

# URBAN ADVANTAGE COURSE CATALOG

2024 - 2025



American Museum  
of Natural History

 **Bronx Zoo**  
A Wildlife Conservation Society Park

  
BROOKLYN  
BOTANIC  
GARDEN

**NYBG** NEW YORK  
BOTANICAL  
GARDEN

 **New York Aquarium**  
A Wildlife Conservation Society Park

**ny sci**  
New York Hall of Science

 Queens  
Botanical  
Garden

**ZOO**  
Staten Island

**NYC**  
Public Schools



**NYC**  
Office of the Mayor

The Council of the  
City of New York

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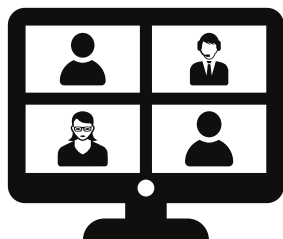
# Course Formats & Definitions

All Urban Advantage Professional Learning will be held in the below formats or a combination of any of the below formats. We hope these formats will provide you with options that suit your learning preferences and schedule. In the course descriptions you will see the following terms used:



## In-Person

Courses with this format require physically present attendance at one or more of our host institution(s) and/or location(s).



## Zoom

Courses with this format require the use of an electronic device to attend one or more live session(s) via the videoconferencing platform Zoom.



## Moodle

Courses with this format require the use of an electronic device for self-paced work to be submitted via the online learning platform Moodle through our myUA portal.

Note: For courses using Zoom and Moodle, we recommend using a computer rather than a phone due to compatibility issues of other applications we may use.

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# Elementary Year 1

**Y1E**

Course number

Title

## Constructing and Revising Evidence-based Explanations

Description

Participants will study changes to local owl populations, through personal connections, first-hand experiences, hands-on investigations and text resources, to build and revise a scientific explanation. Participants will learn literacy strategies to help deepen students' understanding of science content and inquiry. Participants will reflect on their practice and modify argumentation tools (CER framework, KLEWS) for their classroom. They will identify opportunities for students to revise initial explanations through exposure to new information.

\*This course is offered at two different host institutions below.

Host Institution

**AMNH**

Course Format



**In-Person**

In-Person Dates

**1/7/25, 1/15/25, 2/4/25, 3/5/25; 9:00am - 3:00pm**

Host Institution

**NYBG**

Course Format



**In-Person**

In-Person Dates

**1/5/25, 1/12/25, 2/2/25, 3/2/25; 9:00am - 3:00pm**

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# Elementary Year 2

Y2E

Course number

Title

**Supporting Ongoing Changes in Thinking**

## Description

Participants will learn how collective sense-making helps strengthen our understanding of phenomena we can observe in the world around us and recognize that there are multiple ways that scientists and students can help change real-world issues. Teachers will explore the impacts of erosion through hands-on investigations that highlight real world solutions to a globally shared problem. Participants will reflect on their practice through metacognition and create tools for students to engage reflective practice in their classroom.

Online Course Expectations:

This course is offered at two different host institutions on the next page using multiple formats.

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

Course Format



Moodle



Zoom



In-Person

# Elementary Year 2

Course number

**Y2E**

Title

**Supporting Ongoing Changes in Thinking**

Host Institution

**AMNH**

In-Person Dates

**12/3/24 & 1/28/25; 9:30am - 4:00pm**

Zoom Dates

**12/19/24 & 1/9/25; 3:30pm - 5:30pm**

Moodle Dates

**12/4/24 through 1/24/25**

Host Institution

**NYSCI**

In-Person Dates

**12/7/24 & 1/25/25; 9:00am - 3:30pm**

Zoom Dates

**12/19/24 & 1/9/25; 3:30pm - 5:30pm**

Moodle Dates

**12/8/24 through 1/24/25**

# Elementary Year 3

Course number

**Y3E**

Title

## **Making and Justifying Claims in a Science Community**

Description

Participants will learn how scientists use data to make connections, recognize patterns, and develop and revise explanations about the natural world. By using UA institutional exhibitions and various types of data such as visualizations, infographics, pictures, and graphs, participants will gain a deeper understanding of how the behavior, life cycle, and migration of Monarch Butterflies can indicate the impact of human activity on their populations. Teachers will engage in a cycle of reflective practices around the class and PL work.

Online Course Expectations:

This course is offered at two different host institutions on the next page using multiple formats.

