

# Geography 80 Digital Worlds: An Introduction to Geospatial Technologies

**Instructor** Prof David O'Sullivan, [dosullivan@berkeley.edu](mailto:dosullivan@berkeley.edu), 589 McCone,  
Office hours: times TBA, 20 minute slots, sign up sheet on my office door

**GSI** Dana Rubin, [dana.rubin@berkeley.edu](mailto:dana.rubin@berkeley.edu), office hours and location TBA

## Schedule

**Lectures** Mon, Wed, 9-10, 145 McCone

**Labs** Tue 9-11, Thu 1-3, Fri 11-1, 535 McCone (the CAGE Lab)

## Course description

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The goal of this course is to introduce the wide array of digital mapping and geospatial tools and technologies used in geography and other fields, which increasingly underpin contemporary digital society.

The class covers this material in a three-fold way.

First, key ideas that underpin the tools and technology will be introduced in lectures, to give you a solid understanding of 'how things work'. Under this theme, we will look at topics such as map projections, spatial data types, simple kinds of spatial analysis, aspects of map design, and so on.

Second, you will be able to enhance that understanding and do something with it in the lab sections of the course in a sequence of assignments that introduce tools and methods, particularly web-mapping, the Global Positioning System (GPS), and a first look at Geographical Information Systems (GIS).

Third, key concepts from geography (such as scale, space and place) will be explored in lectures both to help our thinking about how the tools of digital mapping represent the world, and also to bring into question those representations. This aspect of the course will also encourage you to consider the wider implications of these technologies, particularly ethical considerations related to privacy, surveillance and data ownership.

This course covers a broad topic and is intended to provide a survey overview of the field, rather than detailed in-depth coverage. It will introduce you to key concepts and expose you to some of the tools, but you will certainly not be an expert on any of them by the time you are finished! For greater in-depth knowledge you should think about taking other classes listed in the GIS Minor offered by Geography, Environmental Science Policy and Management, and the College of Environmental Design, which includes classes from all those programs along with others in related fields. You might even consider completing the Minor. For more information, see

[http://ced.berkeley.edu/downloads/academic/GIST-Minor-Snapshot\\_Fall-2014.pdf](http://ced.berkeley.edu/downloads/academic/GIST-Minor-Snapshot_Fall-2014.pdf)

Note that the minor is approved in all three Colleges of Letters and Science, Natural Resources and Environmental Design.

## Course website

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The course has a website on bCourses, but also at <http://southosullivan.com/geodos/> where lectures slides will be posted at <http://southosullivan.com/geodos/pages/geog-80.html>. Readings have to go on bCourses, due to copyright restrictions. Please sign up to receive updates on bCourses to your regularly used email, so that you don't miss out on any announcements.

## Lecture schedule

This schedule is under development and is subject to change as the semester unfolds. See <http://southosullivan.com/geodos/pages/geog-80.html> for any updates or recent changes.

Week	Monday	Wednesday
Aug 24		Syllabus, welcome, introductions
Aug 31	Course overview	Anatomy of a web map
Sep 7	<i>NO CLASS – Labor Day</i>	Geographical concepts I: Scale
Sep 14	Map tiles and scale	Projections I: the basics
Sep 21	Projections II: some more details	Location and GPS
Sep 28	Ubiquitous location	Geographic concepts II: Space and place
Oct 5	Spatial data types	Mapping place not space
Oct 12	<i>Midterm review</i>	<i>NO CLASS</i>
Oct 19	<i>MIDTERM</i>	Geographical concepts III: neighborhood, region, territory
Oct 26	Polygons and social data	Geospatial data and gerrymanders
Nov 2	You are where you live: geodemographics I	Heatmaps versus polygons
Nov 9	Geographical concepts IV: distance, movement, connectivity, process	<i>NO CLASS – Veterans Day</i>
Nov 16	Time geography and geographical spacetime	Simulations: serious play
Nov 23	You are where you go: geodemographics 2.0	<i>NO CLASS - Thanksgiving</i>
Nov 30	Do no evil: the ethics of geospatial	<i>Final review</i>
Dec 7	<i>READING WEEK</i>	
Dec 14	<i>FINAL (exam is on Thurs Dec 17, 7-10pm, I think... will confirm)</i>	

Lecture attendance is expected, and strongly advised. The course assessments (mid-term and final exam) will draw on the lecture materials, but you will learn more by attending the lectures, participating in discussions, asking questions, and all the other stuff that happens there. Lecture slides will be available at

<http://southosullivan.com/geodos/pages/geog-80.html>

but when they become available relative to class-time is likely to vary. A few days after class the version of the lecture at that web address will become 'final'.

