People’s science:
An introduction to “citizen” and community science

Environmental Studies 193CS
Winter 2018, M & W 9:30 – 10:45, Girvetz room 2129, UC Santa Barbara

Instructor: Dr Daniela Soleri, soleri@geog.ucsb.edu; Room 4019 Bren, floor 4L; Office hours: M 1:30-3:30, and by appointment
Course web site: GauchoSpace

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1. Introduction and objectives

Humanity is facing new and unprecedented environmental and social problems that require new approaches for us to understand and respond effectively. Across disciplines and geographies, one of the most promising and challenging approaches involve participatory research. That is, partnerships between professional scientists and other researchers and the public, or just the public working on its own, now broadly referred to as “citizen” science (CS). In theory, the form and extent of research topics, and of participation, possible in CS are broad. So far, CS has included work in astronomy, history, biology, health care, environmental monitoring, and social justice, among others. But CS is still considered a nascent field and there are lots of questions: Who participates in what? What counts as science? Who are the experts? Are the data credible and useful? Who runs the show? Can I start my own participatory research?

This class will provide an introduction to the theoretical basis of “citizen” science research, including readings from the peer reviewed scientific literature, lectures, in-class discussions and participatory exercises. The primary emphasis will be on practice; exploring the scientific and social implications of greater public engagement and control, and the practical and logistical demands of such work. Guest speakers actively involved in such research, a field trip, and participation in projects will give students first hand experience.

My objective is that students completing this class will: have an understanding of why and how different forms of CS are done, be familiar with a number of very different current CS projects, and be able to think critically about, and contribute positively to, CS projects they join or start.
Prerequisite: upper division or graduate standing.
2. Requirements

Please read this syllabus VERY CAREFULLY. By taking this course you agree to the requirements and terms stated here. These requirements may be modified or supplemented later in minor ways, and you are responsible for adhering to those changes.

This course uses GauchoSpace (GS), where you will find this syllabus, class announcements and assignments and the required readings. Every Thursday by 11 PM the study questions for the following week will be posted under the GS ‘section’ for the appropriate week.

In addition, all of the assignments will be posted at the top of the ES 193CS GS homepage, just under the class header and link to the syllabus. There you will find instructions, due date, and any other relevant material for that assignment. All written assignments must be uploaded to the appropriate assignment folder by the date and time they are due. Assignments uploaded after the time and date due will be considered a day late. See section 2.4 of this syllabus for detailed explanation.

Quizzes and the exam will not be given early, and makeups only given in cases of appropriately documented emergencies.

There is a required field trip on Saturday February 10th on and around campus, 9:20AM-1:00PM. If you cannot participate in the field trip you should drop the class, there are no alternative or make-up dates. In addition, there are required weekly readings and study questions, classroom discussion, two short assignments, four in class quizzes and the final exam, all designed to encourage you to learn more about citizen science, and get the most out of the class.

Be sure to check your academic, athletic, social and any other schedules you have to ensure there are no conflicts with this class, including the date and time of the final, and that you do not have too many finals on the same date. The final for ES 193CS is on Wednesday March 21st, 8 – 11AM. If conflicts exist it is your responsibility to take care of them so that you may take the exam, or drop the class.

Being responsible for your own learning is key for a rewarding university and life experience. If you have difficulty understanding the material in this course, please discuss this immediately with the instructor. Ask thoughtful questions during and after class, email me, come to office hours, make an appointment with me, talk with your peers.

In addition, there is a wide range of services available at UCSB to support you in your efforts to meet the course requirements and acquire an education overall. The UCSB Office of Student Affairs provides the following information:

- **LEARNING ASSISTANCE & SUPPORT.** Campus Learning Assistance Service: (893.3269, www.clas.ucsb.edu). CLAS helps students increase their mastery of course material through course-specific tutoring and academic skills development. Check out the tutorial groups and drop-in tutoring schedules posted on the web site:. Sign up for services at the CLAS main office, SRB 3210 8-5 daily, closed noon- 1pm for lunch.