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

Course Format



Moodle



Zoom



In-Person

# Elementary Year 3

Course number

**Y3E**

Title

**Making and Justifying Claims in a Science  
Community**

Host Institution

**AMNH**

In-Person Dates

**10/30/24, 11/20/24 & 12/18/24; 9:00am - 3:00pm**

Zoom Dates

**1/22/25; 4:00pm - 6:00pm**

Moodle Dates

**10/27/24 through 2/7/25**

Host Institution

**BBG**

In-Person Dates

**10/27/24 at BBG, 11/24/24 at AMNH & 12/15/24 at  
BBG; 9:00am - 3:00pm**

Zoom Dates

**1/26/25; 9:00am - 11:00am**

Moodle Dates

**10/27/24 through 2/7/25**



# Year 1

Foundations in Phenomena and Discourse

## Course description

Teacher participants will attend ONE 30-hour Foundations course. Sessions are generally 5-6 hours per day, not including lunch; most courses include five sessions. Some courses include self-paced work hours. Attendance requirements vary between venues and are strictly followed. See UA attendance policy for details; incomplete courses will not be awarded payment or CTLE credit. Please do not register for a course with dates you cannot attend.

Each of the eight institution's courses are listed in the following pages.

Teachers must get permission from principals to be released for all weekday courses.

## Learning goals for this course type may include:

- Teachers will identify the sets of core practices in Ambitious Science Teaching (AST), and describe some of the ways in which the routine practices of AST support student learning in science over time.
- Teachers will describe how specific discourse strategies can support different learning goals throughout a learning sequence using the AST talk moves taxonomy.

# Year 1

- Teachers will apply one or more AST goal-oriented discourse strategies to strengthen students' ability to connect with and begin to explain a phenomenon.
- Teachers will apply one or more community-building strategies that set up an environment that encourages sharing and values student identity.

# Year 1

Course number

**Y1 NYBG**

Topics of Focus

**Watershed Ecology**

Host Institution

**NYBG**

Course Format



**In-Person**

In-Person Dates

**10/26/24, 11/16/24, 11/23/24, 12/7/24 & 12/14/24;**

**9:00am - 4:00pm**

**\*Weekends on Saturdays**

## Description

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 Bronx River watershed. Teachers will be introduced to data collection techniques in the field and will explore the past, present, and future of the Bronx River, with a focus on water quality factors. Teachers will engage in shared learning experiences and consider how the learning progression and strategies can be applied in their teaching practice. Teachers will also engage with research about how people learn, and ideas about culturally responsive-sustaining education in the context of learning about the natural world.

# Year 1

Course number

**Y1 BBG**

Topics of Focus

**Constructing Explanations, Controlled Experiment, Plant Responses to Environmental Changes**

Host Institution

**BBG**

Course Format



**In-Person**

In-Person Dates

**10/20/24, 11/10/24, 11/17/24, 11/24/24 & 12/8/24;**

**9:00am - 3:30pm**

\*Weekends on Sundays

## Description

Engaging with community issues, we'll explore the phenomenon of how shading caused by increased urban development affects plant growth. Participants will work in groups to design and carry out investigations of plant growth to gather evidence that can potentially support their explanations of the phenomenon. We'll utilize many science practices including asking questions, constructing explanations, planning and carrying out investigations, and engaging in argument from evidence. We will model strategies and techniques throughout to support teachers' development of questioning skills, inquiry methods, and discourse strategies. We will utilize garden grounds for immersive field learning.

# Year 1

Course number

**Y1 NYA**

Topics of Focus

**Adaptations, Animal Behavior**

Host Institution

**NYA**

Course Format



**In-Person**

In-Person Dates

**1/18/25, 1/26/25, 2/8/25, 3/1/25 & 3/8/25;**

**9:00am - 3:30pm**

**\*Weekends on Saturdays**

## Description

Have you ever wondered why the fastest Olympic swimmer couldn't beat a shark in a race? Well we have, and we want to take you on an underwater journey at the New York Aquarium to understand how animals swim and why they function the way they do. We will spend 5 days learning in our classroom and in the aquarium, visiting exhibits, engaging in hands-on activities, and working collaboratively to understand why so many animals are faster than humans, and why that matters, in order to deepen your understanding and implementation of ambitious science teaching (AST), phenomena-based instruction, and the use of discourse to promote equitable participation and enhance student learning in science.

# Year 1

Course number

**Y1 BXZ**

Topics of Focus

**Ecosystems, Human-Wildlife Interactions**

Host Institution

**BXZ**

Course Format



**In-Person**

In-Person Dates

**10/29/24, 11/6/24, 11/13/24, 11/20/24 & 12/4/24;**

**9:00am - 3:30pm**

**\*Weekdays on Tuesdays and Wednesdays**

## Description

Science stories are powerful societal narratives to teach about ecosystems, interdependence, culture, and history. Join us at the Bronx Zoo for 5 days that will deepen your understanding and implementation of ambitious science teaching (AST), phenomena-based instruction, and the use of discourse to promote equitable participation and enhance student learning in science. We will learn in the classroom and out in the zoo, visiting exhibits, engaging in hands-on activities, and working collaboratively to understand the interconnected roles of humans, other animals, plants and everything in between.

