labs meet via Zoom – No readings this week**

 **– WED and TH labs do NOT meet**

15 Nov 30 – So what: Why should we care? And better: **– No readings this week**

 Why should \*I\* care?

16 Dec 07 **– Reading / Review / Recitation Week – No readings this week**

 – The final project, is due Wednesday, Dec 07, by midnight

 – Extended office hours (online) for working on the final

 project, exam study, etc.

17 Dec 14 **– Course final exam – No readings this week**

**Calendar of LAB topics and readings: add due dates for assignments**

**Week Topics Lab assignments and WRS notes for LAB readings discussion**

01 Aug xx – No lab meetings this week – No readings this week

02 Aug xx – A01: Mental maps **– ALL READ for lab:** *Making Maps*, pp. 26-31

 – A01 is due **Sunday, Sept 04, by midnight**

03 Sept xx – **Labor Day holiday on Monday, Sept 05** **–** **ALL WATCH / READ for lab:** [Social Life of Small Urban Spaces](https://www.youtube.com/watch?v=DEwo-_pQCz8)

– A02: working with Google Earth ([watch](https://www.youtube.com/watch?v=IsVZxanrL7s) before lab, only 0:29 to 5:06 & 5:58-15:00); then, in lab:

 [Social Life of Small Berkeley Spaces](https://www.youtube.com/watch?v=VMxG1N2QoqQ&t=57s); then, in lab, review these

 about contested spaces: 1. [People’s Park](https://www.nytimes.com/interactive/2022/08/04/us/berkeley-peoples-park-protest.html), and 2. [gentrification](https://www.nytimes.com/interactive/2022/08/09/headway/anacostia-bridge.html)

 – A02 is due **Sunday, Sept 11, by midnight**

04 Sept xx – A03: FATs and data collection using your **–** **ALL READ for lab:** Waypoint / tracks data [African hunting dogs](https://www.nytimes.com/2022/06/20/science/african-wild-dogs-zambia.html),

 mental-map data from A01 animal migration atlas, GPS and Dr. Gladys West: [here](https://www.britannica.com/biography/Gladys-West) and

 [here](https://www.blackpast.org/african-american-history/people-african-american-history/gladys-mae-west-1930/) and [here](https://blackdoctor.org/dr-gladys-west-gps/)

 – A03 is due on **Sunday, Sept 18, by midnight**

05 Sept xx – A04: FATs, GPS, data collection using **–** **ALL READ for lab:** [Hidden Figures film](https://www.youtube.com/watch?v=RK8xHq6dfAo), [Hidden Figures history](https://www.smithsonianmag.com/history/forgotten-black-women-mathematicians-who-helped-win-wars-and-send-astronauts-space-180960393/)

 campus features; FATs and geocoding and [Dr. Katherine Johnson navigation](https://www.youtube.com/watch?v=g7J_RrBcchQ)

 – A04 is due **Sunday, Sept 25, by midnight**

06 Sept xx – A05: Working in ArcGIS Online: **–** **ALL READ for lab:** 1. Marshall Islands Navigational Charts and

 Symbolizing point, linear, and area data 2. Indigenous cartographies and counter mapping

 – All sections of A05 are due **Sunday, Oct 23, by midnight**

07 Oct xx – A05: Working in ArcGIS Online: **– ALL READ for lab:**Data querying and spatial analysis in GIS

 Operations on numeric geospatial data sets

08 Oct xx – A05: Working in ArcGIS Online: Aggregation **– ALL READ for lab:** *Mapping for a Sustainable World*,

 **– Map Library visit** sections 3.1 through and including 3.6

09 Oct xx – A05: Working w/ ArcGIS Online: **– ALL READ for lab:** *Making Maps*, pp, 94-121

 – Susan Powell: Finding data for final project – All sections of A05 are due **Sunday, Oct 23, by midnight**

10 Oct xx – A06: [Working with map projections](https://education.nationalgeographic.org/resource/selecting-map-projection)  **– ALL READ for lab:** 1. [Apple AirTags, Tiles, and GPS...](https://www.nytimes.com/2022/02/11/technology/airtags-gps-surveillance.html), 2.

 – Introduction to Story Maps [Privacy and our devices](https://www.nytimes.com/2022/07/27/technology/personaltech/default-settings-turn-off.html), and 3. the Story Maps article

 – A07: Scoping document **due Sunday, Oct 30, by midnight**

**Calendar of LAB topics and readings: add due dates for assignments**

**Week Topics Lab assignments and WRS notes for reading discussion**

11 Nov xx – A08: Web maps: Working with OSM, **– ALL READ for lab:** 1.[Our data, post-Roe](https://www.nytimes.com/2022/06/29/technology/abortion-data-privacy.html), 2. [Trustworthy VPNs](https://www.washingtonpost.com/technology/2022/07/15/most-secure-vpn/), geojson.io, html, CSS, and JavaScript 3. [Surveillance self-defense](https://www.nytimes.com/2022/07/13/technology/personaltech/abortion-privacy-roe-surveillance.html), and **optional** 4. the introduction

 in the report titled [Pregnancy Panopticon](https://www.stopspying.org/pregnancy-panopticon)

 – A08 is **due Sunday, Nov 20, by midnight**

12 Nov xx – A08: Web maps: continue working with **– ALL READ for lab:** *Mapping for a Sus. World*, pp. 89-106;

 OSM, geojson.io, html, CSS, and JS explore[SF in 1961](https://www.sfchronicle.com/projects/2022/visuals/views-from-a-helicopter-1961/), [Earth changing daily](https://www.smithsonianmag.com/smart-news/a-new-satellite-tool-shows-you-how-the-planets-landscape-changes-day-by-day-180980243/), [Censoring in GE](https://www.gearthblog.com/blog/archives/2014/09/censored-areas-google-earth.html)

– Begin work on A09, the final project

– **Friday, Nov 11: Veterans’ Day holiday**

13 Nov xx – A08: Web maps: continue working with **– NO readings this week**

OSM, geojson.io, html, CSS, and JS

 – A09: The final project, continued

14 Nov xx – A08: Web maps: continue working with **– Thanksgiving week**

 OSM, geojson.io, html, CSS, and JS

 **– Monday and Tuesday labs meet remotely – NO readings this week**

 – A09: The final project, continued

15 Nov xx – A09: The final project, continued **– NO readings this week**

 **– Lab exam (one hour)**

16 Dec xx **– Reading / Review / Recitation Week – NO readings this week**

 **– A09, the final project, is due Wed., Dec 07, by midnight**

 – Extended office hours (online) for help with final project,

 critical essay, etc.

**17 Dec 14 – Submit critical essay to bCourses Wednesday, Dec. 14, by midnight.**