Teacher participants will attend ONE 5-day Cycle 2 course. Sessions are 6 hours per day, not including lunch. Attendance is required at ALL FIVE DAYS. See UA absence policy for details (http://uanyc.science/AttendancePolicy). Teachers must get permission from principals to be released for all weekday courses.

Cycle 2: Staten Island Zoo

- Field Investigations   ●   Animal Behavior

Participants will explore the steps to an animal behavior field investigation through the animals and exhibits at the Staten Island Zoo. We will learn the unique ways of collecting data in the field of animal behavior research as we also learn the evolutionary concepts that influence animal behavior. Participants will, over the five days, conduct their own scientific investigation that will lead to a deeper understanding of both science practices and science content that can be repeated both in their classrooms and using the zoo for a field trip.

Saturday course: 9am to 3:30pm   April 25, 2020
February 29, 2020   May 2, 2020
March 14, 2020   snow day: May 9, 2020
March 28, 2020

Cycle 2: Queens Botanical Garden

- Controlled Experiments ●   Plants

Participants will utilize the resources of the Queens Botanical Garden to conduct a long-term investigation about plant growth. As we dig into the sessions we'll use our investigations to determine how environmental or other factors can affect plants. Throughout the cycle we'll engage in the science practices and reflect upon pedagogical techniques that can be used in your classroom.

WEEKDAY course: 8:30am to 3:30pm   Wednesday November 13, 2019
Thursday October 24, 2019   Thursday December 5, 2019
Wednesday October 30, 2019   Wednesday December 11, 2019

Cycle 2: Brooklyn Botanic Garden
- Controlled Experiments ● Plants

Participants will work in groups to design, carry out and complete all of the steps in a long-term investigation of plant growth. Strategies and techniques are modeled throughout to support teachers' development of questioning skills and inquiry methods. Field trips (including pre and post lessons) to the diverse plant collections at BBG will provide participants with a foundation for bringing students on class trips to support content learning about adaptations and biomes. The use of journals in field and class work will be an essential component of our practice.

WEEKDAY course: 9am to 3:30pm
Tuesday October 22, 2019
Wednesday October 30, 2019
Monday November 18, 2019

Thursday December 19, 2019
Friday January 10, 2020
snow day: Tuesday January 14, 2020

Cycle 2: The New York Botanical Garden & American Museum of Natural History
- Field Investigations ● Watershed Ecology

Teachers will complete a field investigation with a focus on water quality in the Bronx River watershed. Participants will utilize the grounds of The New York Botanical Garden to investigate relationships between the biotic and abiotic factors that impact the ecology of the local watershed. In addition, teachers will gain experience using informal science resources to support research at the American Museum of Natural History. Teachers will be introduced to data collection techniques in the field and examine their data in the context of secondary data to understand the scientific principles at work in the natural environment.

Saturday course: 9:30am to 4:30pm
March 7, 2020
March 21, 2020 @ AMNH

March 28, 2020
April 25, 2020
May 2, 2020

Cycle 2: Bronx Zoo
- Field Investigations ●. Animal Behavior

Use the Bronx Zoo as your classroom to understand animal behavior through long-term science investigations. Learn strategies for engaging your students in exploration and guiding them to develop and pursue the answers to testable questions. Animal behavior field investigations can be used to explore many topics including interspecies relationships, evolution, and biodiversity. Teachers will complete a full animal behavior study during five sessions at the Bronx Zoo and learn ways to implement the skills and content of animal behavior field studies into their classroom.

Saturday course: 9am to 3:30pm
November 2, 2019
November 9, 2019
November 16, 2019

November 23, 2019
December 7, 2019
snow day: December 14, 2019

Cycle 2: New York Aquarium

- Field Investigations
- Animal Behavior

Use the resources at the New York Aquarium to understand aquatic animal behavior through long-term science investigations. We will focus on asking scientific questions about animal behavior and collecting authentic data. Animal behavior field investigations can be used to understand evolutionary relationships, natural selection, biodiversity, and even engineering design. Teachers will complete a full animal behavior study during five sessions and learn pedagogical techniques to implement the skills and content of animal field studies into their classroom.

Sunday course: 9:30am to 4pm
October 20, 2019
October 27, 2019

November 17, 2019
November 24, 2019
December 8, 2019

Cycle 2: New York Hall of Science & New York Aquarium

- Design Experiments
- Potential and Kinetic Energy, Forces and
- Motion, Drag, Hydrodynamics

Through the use of an iterative, systematic design process, participants will evaluate competing submersible model designs by testing individual independent variables during a series of controlled experiments. Using background research, and the data collected from these iterations, participants will analyze their results to identify the best characteristics in order to design, and test an optimal submersible model. Be prepared to get wet as we "dive" into learning physical science concepts in a new and fun way.

Sunday course: 9am to 3:30pm
January 12, 2020 (at NYA)
January 26, 2020
February 9, 2020

March 8, 2020
March 22, 2020
snow day: April 5, 2020

Cycle 2: American Museum of Natural History & The New York Botanical Garden

- Secondary Research
- River Ecology

Participants will utilize AMNH exhibits, field sites at the New York Botanical Garden and a Museum-created web-based case study about Hudson River ecology and the invasion of the zebra mussel. Through hands-on data collection in the field and using the videos and readings about the research at the Cary Institute of Ecosystem Studies, participants will deepen their understanding of the secondary data, the practice of science and supporting students in developing their literacy skills. Participants will conduct their own secondary research investigations accessing this 20-year data set through a web-based graphing tool.

Sunday course: 9am to 4pm
December 15, 2019
January 12, 2020 @ NYBG (Bronx)

January 26, 2020
February 9, 2020
March 1, 2020