# Year 1

Course number

**Y1 NYSCI**

Topics of Focus

**Design Investigation, Forces of Motion,  
Potential and Kinetic Energy**

Host Institution

**NYSCI**

Course Format



**In-Person**



**Moodle**

In-Person Dates

**3/16/25, 3/30/25, 4/6/25, 4/27/25 & 5/18/25;**

**10:00am - 3:30pm**

*\*Weekends on Sundays*

Moodle Dates

**3/16/25 through 5/18/25**

Description

This interactive experience immerses participants in phenomena-based learning, focusing on the wonder of flight. Aligned with NGSS and Ambitious Science Teaching, participants will engage in Science and Engineering Practices through their exploration of the forces of flight phenomena. Using background research and data collected from their straw rocket launches, participants will analyze the results to identify what makes the best straw rocket model. Participants will also learn strategies to encourage student thinking and discourse. Be prepared to launch into learning physical science concepts in a new and fun way!

# Year 1

Course number

**Y1 SIZ**

Topics of Focus

**Ecosystem Interactions, Adaptations, Animal Behavior**

Host Institution

**SIZ**

Course Format



**In-Person**

In-Person Dates

**1/28/25, 2/12/25, 2/25/25, 3/12/25 & 3/25/25;**

**8:00am - 2:30pm**

\*Weekdays on Tuesdays and Wednesdays

\*Snow day 4/9/25

## Description

Join us at the Staten Island Zoo to dive into the lives of some of the world's most misunderstood animals. Zoos feature many species vital to ecosystems - from charismatic megafauna to creatures that inspire trepidation, like cockroaches, snakes, and rats. During this course, participants will gain a deeper understanding of how the presence of these not-so-charismatic species provides essential ecosystem services to other organisms as well as humans through modeling, observation, and investigation. Participants will explore adaptations and the importance of biodiversity, analyze the impacts of trophic cascades, and discover how we can impact animals and their environments. So come with an open mind, explore these fascinating creatures with us, and learn techniques and strategies to help you bring phenomena-based learning to your classroom.



# Year 1

Course number

**Y1 AMNH**

Topics of Focus

**Secondary Research, River Ecology, Nature in our city**

Host Institution

**AMNH**

Course Format



**In-Person**

In-Person Dates

**3/4/25, 3/19/25, 4/1/25, 4/9/25 & 4/29/25;**

**8:00am - 3:00pm**

**\*Weekdays on Tuesdays and Wednesdays**

## Description

Participants will utilize AMNH exhibits, field sites in Central Park and a Museum-created web-based teaching case 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 use of secondary data, the practices of science, and pedagogical strategies to support discourse and use of phenomena in science education. Participants will plan and carry out a secondary research investigation accessing this 20-year data set through a web-based graphing tool then connect to nature in the city.

# Year 1

Course number

**Y1 QBG**

Topics of Focus

**Climate change, urbanization,  
interdisciplinary perspectives**

Host Institution

**QBG**

Course Format



**In-Person**

In-Person Dates

**4/6/25, 4/27/25, 5/4/25, 5/11/25 & 5/18/25;**

**9:00am - 3:30pm**

**\*Weekends on Sundays**

## Description

By interweaving scientific concepts and social realities, we will create a vivid picture of Flushing, which was once sprawling marshlands and now covered with urban sprawl. How has this urbanization affected the landscape and its people, especially in the face of increasing flash floods due to climate change? As we explore the compounding effects of colonization, climate change, and urban planning, we center local connections and diverse perspectives to plan a sustainable and inclusive future. We will explore the importance of interdisciplinary perspectives in science content and actively participate in building a learning community that reflects its members.

# Category 100

Using the science and engineering practices to explain phenomena and design solutions: focusing on 4 methods of explaining phenomena and solving design problems

- Planning and carrying out experiments to construct explanations of phenomena
- Planning and carrying out field studies to construct explanations of phenomena
- Using the engineering practices to solve design problems
- Planning and carrying out secondary research with online data to construct explanations of phenomena

## Course description

Participants will learn to support students in constructing explanations of phenomena and solving authentic problems while engaging in the science and engineering practices described in the New York State P-12 Science Learning Standards. Participants will learn in the context of high-leverage teaching practices used to model UA scaffolding tools (such as the IDD and DSET). Pedagogical practices and strategies will be foregrounded that support student sense-making in science over time, and ultimately support students asking questions (for science) and defining problems (for engineering), planning and carrying out investigations, analyzing and interpreting data, and constructing explanations (for science) and designing solutions (for engineering).

# Category 100

## Two- and Four-day courses:

Two-day equivalent courses (10 hours of work) are intended for teachers in their 2nd year or more of UA.

Four-day equivalent courses (20 hours of work) are intended for teachers in their 2nd and 3rd years of UA.

## Prerequisites:

These courses are intended for teachers who have been in UA for 1 or more years with an interest in learning to plan and carry out specific types of scientific investigations that they DID NOT explore during previous PL courses (Year 1 (fka Cycle 2) or Continuing Teacher PL).