- **STRESS MANAGEMENT, PSYCHOLOGICAL SUPPORT.** Counseling & Psychological Services (CAPS) (893-4411, http://counseling.sa.ucsb.edu/) Personal concerns such as stress, anxiety, relationships, depression, cultural differences, can interfere with the ability of students to succeed and thrive. CAPS offers counseling for personal & career concerns, self-help information and connections to off-campus mental health resources.

- **DISABILITY SUPPORT.** Disabled Students Program: (893.2668, http://dsp.sa.ucsb.edu/) DSP provides academic support services to eligible students with temporary and permanent disabilities. Please let us know if you require special classroom accommodations due to a disability. You must register with DSP prior to receiving these accommodations. Students with disabilities may request academic accommodations for exams online at the UCSB Disabled Students Program website. Please make your requests for exam accommodations through the online system as early in the quarter as possible to ensure arrangement.

- **RESPONSIBLE SCHOLARSHIP, ACADEMIC INTEGRITY, APPROPRIATE CONDUCT.** UCSB Office of Judicial Affairs (893.4569, http://judicialaffairs.sa.ucsb.edu). Honesty and integrity in all academic work is essential for a valuable educational experience. The Office of Judicial Affairs has policies, tips, and resources for proper citation use, recognizing actions considered to be cheating or other forms of academic theft, and
students’ responsibilities and conduct, available on their website. Students are responsible for educating themselves on the policies and to abide by them. Also available for download at this website is the UCSB Student Code of Conduct

- INTERNATIONAL STUDENTS. Office of International Students and Scholars (893.2929 http://www.oiss.ucsb.edu/) serves the needs of international students and scholars as well as the UCSB community who work with this international population.
- DREAM SCHOLARS/DACA STUDENT SUPPORT Confidential support and guidance for undocumented students (893.5609, http://www.sa.ucsb.edu/DreamScholars/)
- UCSB IMMIGRATION ALERTS AND UPDATES (http://oiss.sa.ucsb.edu/alerts/immigration-alerts-and-updates)

2.1. Comportment

*Comportment* (kom’pôrt-mŏnt): the way or manner in which one conducts oneself; personal bearing or conduct; demeanor; behavior.

*Interactions with others* EVERYONE, in all interactions associated with this class both in person and online, in class or on the field trip, is expected to comport themselves in a manner demonstrating sincere mutual respect, tolerance, a sense of equity, patience, courtesy and compassion. One of the most difficult and most essential tasks that all humans have is to develop our capacities for critical thinking, listening, empathy and cooperation; university classes are an excellent place to practice and strengthen those skills.

*Electronics* No electronics (phones, music devices, tablets, computers, etc) may be used in this class, and all must be shut down and stowed. You will be notified when we will be using computers or smartphones in class for work. If you have documentation from DSP stating that you require a devise please see me.

*Field trip, guest conversations* All guest speakers, either via Zoom, in person, or on a field trip are accomplished professionals who have agreed to take time to enrich your learning experience. You are expected to have completed the relevant readings, to listen and ask questions with respect, courtesy and patience. It is unacceptable comportment to sit or stand apart from the group and talk among yourselves, and to arrive late and/or leave early. Just as in regular class sessions, all electronics must be off and stowed during in person or Zoom guest conversations.

*Academic integrity* There is no tolerance of plagiarism, cheating, unauthorized ‘sharing’ of class information, etc. Such conduct deprives you and your peers of learning opportunities and is antithetical to the idea of a fair and respectful learning environment. Any violations will be referred to the UCSB Office of Judicial Affairs and other appropriate campus authorities. See here for details regarding UCSB student conduct and discipline (http://policy.ucop.edu/doc/2710530/PACAOS-100).

2.2. Computer & internet access and competency

Access to and use of the internet is required for this class. **You are responsible for checking the class website to stay up to date, i.e. several times every week.** Your email address supplied by the Registrar should be checked regularly for communications from the instructor. There are computers in the Environmental Studies Conference Room, Bren 4016, floor 4L.

