

USE CIT SCI

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



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Get Involved!

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THEORY AND PRACTICE**

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JOURNEY NORTH**

The USE Cit Sci Network (use-cit-sci-network.org) is looking for interested persons to participate in two small working groups during the upcoming year.

Two separate groups will focus on higher education (post-secondary) settings, related to the use of:

- Citizen science in online environments
- Citizen science in social justice

Each group will develop and share resources related to their focal topic, create one blog for the Network website, and host one informational webinar.

The chair of each group will receive a stipend of \$1000 and active members will get stipends of \$500 each for the year. Each group will be kept small so that it is easier to coordinate meetings and accomplish goals.

If you are interested, please complete this interest form ([link](#)) by Dec 15. Contact Heather Vance-Chalcraft (vancechalcraft@ecu.edu) with questions.

Thank you!

Check out the [Special Collection in Citizen Science: Theory and Practice](#) just released about the use of citizen science in higher education. This special collection was sponsored by the network!

Authors from this collection will give an overview of their paper and then will host a discussion and “ask us anything” time with attendees. This event will be held on CSA Connect, the networking platform of the Citizen Science Association (CSA). The site is open only to CSA members but free trial memberships are available: see the [membership site for more information](#) or to log into CSA Connect.

**Upcoming
Live Event!**

**Wednesday,
December 15th
1-2pm EST**

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:

<http://use-cit-sci-network.org/>



Citizen Science: Theory and Practice

Special Collection ([link](#))

Citizen Science in Higher Education

Colleen Hitchcock, Heather Vance-Chalcraft,
Maria Aristeidou
<http://doi.org/10.5334/cstp.467>

Using Citizen Science to Incorporate Research into Introductory Biology Courses at Multiple Universities

Heather D. Vance-Chalcraft, Terry A. Gates,
Kelly A. Hogan, Mara Evans, Anne Bunnell,
Allen H. Hurlbert
<http://doi.org/10.5334/cstp.424>

Cultivating Bioliteracy, Biodiscovery, Data Literacy, and Ecological Monitoring in Undergraduate Courses with iNaturalist

Colleen Hitchcock, Jon Sullivan, Kelly
O'Donnell
<http://doi.org/10.5334/cstp.439>

Integrating Citizen Science with Online Biological Collections to Promote Species and Biodiversity Literacy in an Entomology Course

Christopher Paradise , Louisa Bartkovich
<http://doi.org/10.5334/cstp.405>

Do Ecological or Molecular Biological Citizen Science Projects Affect the Perceptions of Undergraduate Students Toward Pursuing Future Citizen Science?

Kristin Bedell , Terry Gates
<http://doi.org/10.5334/cstp.426>

Undergraduate Student Experiences with Citizen Science Highlight Potential to Broaden Scientific Engagement

Brianna Johns , Dana Thomas, Lisa Lundgren,
Lincoln Larson, Caren Cooper
<http://doi.org/10.5334/cstp.419>

Useful Biodiversity Data Were Obtained by Novice Observers Using iNaturalist During College Orientation Retreats

Robert Stevenson , Carl Merrill, Peter Burn
<http://doi.org/10.5334/cstp.407>

Creating Study-Specific Tools to Increase Community and Student Engagement

Amy Dunbar-Wallis , Deidre Jaeger, Katharine
Suding, Paige Littman, Laura Baumgartner,
Maggie Prater, Adalyn Schuenemeyer, Kika Tuff,
Amelia Brackett Hogstad, Irfanul Alam, Lisa
Corwin
<http://doi.org/10.5334/cstp.420>

The Roles and Value of Citizen Science: Perceptions of Professional Educators Enrolled on a Postgraduate Course

Maria Aristeidou, Rebecca Ferguson, Leigh-Anne
Perryman, Natalie Tegama
<http://doi.org/10.5334/cstp.421>

Leveraging Citizen Science in a College Classroom to Build Interest and Efficacy for Science and the Environment

Haley Smith, Bradley Allf, Lincoln Larson, Sara
Futch, Lisa Lundgren, Lara Pacifici, Caren Cooper
<http://doi.org/10.5334/cstp.434>

Expanding the Scope of Citizen Science: Learning and Engagement of Undergraduate Students in a Citizen Science Chemistry Lab