## Learning goals for this course type may include:

- Improve teachers' capacity to access high-quality science content online and in-person through NYC's science-rich UA partner institutions, and to access additional resources beyond the classroom, both virtually and in-person, especially in NYC's natural and built setting, with the goal of growing students' science literacy.
- Develop and deepen teachers' capacity to integrate learning tools that support student dialogue, observations, and scientific investigation.

# Category 100

- Develop and deepen teachers' capacity to integrate into their classrooms high-leverage teaching practices that support student sense-making in science over time, and more broadly support the new NYS P-12 Science Learning Standards.
- Develop and deepen teachers' capacity to employ UA scaffolds to engage with their students in the practice of planning and carrying out science and engineering investigations, including controlled experiments, field studies, design problems and secondary research (NYS P-12 Science Learning Standards).
- Develop and deepen teachers' capacity to employ UA scaffolds, such as the IDD and DSET, to support students engaging in other key practices such as asking questions (for science) and defining problems (for engineering), analyzing and interpreting data, and constructing explanations (for science) and designing solutions (for engineering).
- Deepen teachers' understanding of the 3 dimensions of science instruction, including disciplinary core ideas, science and engineering practices, and cross-cutting concepts.
- Deepen teachers' capacity to share with, collaborate and seek assistance from their UA community.

# Category 100

Participation in this course will include one or more of the following:

- The 4-day versions of the Category 100 courses will introduce how to plan and carry out a complete investigation to explain a specific type of phenomenon, including how to construct an explanation.
- The 2-day versions of the Category 100 courses will introduce how to plan an investigation with the goal of explaining a specific type of phenomenon or design a solution. However, a culminating explanation or design solution may be outside the scope of the course. The priority will be to ask questions (for science) and define problems (for engineering), and to plan the investigation or design solution.

# Category 100

Course number

**111**

Title

**Controlled Investigations: Investigating Water Turbidity**

Host Institution

**NYA**

Course Format



**In-Person**

In-Person Dates

**5/7/25 & 5/21/25; 9:00am - 2:30pm**

## Description

Use the shore as your personal classroom, while investigating reasons to explain the turbidity - or cloudiness - of our local waters. Participants will be introduced to the ecological phenomenon of water turbidity, as well as the tools and techniques necessary to plan and carry out a controlled investigation at the beach. Skills to be covered include identifying variables, designing a controlled investigation, and collecting data.

# Category 100

Course number

**116**

Title

**Surveying Animal Populations**

Host Institution

**BXZ**

Course Format



**In-Person**

In-Person Dates

**3/22/25 & 3/29/25; 9am - 2:30pm**

## Description

One of the first steps that scientists take in designing a species conservation plan is determining how many individuals are in a given location. In this course, participants will learn about some of the tools and techniques that conservation biologists use to determine the relative abundance of organisms in a specific area, including using transects and quadrats. By conducting their own population survey at the Zoo, participants will gain additional content and pedagogical knowledge to aid students in designing strong field investigations that will help them to develop a better understanding of the nature of science, local species, and urban ecosystems.



# Category 100

Course number

**121**

Title

**Introduction to Field Studies in Phenology**

Host Institution

**BBG**

Course Format



**In-Person**

In-Person Dates

**4/1/25 & 4/23/25; 9:00am - 2:30pm**

## Description

Participants will learn strategies for developing questions about the relationship between a tree's environment and its life cycle. Phenology is the study of how plant life cycle events are affected by seasonal change. In exploring the trees located in our own backyards and school communities, we will build facility with both content and the science practices while thinking about the ecological significance of the timing of life cycle events in plants native to our region. This course will also provide an introduction to Place-based pedagogy, and its potential value in the science classroom.

# Category 100

Course number

129

Title

**Secondary Research: Investigating Amphibian Populations**

Host Institution

**BXZ**

Course Format



**In-Person**

In-Person Dates

**2/2/25 & 2/16/25; 9:00am - 2:30pm**

## Description

Amphibians are considered to be strong indicators of environmental health and their populations have declined significantly in recent decades. In this course, participants will gain additional content knowledge and pedagogical skills to aid their students in investigating evidence obtained from secondary data sets from FrogWatch, a community science program of the Akron Zoo. Participants will study frog and toad populations by observing amphibians at the zoo and using secondary data to create and analyze graphs. Participants will also learn about information and resources that will help them to use this free online software in their classrooms and to plan field trips to the Zoo that link scientific investigations to the curriculum.

# Category 100

Course number

132

Title

**Controlled Investigation: Bounce Factor**

Host Institution

**NYSCI**

Course Format



**In-Person**

In-Person Dates

**11/3/24 & 11/17/24; 10am-2:30pm**

## Description

This experience focuses on the development of controlled experiments using sixth grade content. Using how balls bounce as an anchor phenomenon, participants will explore how to plan and carry out controlled experiments using handballs bouncing on a variety of different surfaces. Using background research and the data collected from these experiments, participants will construct strong scientific explanations that support their experimental claim with scientific reasoning and evidence.