2.3. Lectures and readings

In the syllabus readings are listed on the date they will be discussed. Lectures, discussions and other activities will be based on the assumption that you have completed the required readings and other assignments for that date.

All required readings for this course are posted on the course web site as PDF files. The readings are chosen from the peer reviewed literature, i.e. they are not popular summaries. For ease and clarity the ES 193CS GS is organized into weeks with dates and class numbers indicated. The PDF files of readings are located in the appropriate week ‘block’ on the website. **PLEASE NOTE:** Some readings will be changed during the course of the quarter. Any changes will be announced in class and a notice and new pdf posted under the appropriate week.
Study questions on each week’s readings will be available on the class GauchoSpace by 11 PM on Thursday the **week before we will be discussing the reading assignment**. In answering the study questions you will be guided to the parts of the readings that require the most thought and attention. Study questions are for your benefit; they are not turned in or graded, they are the basis of most quiz and exam questions.

Also by 11 PM Thursday night some slides from the lectures of the preceding Mon & Wed will be posted to GS. These will not be the entire lecture, i.e., you cannot skip class and just look at online powerpoints!

### 2.4. Assignments

In addition to class attendance & participation, quizzes, and the final exam, there are three assignments for this class. All assignments will be marked down one letter grade for every 24 hours they are late. As a hypothetical example, you have done an assignment that is due Tuesday Feb 6th by 5PM. Let’s say that if you upload it by that time and date your grade would have been a B+. You forget to upload it until 10:45 AM on Feb 7th, your grade will then be a C+. The one exception is assignment #3 (CCBER bioblitz); anyone not participating on the bioblitz date and for the full time receives a zero.

It is your responsibility to read the instructions below **AND** note any changes presented in class or on GS for each assignment.

**Assignment #1 Introductory essay**

40 points total.

**Goal:** Introduce yourself and reflect on your interest in this class.

**Due:** Upload to ES 193CS GS assignment #1 folder by 5PM Friday January 19th.

**Methods:** Equivalent of 1-2 pages long, answer the following questions in sections numbered 1-11, saved as MS Word or pdf file. Please answer honestly, not what you think you should answer, and not a rewrite of what’s in the syllabus!

1. Your name, year, major. (1 pt)
2. Why are you taking this course? (3 pt)
3. What are your definitions of a) science, and b) participatory research? (4 pt)
4. What is your experience with science and participatory research? (3 pt)
5. To you, what about participatory research is most a) personally interesting, and b) globally important? (5 pt)
6. What do you expect to get out of this course? (4 pt)
7. Specifically, how do you hope to apply what you learn in ES 193CS in the future? (3 pt)
8. What related courses have you taken at UCSB or elsewhere? (1 pt)
9. Do you have access to a smartphone? (1 pt)
10. Have you read the syllabus for ES 193CS? (1 pt)
11. Why do you think being aware of your comportment might be valuable for participatory research? (4 pt)

**Revised assignment #2, (updated Jan 21st 2018)**

**Assignment #2 Play Eyewire!**

70 points total.

**Goal:** Experience (i.e., play!) a gamified, crowd-sourced, contributory citizen science project.

**Due:** Assignment completed and uploaded onto GS before 5PM on Tuesday February 6th.

**Methods:** Read the all of the directions carefully BEFORE you start!

On the Eyewire homepage <https://eyewire.org/>:

a) Scroll down until you see the red “Join now” button in upper R corner. Create an account under “signup”.