**DO NOT** assume that lecture slides will provide a complete account of everything that is said and learned in class. [See also **Readings**, below.]

## Lab schedule

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The labs for this course are intended to compliment the lecture material, and also constitute a substantial part of the course assessment (60% + 2% for Lab 0 attendance). Attendance is mandatory, as it is only during the scheduled times that you are guaranteed access to assistance from the course Graduate Student Instructor (GSI).

Week	Tue 9-11 / Thursday 1-3 / Friday 11- 1 / submission deadlines are usually Monday mornings at 9, subject to announcements relating to particular labs
Aug 31	No labs this week
Sep 7	Introduction to the labs and to HTML (2% credit for attendance) <i>You will need to attend this session to sign the lab usage agreement, and to sign up for keys that allow you access to the lab after hours</i>
Sep 14	Lab 1 (10%) A simple web-map due Sep 21 (2 weeks)
Sep 28	Lab 2 (5%) Collecting GPS data due Oct 5 (1 week)
Oct 5	Lab 3 (10%) Adding GPS data to a web map due Oct 19 (2 weeks)
Oct 19	Lab 4 (10%) A polygon web map due Nov 2 (2 weeks)
Nov 2	Lab 5 (15%) Making a (web) intensity map due Nov 23 (3 weeks)
Nov 16	Lab 6 (10%) Introducing GIS; and using it to make a web map with social networking data due Dec 7 (2 weeks)

Each lab will consist of written instructions and guidelines to help you work through a practical task of some kind. The instructions will not be complete 'point-and-click' guides to what to do, every step of the way, but will leave you some room to explore and figure some things out for yourself. If you get stuck you can seek help from the GSI, who will be available in the scheduled lab sessions. Even better, you should work with other students. This can help both the person who is stuck and the person who is giving assistance.

Of course, even if you work with others on figuring out how to complete the assignment, the work you submit for assessment must be your own individual work. [see **Academic Integrity** below]

As noted, all labs are due on **Mondays at 9pm**, unless this happens to coincide with a vacation day. Submission method will be electronic via *bCourses*.

No late submissions will accepted. If you anticipate problems submitting a lab on time, then please contact the GSI *ahead of the due date*, and we can discuss options to accommodate you, depending on the circumstances. We cannot accommodate you if we don't hear about the problem *in advance*.

## Reading

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The topic covered by the course is relatively new, and there is no single text book that offers good coverage of the course material in an appropriate style. The closest to complete coverage of the class material is provided by

Peterson, M. 2014 *Mapping in the Cloud*. Guilford Press, New York.

An e-copy (3 simultaneous readers only) is available through the library and a paper copy is on short-term reserve. However, I will also provide key chapters via the *bCourses* site for the class.

There are many other relevant materials, both in books, the research literature, and online. These will

be linked from lecture slides (available online as noted above), and where possible, provided via *bCourses*.

## **Assessment**

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Course assessment consists of 60% across the 6 lab assignments (NOT equally allocated, see the list of lab assignments above), 13% on the midterm, 25% on the final exam and 2% for attendance at the first lab sessions in the week of September 8.

Details of the assessment criteria for each lab assignment will be made clear in the associated assignment materials.

The midterm will be run in class and will consist of short answer questions on materials covered in the first half of the semester.

The final exam will be 90-120 minutes (TBC) and will consist of some short answers, and one longer answer question.

## **Additional logistical information**

### ***Academic Integrity***

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Any test, paper or report submitted by you and that bears your name is presumed to be your own original work that has not previously been submitted for credit in another course unless you obtain prior written approval to do so from your instructor.

In all of your assignments, including your homework or drafts of papers, you may use words or ideas written by other individuals in publications, web sites, or other sources, but only with proper attribution. "Proper attribution" means that you have fully identified the original source and extent of your use of the words or ideas of others that you reproduce in your work for this course, usually in the form of a footnote or parenthesis.

As a general rule, if you are citing from a published source or from a web site and the quotation is short (up to a sentence or two) place it in quotation marks; if you employ a longer passage from a publication or website, please indent it and use single spacing. In both cases, be sure to cite the original source in a footnote or in parentheses.