# Category 100

Course number

139

Title

**Plant Pigments**

Host Institution

**QBG**

Course Format



**In-Person**

In-Person Dates

**1/8/25 & 1/15/25; 9:00am - 2:30pm**

## Description

What can you do with plant pigments and what do they have in common with photographs? In this course we will engage in multiple science demonstrations involving light and plant pigments and work together to turn these fun models into in-depth classroom explorations of science practices and make curricular connections that can support students' sense making.

# Category 100

Course number

**140**

Title

**Wildlife CSI: Uncovering Evidence of Illegal Wildlife Trade**

Host Institution

**SIZ**

Course Format



**In-Person**

In-Person Dates

**11/19/24 & 12/03/24; 9:00am - 3:00pm**

## Description

Global trade is constantly evolving, but what happens when trade involves illegal activities? How does this illegal activity impact ecosystems and the daily lives of people worldwide? This course will explore these questions by focusing on the Illegal Wildlife Trade, analyzing global efforts to combat it, and examining the link between society and conservation. In partnership with the US Fish & Wildlife Service, participants will have the opportunity to learn about the tools and techniques they use to identify, confiscate, and prosecute those engaged in illegal trade. Throughout the sessions, participants will also learn how to incorporate the issue of wildlife trafficking into classroom teaching and emphasize the role of zoos in conservation.

# Category 100

Course number

141

Title

**Not Your Average Scientist: Engaging in  
Community Science**

Host Institution

**SIZ**

Course Format



**In-Person**

In-Person Dates

**10/9/2024 & 10/23/2024; 9:00am - 3:00pm**

## Description

What comes to mind when you think of a scientist? You might imagine someone in a long white coat and goggles carrying out precise experiments in a laboratory with expensive equipment. Although this may be accurate for many scientists, the reality is that ANYONE can be a scientist, and science learning can take place in unexpected settings. This course will teach participants about various ways to engage in science learning and how to involve their students in local community science projects that have an impact on the wider scientific community. Join SIZ and other community organizations to uncover the influence that community science can have on your classroom!

# Category 100

Course number

142

Title

**Science Practices in Turner's Lab**

Host Institution

**AMNH**

Course Format



**In-Person**

In-Person Dates

**11/17/24 & 12/15/24; 9:00am - 3:00pm**

## Description

Participants will explore NGSS Science Practices and the Nature of Science through observing the world around us, and exploring investigations conducted by the incredible Charles H. Turner, PhD, African American Biologist, on ants and cockroaches around the turn of the century. We will utilize Museum exhibitions, primary source documents (some of his over 70 research papers), and insect observations of our own. This course explores characteristic behaviors in insects (LS1.B) and focuses on developing an understanding of the enterprise of science as a whole—the wondering, investigating, questioning, and data collecting and analyzing (Appendix H).

Prerequisites: For teachers who have been in UA for 1 or more.

Special Reference(s):

[APPENDIX F - Science and Engineering Practices in the NGSS](#)

[NGSS APPENDIX H - Understanding the Scientific Enterprise: The Nature of Science in the NGSS](#)

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# Category 100

Course number

143

Title

**Exploring Local Phenomena: The Bronx River**

Host Institution

**NYBG**

Course Format



**In-Person**

In-Person Dates

**5/4/25 & 5/18/25; 9:00am - 3:00pm**

## Description

Participants will explore the Bronx River watershed and green infrastructure of the New York Botanical Garden. The Bronx River, the only freshwater river in NYC, has been undergoing environmental restoration for decades. However, NYS DEC data shows water quality remains impaired. Now, a waterfront development in the South Bronx may impact what improvement has been made. We'll consider place, community and climate justice. Participants will become familiar with scaffolds and discourse moves that encourage students to activate prior knowledge, share their thinking publicly and integrate new science ideas.



# Category 100

Course number

145

Title

**Designing Resilience: Using Models to Engineer Solutions for Real World Problems**

Host Institution

**NYSCI**

Course Format



**In-Person**

In-Person Dates

**4/26/25 & 5/10/25 10:00am - 2:30pm**

## Description

In this course, participants will reflect on their teaching practice by exploring extreme weather and flooding in NYC, using models to engineer solutions. Working in a collaborative learning community, participants will develop strategies for integrating models and eliciting students' ideas to their instruction; deepening students' understanding of scientific concepts and their practical applications, while fostering student agency in support of divergent solutions.

# Category 200

Using science and engineering practices to explain phenomena and design solutions: diving deeper into scaffolding and teaching practices.

## Course description

Participants take a deeper dive into teaching practices and scaffolding tools that help students construct explanations (for science) and design solutions (for engineering). This work includes explorations of related practices that support gathering scientific evidence, such as planning and carrying out investigations, and analyzing and interpreting data, among others. Scaffolding and teaching practices, presented in the context of resources at UA partner institutions, will be explored in support of the New York State P-12 Science Learning Standards.

## Prerequisites:

Possible prerequisites around specific methods of figuring out phenomena and solving design problems may apply. See specific course prerequisites for details.

