**THIRSTY PLANET: WATER IN A CHANGING WORLD**

**Arts and Sciences 1137.xx, First-Year Seminar**

**1 Semester-hour Credit**

**Suggested Day, Time, Place: Tuesdays 1-3pm for first half of the semester**

**Professor Audrey Sawyer**

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**Office Hours: TBA**

# Course Description

Humans and societies need clean water to thrive. Yet the water cycle is changing and intensifying, resulting in larger floods and droughts that make it difficult to manage Earth’s precious water resources. In our own region, drinking water has been contaminated by lead (Flint, Michigan) and “forever-chemicals” such as per- and polyfluoroalkyl substances, or “PFAS” (Ohio River Valley and beyond). In this one-credit seminar, first year students will explore emerging water crises in the news and learn basic hydrologic concepts needed to understand them. Students will visit the Mirror Lake Water Science Learning Laboratory to learn about hydrologic measurements and tour a water treatment plant to see where our drinking water comes from. Students will also talk with visiting water scientists. For their final projects, students are expected to inform the class on one water-related current event in a creative format.

# Course Objectives

1. To introduce current water resource challenges and threats to societies.

2. To improve water literacy by providing an introductory-level understanding of the hydrologic cycle and water occurrence, movement, and quality in the Earth.

3. To expose students to research on campus that investigates water resources and water sustainability.

# Texts

Readings will be assigned from news journals and magazines and reports.

**Course Policies**

* Attendance and participation are expected. The instructor should be notified as soon as possible in emergency situations where students must miss class.
* Participation will be graded based on responsiveness during lectures, which includes asking questions and contributing ideas.
* In-class activities with a written component will be collected at the end of class for part of the course grade. There will be at least 6 such in-class activities. If a student is absent on the day of an in-class activity, the assignment cannot be made up for credit, but each student will be allowed 1 missed assignment (no explanation required) with no penalty.
* Water in the News Discussion Thread:

Throughout the semester, I will maintain a graded discussion thread for posting news stories related to water. This discussion thread serves two purposes: it encourages discussion of water in the news beyond our classroom, and it may inspire ideas for your final project. You will be graded on posting one water-related news story with summary (7 points out of 10) and one response to a peer’s story (3 points out of 10). A rubric will be used to grade posts.

 *Story*: You will find, summarize, and post one water-related news story by Week 4. The story should be original, meaning that the press release has not yet been covered by another classmate. Your post should follow the style of Twitter: include a link and ~140 character summary or opinion on the water issue.

 *Response*: You will post an engaged response to at least one other peer’s news story by Week 10. The response should be limited to ~140 characters and should contribute more than your opinion (“Cool!” or “That’s bad”). Examples of constructive comments:

* “My friend lives in that flood zone and said that most people in her neighborhood didn’t evacuate.”
* “I read the original study and they also found that Columbus is expected to get more intense rain in the future.”
* “We studied this in my epidemiology class. They are working on a way to make cheaper filters to remove the bacteria.”

Remember to be professional and respectful of diverse opinions in all posts.

For those who opt-in, I may tweet some of your news stories on Twitter (@osuwaterissues), so feel free to follow!

* Final Project:

You will choose one major water-related current issue or event to inform the class about in a creative presentation format of your choice (powerpoint, video, song, poem, etc). You may work individually or with a partner. Topics must be approved by me by Week 4 (10% of your final project grade). You should use primary references to research your topic. An annotated bibliography with at least 5 references will be due in Week 5 (30% of your final project grade). Final presentations should be 3-5 minutes in duration and will take place during the last lecture (60% of your final project grade). A rubric will be used to grade the presentations.

# Grading

All grades use standard OSU scheme: E = 0-60, D = 60-67, D+ = 67-70, C- = 70-73, C = 73-77, C+ = 77-80, B- = 80-83, B = 83-87, B+ = 87-90, A- = 90-93, A = 93-100.

The course will be graded as follows:

1. In-class activities 45%
2. Participation 20%
3. Water in the news discussion thread 10%
4. Final project 25%

**Academic Misconduct**

**It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct**[**http://studentlife.osu.edu/csc/**](http://studentlife.osu.edu/csc/)**.**

**Students with Disabilities**

**Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307,****slds@osu.edu****;**[**slds.osu.edu**](http://slds.osu.edu/)**.**

**Biographical Statement**

Professor Audrey Sawyer studies connections between surface water and groundwater resources. Her research has taken her to field sites ranging from the Great Lakes to the desert Southwest. She is a recipient of awards from the Geological Society of America and the National Science Foundation, and her work has been covered by media outlets including *USA Today* and *Science Podcast*. She teaches ES 2204 (Exploring Water Issues), ES 5651 (Hydrogeology), and ES 1121 (Dynamic Earth).

#### Weekly Schedule

\* Topics may change to accommodate the semester’s current events and discussions with visiting experts

Week 1: Intro to Water Resources, Physical and Economic Water Scarcity, Virtual Water

Reading: *Global water resources: Vulnerability from climate change and population growth* (article by CJ Vorosmarty et al.)

In-class activity and discussion: Water Footprint

Week 2: Intro to Groundwater and Global Water Security

 Reading: *The global groundwater crisis* (article by JS Famiglietti)

In-class activity: Measuring groundwater in wells at Mirror Lake Water Science Learning Lab

Week 3: Floods and Rising Seas

 Reading: *Sea Level Rise Viewer* (interactive map by NOAA)

In-class activity and discussion: Drowning coastal megacities

Week 4: Water Quality in Our Backyard: Harmful Algal Blooms

 Reading: *Climate change is making algal blooms worse* (news article by D Cressey)

 In-class activity: Measuring turbidity and water quality at Mirror Lake Water Science Learning Lab

Week 5: Water Quality in Our Backyard, continued: Lead and PFAS Case Studies

 Reading: *The fluorine detectives* (news article by X Lim)

In-class activity: Visit water treatment plant

Week 6: Energy and Water: Shale Gas and Flaming Taps

Reading: *Environmental impacts during Marcellus shale gas drilling: Causes, impacts, and remedies* (SUNY report)

 In-class activities: Gasland and Fracknation film discussion, expert panel

Week 7: Final presentations