   For your username be sure to use your complete last name and 1st initial. Format as follows: lastname_first initial, e.g., soleri_d.

b) When you are ready to play, log in and you will be taken to the 5 step tutorial.

c) Go through the tutorial step by step, but in steps 3, 4 and 5 **only move to the next step when the “Check my work” button (see example a below) shows you have 70% or more correct for that step. To verify that, at the end of each one of those three steps click “Check my work” and take a screenshot that clearly shows the % correct, the tutorial step and your username in each** (see examples b & c below).

d) Paste your screenshots into a file with the following at the top of the page:

   Last name, first name; Eyewire username
e) In the same document, after the three screenshots, give short, 1-2 sentence answers to the following 2 questions: First, why does the progress bar (see example a) disappear after the last step of the tutorial? Second, for you, is Eyewire fun? Why or why not?

f) Upload to GS folder for assignment #2 before 5PM on Tue Feb 6th.
Assignment #3 CCBER Bioblitz
200 points total.

¡¡THIS IS A REQUIRED ACTIVITY FOR THE COURSE-LATE ARRIVALS OR EARLY DEPARTURES = 0 POINTS!!

Together as a class we will conduct a three hour bioblitz on campus and in adjacent, CCBER (Cheadle Center for Biodiversity and Ecological Restoration) managed sites. You can easily walk or bike there.

Goal: Experience using iNaturalist and doing a bioblitz; provide CCBER and the new campus pollinators support group with a time-specific inventory of currently flowering plants and any pollinators visiting them in CCBER-managed native revegetation sites, and on the the main UCSB campus. This inventory is a first step in developing a data base to improve understanding of which plants are prefered by local pollinators.

Due: Saturday February 10th 9:20AM -1:00PM, campus location to be announced. Again, arriving late &/or leaving early will result in a 0 for this assignment.

Methods: Note that step (a) must be completed before the trip, and no later than Feb 5th.

a) You must have use of a smart phone with the iNaturalist app for the field trip. Before the trip establish an account and email me your username and bioblitz group number no later than Monday February 5th—I need your username if you are to receive credit. We’ll go over this in class Wed January 31st.

b) Required for the trip: a prepared, fully charged smartphone and phone charger. Suggested for the trip: water, sunscreen; shoes that can get wet + comfortable clothing appropriate for changeable UCSB weather.

c) Arrive at meeting location no later than 9:20 AM. Dr Katja Seltmann, CCBER director, and Dr Greg Wahlert, CCBER Research Botanist will give a brief orientation to the site, regional pollinators and CCBER’s goals for the bioblitz.

d) After the orientation join your designated group and start documenting organisms.

e) By 12:30 all groups will meet in the Bren building courtyard and then go up to the ES conference room 4016, floor 4L for refreshments and to finish uploading your observations, and debrief on our experience.

**The building will be locked, we must meet and go up together**

f) Your grade will be based on your participation that day and contribution of observations to the project site.

2.5. Quizzes and final exam

Quiz and exam questions will be a mixture of objective questions (multiple choice, matching, completion), and short essay, and will be based on the study questions, lectures, discussions, and assignments. The best way to prepare is by asking questions and participating in discussion during class, taking notes on the lectures, films, field trips, class discussions, and readings, and writing out answers to all of the study questions before each class.

Quizzes and the final exam are cumulative. This means that a quiz can include all material covered up to, but not on, the day that quiz is given. The final exam will cover all material in the course. There will be four quizzes, but only your three best quiz scores will count toward your grade.

3. Student evaluation

Your course grade will be the sum of your grades for participation, the assignments, three quizzes, and the final exam. Evaluation will be based on your comprehension and analysis of all course material (assigned readings, discussions, lectures, activities, assignments), and how you convey these in the work you do for this class.

Attendance in all class sessions is required. If you cannot attend you will lose participation points, and are still responsible for the material covered. You will receive a “0” for any test or assignment you miss. Anything submitted after the designated due date and time will be dropped a grade for every 24 hours they are late. See section 2.4, Activities and assignments. The only exception will be for appropriately documented emergencies. A letter or email sent directly to the instructor from a physician stating that you were in a bicycle accident and in the emergency room at the time of the class is appropriate; an email from your intermural coach saying you were playing in a game is not acceptable. Activities and assignments are due at or before the date and time given on the syllabus; be sure to check the ES 193CS GS website for changes.
3.1. Schedule and point distribution