# Category 200

## Learning goals for this course type may include:

- Improve teachers' capacity to access high-quality science content online and in-person through NYC's science-rich UA partner institutions, and to access additional resources beyond the classroom, both virtually and in-person, especially NYC's natural and built settings, with the goal of growing students' science literacy.
  - Develop and deepen teachers' capacity to integrate learning tools that support student dialogue, observations, and scientific investigations.
  - Develop and deepen teachers' capacity to integrate into their classrooms high-leverage teaching practices that support student sense-making in science over time, and more broadly support the new NYS P-12 Science Learning Standards.
  - Develop and deepen teachers' capacity to employ UA scaffolds to engage with their students in the practice of planning and carrying out science and engineering investigations, including controlled experiments, field studies, design problems, and secondary research (NYS P-12 Science Learning Standards).
  - Develop and deepen teachers' capacity to employ UA scaffolds, such as the IDD and DSET, to support students engaging in other key practices such as asking questions (for science) and defining problems (for engineering), analyzing and interpreting data, and constructing explanations (for science), and designing solutions (for engineering).
  - Develop and deepen teachers' capacity to modify and differentiate UA scaffolds to support students with special learning and language needs.
-

## Category 200

- Deepen teachers' understanding of the 3 dimensions of science instruction, including disciplinary core ideas, science and engineering practices, and cross-cutting concepts.
- Deepen teachers' capacity to share with, collaborate, and seek assistance from their UA community.

Participation in this course will include one or more of the following:

- Exploration of various strategies to support ELL students and Special Education students.
- Application of various teaching strategies and scaffolding tools, such as the IDD, DSET and others, that support analyzing and interpreting data sets, and support student sense-making in science over time.
- Exploration of new content areas beyond a previous experience with a particular investigation strategy.

# Category 200

Course number

**201**

Title

**Analyzing and Interpreting Data: Field Study  
Investigations**

Host Institution

**NYA**

Course Format



**In-Person**

In-Person Dates

**11/12/24 & 11/19/24; 9:00am - 2:30pm**

## Description

Dive into the science practices! Participants will expand on statistical skills that are necessary to analyze and interpret field study investigation data and graphs. Skills to be covered will focus on utilizing graph options more appropriate for frequency data, as well as breaking down graph interpretation. This course assumes that participants already have a basic familiarity doing field study investigations. Participants will model using the aquarium and reference data for studies that can be investigated on field trips.

# Category 200

Course number

**203**

Title

**Analyzing and Interpreting Data: Secondary Research Investigations**

Host Institution

**BXZ**

Course Format



**In-Person**

In-Person Dates

**12/6/24 & 12/13/24; 8:00am to 2:00pm**

## Description

Engage in a secondary research investigation to strengthen your own competency in analyzing complex animal behavior data in order to develop a strong scientific explanation rooted in empirical evidence. This workshop will include analyzing animal data using measures of center and variation while using scaffolding techniques. There will be opportunities to share ideas with colleagues and to examine student work, and each participant will receive valuable resources for reference at the conclusion of the workshop.

# Category 200

Course number

**222**

Title

**Asking Questions About Reproduction and Heredity**

Host Institution

**BBG**

Course Format



**In-Person**

In-Person Dates

**3/5/25 & 3/12/25; 9:00am - 2:30pm**

## Description

Using research-based findings on teaching and learning, participants will focus on the practice of Asking Questions as defined in A Framework for K-12 Science Education. We will be exploring a naturally-occurring phenomenon that arises when organisms reproduce and pass traits to offspring. This phenomenon will be the frame for our examination of how student questions can be harnessed to drive instruction that in turn, guides them toward constructing their own explanations.

# Category 200

Course number

**225**

Title

**Amplifying Underrepresented Voices in Nature**

Host Institution

**QBG**

Course Format



**Moodle**

Moodle Dates

**5/12/25 through 5/30/25**

## Description

Teachers will participate in observation activities in the outdoors and consider how to incorporate observation routines and nature in their classrooms, for both online and in-person instruction. Through background readings, videos, and other resources, teachers will reflect on the ways in which aspects of their identity shape their varied relationships with nature, as well as the relationships that their students have with nature and the outdoors. Teachers will engage with elements of the Culturally Responsive-Sustaining Education (CR-SE) Framework and create an actionable plan to amplify the voices of those who are underrepresented in nature within existing science curriculum.

Online Course Expectations:

\*Teachers are expected to actively participate in every aspect of the course (i.e. online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

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# Category 200

Course number

**226**

Title

**Developing Models with the Cultural Framework**

Host Institution

**BBG**

Course Format



**In-Person**

In-Person Dates

**2/1/25 & 2/8/25; 9:00am - 2:30pm**

## Description

Participants will take a deep dive into the practice of Developing & Using Models by constructing and revising a model to explain local phenomena. We will also explore ideas from the NYS Culturally Responsive-Sustaining Education Framework to consider how cultural perspective influences the types of models we develop and the arguments we construct about the effects of ecosystem change on populations of organisms.

