

Citizen Science Winter 2019

Syllabus

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Google Classroom Code: **INSERT CODE**

Learning Goal

The goal of the Citizen Science program at Bard College is to provide students with opportunities to develop personal science literacy through hands-on, real-world coursework and projects. The Citizen Science program will tackle urgent, present-day questions related to water. We will explore the properties of water, as well as how these properties influence the contamination (and decontamination) of drinking water. We will also consider the extent to which problems of contamination are not purely scientific in nature: where and how does politics enter the picture? In what ways are social, historical, and political factors at work even when we think we are engaged in “objective” science?

Learning Objectives

At the end of Citizen Science 2019:

1. Students should be able to articulate the importance of being scientifically literate in 2019, and what it means to be scientifically literate as we use and understand the phrase at Bard, namely, the three-part or triangle approach to literacy.
2. Students should be able to respond thoughtfully to the question “what might be in your drinking water?” by demonstrating knowledge of what *might* be in water and how particle size affects what can easily be *removed from* water by filtering.
3. Students should be able to explain who regulates drinking water quality and describe the strengths and weaknesses of water quality monitoring.
4. Students should be able to articulate the basic relationships between the polarity of the water molecule and its characteristics as a solvent for polar and non-polar substances.
5. Students should be able to describe the connection between polarity of a substance and its potential to bioaccumulate in organisms and demonstrate that they understand polar=hydrophilic and non-polar=hydrophobic/aka lipophilic.
6. Students should be able to thoughtfully explain why, where, and how PCBs are in the Hudson River, and explain how the molecular structure of PCBs is related to why they are in the Hudson, where they are located in the Hudson, and to how they are being removed.
7. Students should be able to describe the relative strengths and weaknesses of correlational vs. experimental scientific studies; explain how science is advanced through the contributions of many small and different studies, the sum of which combine (though seldom unanimously) to answer big scientific questions.

Expectations

As you know, you will not receive a traditional letter grade (A-F) for your work in this class. Rather, you will be marked as having either “Satisfactory” or “Unsatisfactory” performance. This will be a part of your permanent transcript and successful completion of Citizen Science is a requirement for your graduation from Bard College.

To earn a “Satisfactory” grade you need to...

1. Come prepared, with evening assignments/readings completed.
2. Contribute to the exchange of ideas in class.
3. Be on time and attend every class session.
 - a. There are 20 class sessions and one mandatory evening event. You are expected to attend all of these.
 - b. More than two unexcused absences from class sessions will require a visit to the Citizen Science Director and may result in an Unsatisfactory for the program.
 - c. *Be on time. Treat this class like a job. Aim to be 10 minutes early. That way, unexpected delays can be absorbed or mitigated. If you will be late, email me. If you will miss class, email me.*

Details on how your preparation and participation will be assessed can be found in the included rubric.

Feedback

Come to class prepared and play along. It's more fun when everybody makes the effort to engage the material. You make the class interesting. You make the class lively. It's largely up to you to make Citizen Science work. Let's figure it out together.

See rubric at the end of this document for grading criteria. Each student will receive a "midterm" evaluation by Sunday January 20 at noon with written feedback to identify areas where the student is not meeting expectations.

Homework

There will be regular reading assignments along with periodic research and writing assignments.

Computer & Cell Phone Policy

In our classroom, we will rely on each student being engaged in the conversation. To minimize distractions, please silence all cell phones at the start of class and leave them in your bag. **Computers** will only be used for specific activities. Please plan on taking any notes on paper. Laptops will be required for our Monday morning class session. If you do not have access to a laptop, please let me know so I can acquire one for you.

Important to Know:

- You can contact me by email: dnewsome@bard.edu.
- I will check my email periodically throughout every weekday, and occasionally over weekends.
- I will be available for consultations upon request.
- Google Classroom details will be provided in class.

Citizen Science Pass/Fail Rubric

- There are five components to this rubric.
- To pass Citizen Science, on the final assessment, students must achieve an average of a 2 with no Level 0's.
- On Friday January 18, 2019 faculty will let students know if they are a level 0 or level 1 in any component.

	Level 3	Level 2	Level 1	Level 0
Class participation	Student actively participates in the discussion and activities, sharing many insightful observations that make connections across the materials being considered not only in the class and strand sessions, but from other Bard class content.	Student actively participates in the discussion, and activities, and is able to share interesting insights into the topics that go beyond simple reinterpretation of the material.	Student participates in several of the discussion and activities, and occasionally offers clarification or explanation of the materials.	Student rarely participates in a meaningful way.
Class preparation	Student has thoroughly read all assignment materials, and has prepared thoughtful questions and comments. Student displays a clear understanding of the course ideas and concepts.	Student has read the assignment materials, and has prepared some questions or comments.	Student has a surface understanding of the assignment materials and is able to show some development of knowledge through the class discussion.	Student is often unprepared on the material and often takes on the role of passive learner in the class.
Professionalism	Student is considerate of others' opinions, conscious of word choice/tone. Student does not dominate the conversation but is an active listener, reflective on other's thoughts and ideas. Student enhances the classroom experience for all.	Student is considerate of others' opinions, conscious of word choice and tone. Student rarely dominates the conversation and usually listens to others and works to understand differing viewpoints.	Student is considerate of others' opinions, but rarely demonstrates active listening or reflection on the ideas or topics within the classroom discussion.	Student is inconsiderate of others' opinions, often dominates or does not participate in the conversation and has shown sporadic evidence of listening to or learning from the classroom discussion.

	Level 3	Level 2	Level 1	Level 0
Work product	Written work is neat, structurally organized, on time and insightful. Ideas are clearly explained, documented and where applicable properly cited. Connections to outside the Citizen Science classroom are evident.	Written work is neat, usually on time and clear. Ideas are interesting and show development and connections outside the Citizen Science classroom.	Written work is readable and can be followed. Ideas are developing and attempts at connections between courses are made.	Written work is difficult to read or to follow. Ideas represent a simplistic understanding of the material and few connections are made.
Attendance	Student is on time or early and is ready to work when the class begins.	Student arrives by the start time of class and is ready to work within a few minutes.	Student has been up to 5 minutes late to class.	Student has been over 5 minutes late to class, has been regularly late by a few minutes, or has missed a class entirely.