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class participation</td>
<td>10 point/week</td>
<td>90</td>
</tr>
<tr>
<td>Assignments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#1 Introductory essay</td>
<td>Friday Jan 19th uploaded by 5PM</td>
<td>40</td>
</tr>
<tr>
<td>#2 Play Phylo!</td>
<td>Tuesday Feb 6th by 5PM</td>
<td>70</td>
</tr>
<tr>
<td>#3 CCBER bioblitz</td>
<td>Saturday Feb 10th 9:20AM -1PM</td>
<td>200</td>
</tr>
<tr>
<td>Tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quizzes, best 3 of 4, 125 points each</td>
<td></td>
<td>375</td>
</tr>
<tr>
<td>(1) material through class #3</td>
<td>Monday Jan 29th, class #4</td>
<td></td>
</tr>
<tr>
<td>(2) material through class #6</td>
<td>Wednesday Feb 7th, class #7</td>
<td></td>
</tr>
<tr>
<td>(3) material through class #10</td>
<td>Monday Feb 26th, class #11</td>
<td></td>
</tr>
<tr>
<td>(4) material through class #13</td>
<td>Wednesday Mar 7th, class #14</td>
<td></td>
</tr>
<tr>
<td>Final exam, cumulative</td>
<td>Wednesday Mar 21st, 8 - 11AM</td>
<td>225</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>1000</td>
</tr>
</tbody>
</table>

3.2. Grading system

Your grade will be a result of your work and improvement during the course. Grading is not on curve. All students can earn an “A,” or an “F”.

<table>
<thead>
<tr>
<th>POINTS EARNED</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>967-1000</td>
<td>A+</td>
</tr>
<tr>
<td>933-966</td>
<td>A</td>
</tr>
<tr>
<td>900-932</td>
<td>A-</td>
</tr>
<tr>
<td>867-899</td>
<td>B+</td>
</tr>
<tr>
<td>833-866</td>
<td>B</td>
</tr>
<tr>
<td>800-832</td>
<td>B-</td>
</tr>
<tr>
<td>767-799</td>
<td>C+</td>
</tr>
<tr>
<td>733-766</td>
<td>C</td>
</tr>
<tr>
<td>700-732</td>
<td>C-</td>
</tr>
<tr>
<td>667-699</td>
<td>D+</td>
</tr>
<tr>
<td>633-666</td>
<td>D</td>
</tr>
<tr>
<td>600-632</td>
<td>D-</td>
</tr>
<tr>
<td>0-599</td>
<td>F (Fail)</td>
</tr>
</tbody>
</table>
### 4. Schedule at a glance