# Category 200

Course number

**227**

Title

**March Mammal Madness**

Host Institution

**SIZ**

Course Format



**Zoom**

Zoom Dates

**1/12/25; 9:00am - 12:30pm**

**1/19/25; 9:30am - 12:00pm**

**1/26/25; 9:30am - 12:00pm**

**2/2/25; 9:30am - 12:30pm**

Description

This course focuses on incorporating the excitement of March Mammal Madness into your classroom. March Mammal Madness is a virtual animal battle, created by Dr. Katie Hinde in 2013, an event that takes place every March. It aims to provide an entertaining and educational experience. Through storytelling participants learn about interspecies interactions, ecological context, the impact of natural selection on adaptations, and the conservation management of endangered species. The course will guide you on how to integrate March Mammal Madness into your curriculum and effectively engage students.

Online Course Expectations:

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

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# Category 200

Course number

**234**

Title

**Soils and Scientific Explanations**

Host Institution

**QBG**

Course Format



**In-Person**

In-Person Dates

**10/2/24 & 10/9/24; 9:00am - 2:30pm**

## Description

What can we learn from the soil and the natural landscape of Flushing to find natural solutions to flooding in Queens? Explore Queens Botanical Garden and create a model investigation to examine water management and flooding in our local ecosystem. Through our inquiry, we will learn more about the way different soil types and characteristics shape an ecosystem. As we investigate, we will progressively build up our understanding of this phenomenon, revise our models, construct and evaluate evidence based explanations, and have a wide variety of sense-making discussions as a community.

# Category 200

Course number

**236**

Title

**Making Thinking Visible Through Models:  
Plant Structures and Functions**

Host Institution

**NYBG**

Course Format



**In-Person**

In-Person Dates

**3/1/25, 3/8/25, 3/22/25 & 3/29/25;  
9:00am - 3:00pm**

## Description

Participants will engage as science learners in creating and revising scientific models to make sense of a physiological plant process. Learners will work together to consider various explanations and make arguments as they gather new evidence through direct interactions with plants, water and other materials as well as information from readings, diagrams and instruction.

As teachers, participants will examine how the learning sequence was structured to support learners in activating and expressing prior understanding, guide learners in sense-making talk around new evidence, and scaffold efforts to integrate and articulate new understandings. Participants will be able to apply these structures and strategies to their own teaching in various content areas.

# Category 200

Course number

**237**

Title

**Pigeons: The Rise & Fall of Two New York  
"Superdoves"**

Host Institution

**AMNH**

Course Format



**In-Person**

In-Person Dates

**1/12/25 & 2/2/25; 9:30am - 3:00pm**

## Description

Participants will explore how human impact contributed to the rise and fall of two species of "superdove" AKA the passenger and rock pigeons. Through an examination of each organisms unique behaviors and traits, and differences in human responses to each, we will consider how our attitudes and beliefs can drive our actions and impact ecosystems.

# Category 200

Course number

**243**

Title

**Making Thinking Visible**

Host Institution

**NYSCI**

Course Format



**Zoom**

Zoom Dates

**2/2/25 & 2/9/25; 9:30am - 12:30pm**

## Description

This experience focuses on broadening your definition of what student participation looks like. Sharing ideas, engaging in dialogue, and collaborating with peers are all fundamental components of how students construct and revise understanding in science. How can we support equity of voice and diverse ways of demonstrating understanding? Participants will identify teaching moves rooted in Ambitious Science Teaching to support students in sharing their science thinking in a range of ways.

Online Course Expectations:

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.).

Course instructors reserve the right to warn or remove participants from the course for non-participation.

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# Category 300

Courses on science content and practices.

## Course description

Participants will reflect on how research on learning can inform their teaching practice and support 3-dimensional learning based on science and engineering practices (SEPs), cross-cutting concepts (CCCs), and disciplinary core ideas (DCIs). Using research on teaching and learning, the NSTA Atlas of the Three Dimensions, other NGSS resources and UA Partner institutional resources, participants will explore a given science topic and/or science practice, including:

- the development of SEPs, CCCs, and DCIs across grade levels (learning progressions)
- common misconceptions
- connections to UA Partner institutional resources and SEPs foregrounded in UA professional learning

Following a variety of strategies to explore science content, we will utilize diverse resources, including the NGSS Standards and Appendices, A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas, The NSTA Atlas of the Three Dimensions, The NSTA Quick-Reference Guide to the NGSS, K-12, and Disciplinary Core Ideas: Reshaping Teaching and Learning, as well as partner institutional resources, to explore these topics.

# Category 300

## Prerequisites:

Available to teachers who have completed 3 or more years of Urban Advantage. These courses are intended for teachers who have been implementing UA tools and practices in their classrooms and are ready to take a deeper look at current research on teaching practices, learners' needs, and goals in particular science content areas.