Yaela N. Golumbic , Alice Motion
<http://doi.org/10.5334/cstp.431>

Learning from the Trees: Using Project Budburst to Enhance Data Literacy and Scientific Writing Skills in an Introductory Biology Laboratory During Remote Learning

Deborah Lichti , Pamela Mosley, Kristine Callis-
Duehl
<http://doi.org/10.5334/cstp.432>



Instructor Spotlight: Dr. Terry Gates

Dr. Terry Gates is a professor of Paleontology and Evolutionary Biology at North Carolina State University with 20 years of experience. Dr. Gates has used the citizen science project *Caterpillars Count!* during a three-week period in the undergraduate course "Introduction to Biodiversity Research" to introduce scientific methods involved in studying biodiversity. The course was open to all STEM students but consisted mostly of biology, chemistry, agriculture, and undeclared majors.

At first, the arthropod-focused project provided data on the arthropods present on trees studied on NC State's campus. When the COVID-19 Pandemic began, the course became hybrid-online and the citizen science project adapted easily to occur around students' homes. Dr. Gates' students took census data on arthropods from a variety of locations, compared the biodiversity by calculating various biodiversity indices, which then enabled students to hypothesize about differences which they may or may not have observed at their location.

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

"Citizen science is real data collection. For a course that strives to teach students the in's and out's of doing research in biodiversity, it made sense to include actual data collection. Plus, I found in my previous use of citizen science in other courses that students really appreciate not doing 'throw-away assignments'. The more that their energy in higher-education can be put towards something outside of education for education's sake, the more they feel that their education matters. Finally, it is unlikely that all students will receive a job collecting data and doing research, yet, providing experience in citizen science shows them that they can still pursue interests in science outside of their careers."

How do you feel the involvement has impacted students' engagement and learning?

"I know that at least one student figured out that they want to research ecosystems because of the class. All of them looked at the arthropods that live at their homes (which not surprisingly is something they had never noticed before). Course learning objectives were, in my opinion, more successfully achieved because the student-collected citizen science data had positive energy that carried over from field work to data analysis and science communication."

Each USE Cit Sci Network newsletter highlights a citizen science project that readers can consider adapting to their courses. This month, we feature Journey North, a program of the University of Wisconsin-Madison Arboretum.

Project Spotlight: Journey North



Project Coordinator
Nancy A Sheehan, M.E.M

Sheehan has worked at the intersection of science and outreach for more than three decades. She believes in the collective power of individuals working together to create change for the good and, to this day, remains passionate about volunteerism, community science and participatory research. Sheehan is honored to work with Journey North citizen scientists and educators from across North America.

Journey North is a citizen science program that engages a diverse audience from across North America in tracking wildlife migration and seasonal change. Launched in 1993, Journey North community of observers contribute over 50,000 migration reports each year for 18 different project species, including Monarchs, Hummingbirds, Common Loons & Ice-Out, Barn Swallows, Red-winged Blackbirds, Baltimore & Bullock's Orioles, American Robins, and Bald Eagles.

Journey North also hosts two project-based learning opportunities called Tulip Test Garden and Symbolic Migration (in partnership with Monarchs Across Georgia). Journey North shares the migration story in weekly news updates, interactive maps, and social media posts. Journey North also offers a wide selection of inquiry-based educational materials. Volunteer collected migration data enhances scientific understanding of migratory species – including timing of spring and fall migration and critical migration pathways.

Participate in this citizen science program to engage students in exploring scientific concepts, such as phenology, life and annual cycles of migratory species; hone observational skills; extensions could include how to use real data to answer student generated questions.

Project Spotlight: Journey North

What tools are available to help instructors implement the project?

- Online protocols and methods
- Straightforward data entry portal
- Online educational materials
- Online feature to download raw datasets

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

Spring and fall to capture migratory events / summer to capture breeding behaviors / winter to capture presence of species (vagranacy in US ; overwintering in Mexico and Central America)

Are there any materials needed?

Access to internet

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

Variable depending on extensions

Who to contact for further questions?

Nancy Sheehan would be happy to answer questions about using Journey North. Please contact: nsheehan@wisc.edu



JOURNEYNORTH.ORG



Do you want to read about the project experience from an instructor or student?
 Check out this article: [GIS and Monarch Migration Data: Marian University faculty and students analyze Journey North data in GIS class](#)