<table>
<thead>
<tr>
<th>Date</th>
<th>WK</th>
<th>Day</th>
<th>Class</th>
<th>Crosscutting idea</th>
<th>Topic</th>
<th>Readings/tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-Jan</td>
<td>1</td>
<td>M</td>
<td>No class, Dr. Martin Luther King, Jr holiday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-Jan</td>
<td>W</td>
<td>1</td>
<td>Introduction and orientation</td>
<td>Participatory research on the rise + What do we mean by “science”?</td>
<td></td>
<td>syllabus</td>
</tr>
<tr>
<td>19-Jan</td>
<td>F</td>
<td></td>
<td>DUE Assignment #1 Introductory essay. Due online by 5PM today!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22-Jan</td>
<td>2</td>
<td>M</td>
<td></td>
<td>What do we mean by “participation”?</td>
<td>Shirk et al. 2012, Dosemagen &amp; Gehrke 2017</td>
<td></td>
</tr>
<tr>
<td>29-Jan</td>
<td>3</td>
<td>M</td>
<td>Error and bias</td>
<td></td>
<td>Q1 Courter et al 2013, Fucillo et al 2014, McDonough et al 2017</td>
<td></td>
</tr>
<tr>
<td>31-Jan</td>
<td>W</td>
<td>5</td>
<td>Crowds and games</td>
<td>Crowdsourcing: participation or outsourcing? Gamification: playing science</td>
<td>Williams 2014, Schrope, 2013, Singh et al 2017 (review iNat questions)</td>
<td></td>
</tr>
<tr>
<td>5-Feb</td>
<td>4</td>
<td>M</td>
<td>Monitoring the world around us</td>
<td>Environmental monitoring with the US National Phenology Network</td>
<td>Haggerty et al 2013, Schwartz et al 2012, Mazer et al 2015 (partial) (iNat &amp; Phylo acct ID deadline)</td>
<td></td>
</tr>
<tr>
<td>6-Feb</td>
<td>TU</td>
<td></td>
<td>DUE Assignment #2 Play Phylo! Due by 5PM today</td>
<td></td>
<td>Q2 Dr Susan Mazer, guest conversation</td>
<td></td>
</tr>
<tr>
<td>7-Feb</td>
<td>W</td>
<td>7</td>
<td>Environmental monitoring with the US NPN, cont</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-Feb</td>
<td>SAT</td>
<td></td>
<td>PARTICIPATE Assignment #3: CCBER field trip 9:20AM -1:00PM</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>12-Feb</td>
<td>5</td>
<td>M</td>
<td>Monitoring: who’s knowledge is useful?</td>
<td>Local knowledge and environmental monitoring</td>
<td>Chaudary et al 2011, Danielsen et al 2014</td>
<td></td>
</tr>
<tr>
<td>14-Feb</td>
<td>W</td>
<td>9</td>
<td>Negotiating criteria and expertise</td>
<td></td>
<td>Macey et al 2014, Ottinger 2014</td>
<td></td>
</tr>
<tr>
<td>19-Feb</td>
<td>6</td>
<td>M</td>
<td>No class, Presidents’ Day holiday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-Feb</td>
<td>W</td>
<td>10</td>
<td>Monitoring for education</td>
<td>Making more than monitors: youth, CS, justice</td>
<td>Ballard et al 2017</td>
<td></td>
</tr>
<tr>
<td>26-Feb</td>
<td>7</td>
<td>M</td>
<td></td>
<td>Center for Community and Citizen Science</td>
<td>Q3 Dr Ryan Meyer, guest conversation</td>
<td></td>
</tr>
<tr>
<td>5-Mar</td>
<td>8</td>
<td>M</td>
<td>Environmental justice in urban US: knowledge and maps</td>
<td></td>
<td>Corburn 2005</td>
<td></td>
</tr>
<tr>
<td>7-Mar</td>
<td>W</td>
<td>14</td>
<td>Environmental justice in urban US-standards</td>
<td></td>
<td>Q4 Ottinger 2010</td>
<td></td>
</tr>
<tr>
<td>12-Mar</td>
<td>9</td>
<td>M</td>
<td>Environmental justice in the US-Public Lab</td>
<td></td>
<td>Ottinger 2010 cont, Dr Gretchen Gerkhe, guest conversation</td>
<td></td>
</tr>
<tr>
<td>14-Mar</td>
<td>W</td>
<td>16</td>
<td>Quarter review, questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-Mar</td>
<td>W</td>
<td>FINAL</td>
<td>8 – 11 AM</td>
<td></td>
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</tr>
</tbody>
</table>
5. Detailed course schedule

**PLEASE NOTE It is your responsibility to check the class website several times weekly for revisions to weekly readings, etc.**

This schedule includes required readings, and dates for assignments, quizzes and final exam. Readings are given in the order to be read for each day; they should be completed before the class meeting where they are listed. Where no pages are listed, read the entire paper. Additional readings may be assigned.

5.1. Introduction, and defining our terms

*Monday January 15th, no class, Dr Martin Luther King Jr holiday*

*Wednesday January 17th, class #1*

**ANNOUNCEMENTS**

Welcome!
The syllabus is a contract between you and the instructor. It is your responsibility to read it carefully.

