

USE CIT SCI

The latest news and updates from the USE Cit Sci Network.



Announcement

Recent publication in which multiple Network members are authors:

Cooper et al. (RCN members: Caren Cooper, Gillian Bowser, Na'Taki Osborne Jelks) *Science* 25 Jun 2021: Vol. 372, Issue 6549, pp. 1386-1388

DOI: [10.1126/science.abi6487](https://doi.org/10.1126/science.abi6487)

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Recent RCN Activities

1

The National Science Foundation has officially funded the Network for 5 more years! “RCN-UBE: The Undergraduate Student Experiences with Citizen Science (USE Cit Sci) Network to transform learning and broaden participation in science” will begin its next phase this fall.

**2**

The Network held two virtual informational webinars about the Network in June as well as one virtual office hour about implementing citizen science in higher education in July. Thanks to Terry Gates for organizing those sessions and to all those who attended!

3

HVC gave a presentation at the Annual Meeting of the Society for the Advancement of Biology Education Research in July. The following Network members were co-authors: Vance-Chalcraft, H.D., A.H. Hurlbert, J.N. Styrsky, T.A. Gates, G. Bowser, C. Hitchcock, and C.B. Cooper.



Citizen science (sometimes called community science) puts authentic research into the hands of the public.

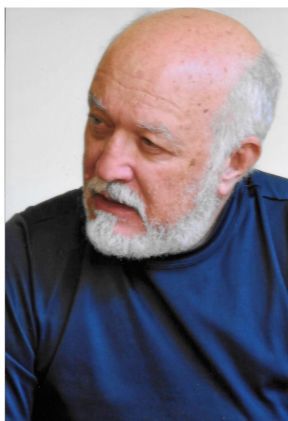
- Do you currently use citizen science in your higher education courses?
- Do you want to give your students research opportunities but are not yet using citizen science?
- Are you looking for a community of educators innovating new student engagement techniques?

If you answered yes to any of those questions, the NSF-funded USE Cit Sci Research Coordination Network may be for you.

Check us out:

blog.ecu.edu/sites/use-cit-sci-network/





Instructor Spotlight: Thomas Tissue



Dr. Thomas Tissue is from Muskegon Community College in Muskegon, Michigan. Tissue has published extensively on energy-related pollutants in natural waters and has strong interests in international technical cooperation. He has been teaching environmental chemistry to undergraduate students for the past fifty years.

Dr. Tissue has involved students in a citizen science project which sought to look at the geomorphological and biological characterization of road-stream crossings.

Students in this course will master basic surveying skills to measure transverse and longitudinal profiles in critical stream reaches and learn to sample and identify indicator organisms of biological integrity. Coursework consists of field and lab investigations, keeping a scientific notebook, and report writing. This elective course occurs during the summer semester and credit is awarded at the 200-level for students.

The course is usually taken by STEM majors in their second year. Enrollees typically have transferred to baccalaureate degree granting institutions, some with competitive scholarship awards. A key feature of the course is its close coordination with the activities of local volunteer environmental monitoring organizations.



Why did you decide to integrate citizen science into this course?

"A key feature of the course is its close coordination with the activities of local volunteer environmental monitoring organizations."

How do you feel the involvement in this project has impacted your students' engagement and learning?

"In addition to being introduced to hands-on scientific investigations, the students gain the confidence and engagement that comes with interacting with the (mostly retired) professionals who constitute the volunteer cadres of the citizen science organizations with which they work."

Project Spotlight: Caterpillars Count!



Each month the RCN Use Cit Sci newsletter would like to highlight a citizen science project that readers can consider adapting to their courses. This month, we would like to feature Caterpillars Count! founded by Dr. Allen Hurlbert, a Professor of Biology at University of North Carolina Chapel Hill.



Description

Caterpillars Count! is a citizen science project for measuring the seasonal variation, also known as phenology, and abundance of arthropods like caterpillars, beetles, and spiders found on the foliage of trees and shrubs.

Ideas for how instructors could implement Caterpillars Count! with their students:

Arthropod Monitoring:




- First, use the id guides, online quiz, and virtual survey game to help students become familiar with identifying the common arthropod groups.
- Then have them read instructions and watch video to understand how to conduct surveys.
- Set up a monitoring site and assign students or groups of students to particular branches.
- Have students conduct surveys and submit observations through the mobile app. (Over a summer session, the class might be able to perform surveys on multiple dates; in the spring semester you may only have leaves on trees at the end of the semester, in the fall only at the beginning)
- Ask students to submit photos of what they are finding through the app. These observations can be followed up on iNaturalist to verify identifications.

Data exploration, inquiry-based learning:



- Regardless of whether students submit data, they can explore/analyze data from any site on the project's Maps and graph's page at <https://caterpillarscount.unc.edu/mapsAndGraphs>
- Have them read instructions and/or give them some targeted questions to make sure they understand how to navigate and explore the data available. (E.g., what site had the highest caterpillar density in 2021? When was the peak date for beetles at the NC Botanical Garden in 2018? Which tree species supports the most leafhoppers at Prairie Ridge Ecostation? etc.)
- Have students brainstorm research questions, and then explore the data to answer them.
- Note that raw and derived data can be downloaded for more advanced statistics, analysis, or plotting.

Project Spotlight: (cont.) Caterpillars Count!



What tools are available to help instructors implement the project?

- Arthropod identification guides and virtual quizzes
- Virtual survey game to practice finding, identifying, and measuring arthropods on a virtual branch.
- Detailed instructions for setting up a site and carrying out surveys
- Data visualization tools for exploring project data
- Learning activities based on visualizing and exploring the project database
- Data download tool for accessing the raw data (yours, and project wide)

All of the above and more are accessed through this link:
<https://caterpillarscount.unc.edu/resources>

Are there any materials needed for this project?

Free mobile app to submit data; optional beat sheets.

What is the best time of year to complete this project with students?

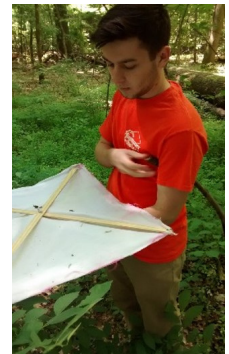
Late spring to early fall when leaves are on trees.

How much time should an instructor anticipate dedicating to this project with students?

As described above, this project can be implemented in a variety of ways ranging from a single class period to a semester-long data analysis project.

Who to contact for further questions?

Dr. Hurlbert is happy to answer questions and discuss possible implementations, so feel free to contact him at hurlbert@bio.unc.edu



VISIT THE WEBSITE TO LEARN MORE AT: [HTTPS://CATERPILLARSCOUNT.UNC.EDU](https://caterpillarscount.unc.edu)