If you are not clear about the expectations for completing an assignment or taking a test or examination, be sure to seek clarification from your instructor or GSI beforehand.

Finally, you should keep in mind that as a member of the campus community, you are expected to demonstrate integrity in all of your academic endeavors and will be evaluated on your own merits. So be proud of your academic accomplishments and help to protect and promote academic integrity at Berkeley. The consequences of cheating and academic dishonesty—including a formal discipline file, possible loss of future internship, scholarship, or employment opportunities, and denial of admission to graduate school—are simply not worth it.

In fairness to students who put in an honest effort, cheaters will be harshly treated. Any evidence of cheating will result in a score of zero (0) on that assignment or examination. Cheating on the final exam results in an "F" for the course. Cheating includes but is not limited to bringing notes or written or electronic materials into an exam or quiz, using notes or written or electronic materials during an exam or quiz, copying off another person's exam or quiz, allowing someone to copy off of your exam or quiz, and having someone take an exam or quiz for you. Incidences of cheating will be reported to Student Judicial Affairs, which may administer additional punishment.

### ***Accommodation of religious creed***

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In compliance with Education code, Section 92640(a), it is the official policy of the University of California, Berkeley to permit any student to undergo a test or examination, without penalty, at a time when that activity would not violate the student's religious creed, unless administering the examination at an alternative time would impose an undue hardship that could not reasonably have been avoided. Requests to accommodate a student's religious creed by scheduling tests or examinations at alternative times should be submitted directly to the faculty member responsible for administering the examination by the second week of the semester.

Reasonable common sense, judgment and the pursuit of mutual goodwill should result in the positive resolution of scheduling conflicts. The regular campus appeals process applies if a mutually satisfactory arrangement cannot be achieved.

The link to this policy is available in the [Religious Creed](#) section of the Academic Calendar webpage.

## ***Conflicts between extracurricular activities and academic requirements***

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The Academic Senate has established Guidelines Concerning Scheduling Conflicts with Academic Requirements to address the issue of conflicts that arise between extracurricular activities and academic requirements. These policies specifically concern the schedules of student athletes, student musicians, those with out-of-town interviews, and other students with activities (e.g., classes missed as the result of religious holy days) that compete with academic obligations.

**These policies were updated in Spring 2014 to include the following statement:**

**-The pedagogical needs of the class are the key criteria when deciding whether a proposed accommodation is appropriate. Faculty must clearly articulate the specific pedagogical reasons that prevent accepting a proposed accommodation. Absent such a reason, the presumption should be that accommodations are to be made.**

The guidelines assign responsibilities as follows:

-It is the instructor's responsibility to give students a schedule, available on the syllabus in the first week of instruction, of all class sessions, exams, tests, project deadlines, field trips, and any other required class activities.

-It is the student's responsibility to notify the instructor(s) in writing by the second week of the semester of any potential conflict(s) and to recommend a solution, with the understanding that an earlier deadline or date of examination may be the most practicable solution.

-It is the student's responsibility to inform him/herself about material missed because of an absence, whether or not he/she has been formally excused.

The [complete guidelines](#) are available on the Academic Senate website. Additionally, a [checklist](#) to help instructors and students comply with the guidelines is available on the Center for Teaching and Learning website.

## ***Absences due to illness***

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Instructors are asked to refrain from general requirements for written excuses from medical personnel for absence due to illness. Many healthy people experience a mild-to-moderate illness and recover without the need to seek medical attention. University Health Services does not have the capacity to evaluate such illnesses and provide documentation excusing student absences. However, UHS will continue to provide documentation when a student is being treated by Tang for an illness that necessitates a change in course load or an incomplete.

From time-to-time the Academic Senate has issued guidance concerning missed classes and exams due to illnesses such as influenza advising that students not attend class if they have a fever. Should a student experience repeated absences due to illness, it may be appropriate for the faculty member to ask the student to seek medical advice. The Senate guidelines advise faculty to use flexibility and good judgment in determining whether to excuse missed work, extend deadlines, or substitute an alternative assignment. Only the Committee on Courses of Instruction (COCI) can waive the final exam. However, a department chair can authorize an instructor to offer an alternative format for a final exam (e.g., paper, take-home exam) on a one-time basis (<http://academic-senate.berkeley.edu/committees/coci/toolbox#16>).