**TAKE NOTE Assignment #1, Introductory essay due Friday January 19th online (GauchoSpace, GS) before 5 PM.**

**LECTURE/DISCUSSION**

Introduction, and what do we mean by science?

Resources for today’s class—not required reading, but recommended, especially a-d.


d) The Science Council (2017), definition of science. Also, pdf on GauchoSpace


**TO READ BEFORE COMPLETING ASSIGNMENT #1**

a) ES 193CS Class syllabus, available on GS

*Monday January 22nd, class #2*

**ANNOUNCEMENTS**

Looking ahead: you will need accounts with both Phyllo and iNaturalist for assignments coming up very soon. You must email me your usernames for each of these to receive a grade, so sign up and let me know now! **For both I strongly prefer your username follow the format of lastname_first initial. For example, soleri_d.**

**LECTURE/DISCUSSION**

What do we mean by participation?

**READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY**


5.2. Data credibility and quality

Wednesday January 24th, class #3

ANNOUNCEMENTS

** To prepare for the CCBER bioblitz on Saturday February 10th, be sure you have use of a smartphone with the iNaturalist app uploaded, an iNat account established, and your username and bioblitz group number emailed to me no later than Monday February 5th at 8AM. For preferred format see Monday Jan 22nd announcement. If you have not emailed me your username and group number you won’t receive credit. Let me know about any questions or problems well before the bioblitz!

LECTURE/DISCUSSION

Data credibility: what are the issues, and which are unique to CS?

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY


Supplementary resources


Also, for your reference are these archived webpages from the US EPA (and pdf of them) showing their suggested fields to complete for quality assurance in citizen science environmental monitoring work:

EPA 2013. Data quality assurance, template #9 (pp 12-14).

Monday January 29th, class #4

ANNOUNCEMENTS

**Quiz #1 today! All material through/including Wed January 24th, class #3**

LECTURE/DISCUSSION

Error and bias

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY


Supplementary resources


5.3. Crowds and games.

**Wednesday January 31st, class #5**

ANNOUNCEMENTS

Assignment #2, Play Phylo! is due a week from tomorrow, on Tuesday February 6th before 5PM

**Quiz #2** is one week from today on Wednesday February 7th; it covers all material through Monday February 5th.

**Monday Feb 5th** bring a smartphone with iNaturalist loaded to go over in class

**Bioblitz @ CCBER** Saturday February 10th 9:20AM - 1:00PM is REQUIRED-LATE ARRIVALS OR EARLY DEPARTURES = 0 POINTS! Be sure you are ready to go for this—ask me NOW if you are having problems with set-up or have other questions.

LECTURE/DISCUSSION

Crowdsourcing: participation or outsourcing?

Gamification: Play as incentive and reward.

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY


Supplementary resources


5.4. Monitoring the world around us

**Monday February 5th, class #6**

ANNOUNCEMENTS

***Quiz #2 this Wednesday February 7th!

Assignment #2 Playing Phylo! must be completed by tomorrow, Tuesday February 6th before 5PM!

***Bioblitz @ CCBER next Saturday February 10th 9:20AM -1:00PM is REQUIRED! You must have use of a smart phone with the iNaturalist app uploaded, an account established and your username emailed to me no later than Wednesday January 31st. If I do not have your username you will not receive credit. Familiarize yourself with iNaturalist—we’ll go over it in class today.
LECTURE/DISCUSSION
Crowd sourced environmental monitoring, the example of the US NPN

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY
d) Read the California Phenology Project homepage.
e) Familiarize yourself with Nature's Notebook (NN), and how you make plant phenology observations. Specifically, look here to find the two examples that include California NN data and based on the summaries provided, be able to describe how those data were used.

In preparation for the CCBER bioblitz on Saturday:
f) Watch these short videos about iNaturalist: the Natural History Museum of LA’s SLIME project; and their RASCals project.
g) The Great Sunflower Project: read the main page and the quick start page, and watch the 3 min video.
h) Bumble Bee Watch: read the main page, then midway down that page under “How to submit a sighting,” click on “How to use Bumble Bee Watch” and watch the 8 min video explaining the observation submission process.

