

Participatory Sciences (Certificate)

The certificate will train graduate students to collaborate with the public on scientific research. Specifically, the certificate will cover competencies in public science, science communication, data management and visualization, social justice, and informal science education. Graduate students completing the certificate will be prepared to: 1) engage various segments of the public in scientific inquiry and collaboration, 2) understand data ethics, management, and visualization, and 3) be competent in equity of science access.

The certificate will consist of two core courses that cover fundamentals of participatory sciences and the opportunity to apply skills through experiential learning. The first 3-credit hour course – Fundamentals of Citizen Science and Other Participatory Research Methods – includes modules on an overview of participatory sciences across fields; critiques of citizen science, including ethics, issues of diversity, equity, and inclusion (DEI), and controversies; and methods for designing and assessing citizen science projects, including public learning outcomes and societal outcomes beyond research findings. The second 1-credit hour course – Citizen Science Engagement Practicum – will provide training in team science and connect student teams with partners from across and beyond campus to collaboratively execute real citizen science projects, from contributing to design and implementation through analysis and communication. Potential campus and community partners for these citizen science projects include the NC State University Libraries, campus sustainability initiatives, large enrollment undergraduate courses that integrate experiments into coursework, community centers, and the NC Museum of Natural Sciences. Students will then complete a minimum number of hours for the certificate through selection of elective courses. The elective course list spans multiple colleges to broaden the applicability of the certificate to diverse graduate programs, and to allow for targeted in-depth learning relevant to the individual's field of study and research interests.

More Information

Participatory Sciences Website (<https://citizenscience.ncsu.edu/get-involved/graduate-certificate/>)

Applicant Information

- **Delivery Method:** On Campus, Online, Hybrid
- **Entrance Exam:** None
- **Interview Required:** None

Application Deadlines

- **Fall:** May 1
- **Spring:** October 1

Plan Requirements

Code	Title	Hours
Required Course		4
PSC/GOH 550	Fundamentals of Citizen Science and Other Participatory Research Methods	
PSC/GOH 551	Citizen Science Engagement Practicum	

Electives	8
Total Hours	12

In addition to the two core courses, students will choose additional classes from the following list of elective courses to achieve the 12 credit hours required for the graduate certificate. Note that students can take up to 3 undergraduate (400-level) credits towards the certificate, but not more. It is recommended that students have completed or be enrolled in all electives when enrolling in PSC/GOH 551, as this course is intended to be a capstone that utilizes the disciplinary and interdisciplinary perspectives and skills acquired through the elective coursework.

Code	Title	Hours
AEHS 550	Leadership Theory	3
AEHS 560	Organizational Behavior and Administrative Leadership in Agricultural & Human Science	3
CHE 596	Special Topics in Chemical Engineering (subject to the approval of the administrator of the certificate)	1-3
COM 579	Climate Change Communication	3
CSC 555	Social Computing and Decentralized Artificial Intelligence	3
DSC 405	Data Wrangling and Web Scraping	1
DSC 406	Exploratory Data Analysis for Big Data	1
DSC 412	Exploring Machine Learning	1
ECE 542	Neural Networks and Deep Learning	3
ECE 518	Wearable Biosensors and Microsystems	3
ECE 592	Special Topics In Electrical Engineering (subject to the approval of the administrator of the certificate)	1-6
EMS 551	Learning in Informal Contexts: Theory to Practice	3
EMS 552	Learning in Informal Contexts: Evaluation	3
FW 730	Ethics in Fisheries and Wildlife Sciences	2
MBA 590	Special Topics In Business Management (subject to the approval of the administrator of the certificate)	1-6
MBA 582	B Corp Clinic Sustainability Practicum	3
MLS 501	Seminar In Liberal Studies (subject to the approval of the administrator of the certificate)	3
NR 595	Special Topics in Natural Resources (subject to the approval of the administrator of the certificate)	1-6
PRT 550	Human Behavior and the Environment	3
PRT 560	Theory and Practice of Partnerships for Conservation and Community Sustainability	3
PRT 575	Children and Nature	3
PRT 595	Special Topics In Recreation Resources (subject to the approval of the administrator of the certificate)	1-6