Wednesday February 7th, class #7
ANNOUNCEMENTS
**Quiz #2 today! Covers material through Monday Feb 5th, class #6

**Bioblitz @ CCBER this Saturday February 10th 9:20AM - 1:00PM is REQUIRED-LATE ARRIVALS OR EARLY DEPARTURES = 0 POINTS!!

LECTURE/DISCUSSION
Crowd sourced environmental monitoring with the US NPN, cont.
Guest conversation, Dr Susan Mazer, UCSB EEMB, Director of the California Phenology Project, a part of the US-NPN

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY
Be sure you have read the readings that were assigned and discussed in class Monday Feb 5th.

Saturday February 10th, ES 193CS CCBER bioblitz 9:20AM - 1:00PM

Monday February 12th, class #8
ANNOUNCEMENTS
CCBER bioblitz debrief today

LECTURE/DISCUSSION
Local knowledge and environmental monitoring

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY

Supplementary readings:

**Wednesday February 14th, class #9**

ANNOUNCEMENTS
No class next Monday Feb 19th, Presidents’ Day holiday. Quiz #3 will be on Monday Feb 26th, covering material through Wednesday Feb 21st, class #10.

LECTURE/DISCUSSION
Negotiating criteria and expertise

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY

**Monday February 19th,**

*No class, Presidents’ Day holiday*

**Wednesday February 21st, class #10**

ANNOUNCEMENTS
Quiz #3 this coming Monday Feb 26th! Covers material through/including today’s reading and lecture.

LECTURE/DISCUSSION
Monitoring for education and agency: youth, CS, more equitable science

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY
b) Look through the website for the Center for Community and Citizen Science at UC Davis. Be sure you know CCCS’s purpose and current projects.
c) Watch both videos at the top of this page of the CCCS website (total time <9 min for both).

**Monday February 26th, class #11**

ANNOUNCEMENTS
**Quiz #3 is today! Covers material through Wednesday Feb 21st, class #10**

LECTURE/DISCUSSION
Guest conversation with **Dr Ryan Meyer**, Director of the Center for Community and Citizen Science (CCCS), UC Davis.

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY
Please review the CCCS website, including b) and c) from Monday’s reading assignments and be prepared to ask questions!

5.5. Monitoring for justice.

**Wednesday February 28th, class #12**

LECTURE/DISCUSSION
Community social science: Ushahidi and its progeny

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY


Monday March 5th, class #13
ANNOUNCEMENTS
***Quiz #4 this Wednesday March 7th, covers material through/including today.

LECTURE/DISCUSSION
Environmental justice in the urban US: knowledge and maps

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY

Wednesday March 7th, class #14
ANNOUNCEMENTS
***Quiz #4 today! Covers material through/including Monday March 5th (class #13)

LECTURE/DISCUSSION
Environmental justice in the urban US: standards for whom?

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY

Monday March 12th, class #15
ANNOUNCEMENTS
Wednesday is the last class. Final for ES 193CS is on Wednesday March 21st, 8 – 11AM.

LECTURE/DISCUSSION
Continued discussion of Ottinger 2010.
Guest conversation with Dr Gretchen Gehrke, Data and Advocacy Steward, Public Lab.

READINGS/ASSIGNMENTS TO COMPLETE FOR TODAY
Look at the Public Lab (PL) website, refresh your memory about the paper by PL people Shannon Dosemagen and Gretchen Gehrke and the PL model for community science, have questions ready!

Wednesday March 14th, class #16
ANNOUNCEMENTS
Today is the last class! Final for ES 193CS is comprehensive, given here (Girvetz 2129) on Wednesday March 21st, 8 – 11AM.

LECTURE/DISCUSSION
Quarter review, bring your questions and ideas.

FINAL EXAM Wednesday March 21st, 8 – 11AM