## Learning goals for this course type may include:

- Improving teachers' capacity to access high-quality science content online and in-person through NYC's science-rich UA partner institutions, and to access additional resources beyond the classroom, both virtually and in-person, especially NYC's natural and built settings, with the goal of growing students' science literacy.
- Developing and expanding upon teachers' capacity to integrate learning tools that support student dialogue, observations, and scientific investigation.
- Deepening teachers' understanding of the 3 dimensions of science instruction, including disciplinary core ideas, science and engineering practices, and cross-cutting concepts.
- Developing teachers' capacity to surface student ideas and support ongoing growth in student conceptions through readings on topics such as developmental sequences, common misconceptions, and what a scientifically literate adult should know about a content area.



## Category 300

- Engaging teachers with their UA community to share, collaborate, and seek assistance from their UA peers.

Participation in this course will include one or more of the following:

- Participants may read from a variety of references on topics such as developmental sequences, common misconceptions, and what a scientifically literate adult should know about a content area.
- Participants may utilize resources of Science-Rich Cultural Institutions to explore science content; for example: doing activities in the AMNH Birds of the World Hall to explore concepts around adaptation.

## Related References:

- [The NSTA Atlas of the Three Dimensions](#), by Ted Willard, ISBN: 9781938946080
  - [Disciplinary Core Ideas - Reshaping Teaching and Learning](#)
  - [Next Generation Science Standards](#)
  - NSTA Quick Reference Guide to the NGSS, K-12 ([Elementary](#), [Middle School](#), [High School](#), [K-12](#))
  - [Uncovering Student Ideas series](#)
  - NSDL Strand Maps <http://strandmaps.nsd.org/>
  - American Association for the Advancement of Science
  - [Benchmarks for Science Literacy](#) & [Science for all Americans](#)
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# Category 300

- [Curriculum Topic Study Project](#)
- Diver, Rosalind et al., Making Sense of Secondary Science, Routledge, 1993
- [A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas \(2012\)](#)
- [Surrounded by Science: Learning Science in Informal Environments \(2010\)](#)
- [Teaching for Conceptual Understanding in Science, NSTA \(2015\)](#)

# Category 300

Course number

**302**

Title

**CTS Science Content in Adaptation and Natural Selection**

Host Institution

**BXZ**

Course Format



**In-Person**

In-Person Dates

**2/5/25 & 2/12/25; 9:00am - 2:30pm**

## Description

Following the Curriculum Topic Studies (CTS) format we will utilize the AAAS Benchmarks for Science Literacy, the Atlas for Science Literacy, and a variety of other resources including exhibits at the Bronx Zoo and activities to explore the content goals and misconceptions surrounding adaptation and natural selection. Participants will explore research based findings on what students and adults should know about this topic, deepen content knowledge and reflect on what the research tells us and how that might impact our practice and our students' long term science investigations.

# Category 300

Course number

**308**

Title

**Shark Coexistence: Evidence and Explanation  
for Local Shark Interactions**

Host Institution

**NYA**

Course Format



**In-Person**

In-Person Dates

**10/18/24 & 10/25/24; 9:00am - 3:00pm**

## Description

How do we determine fact from frenzy? Making claims based on solid evidence and explanation enhances credibility. Sharks are fascinating to the public, yet media perception can cause mass misconceptions around these top ocean predators. The primary evidence being examined in this course will highlight the relationship between media coverage, shark incidents, and population changes. Shark perception will be explored in our Ocean Wonders: Sharks! exhibit. Based in the curriculum topic study (CTS) model, participants will use research findings on teaching and learning to reflect on the impact of evidence and explanations in arguments. Participants will also work towards developing effective teaching strategies for strengthening science literacy in these areas.

# Category 300

Course number

**310**

Title

**EngineerED: Amplifying NGSS in Curriculum Planning**

Host Institution

**NYSCI**

Course Format



**In-Person**

In-Person Dates

**1/4/25 & 1/11/25; 9:30am - 2:30pm**

## Description

This UA course is designed to empower teachers with the essential skills and knowledge to enhance science instruction in two important areas: integrating engineering design components into lessons and promoting relevance and student-led discourse through the intentional adaptation of pre-created curriculum materials. This course will equip teachers with the tools they need to create an enriched learning environment that aligns with the Next Generation Science Standards (NGSS) and promotes active student engagement in the learning process.

Prerequisites:

Available to teachers who have completed 2 or more years of Urban Advantage, and you DID explore design experiments during a previous PL course. These courses are intended for teachers who have been implementing UA tools in their classrooms, and are ready to take a deeper look at current research on teaching practices, learners' needs and goals in particular science content or practices.

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# Category 300

Course number

**315**

Title

**EngineerED: Amplifying NGSS in Curriculum Planning**

Host Institution

**NYA**

Course Format



**In-Person**

In-Person Dates

**5/3/25 & 5/10/25; 9:00am - 2:30pm**

## Description

How do human actions drive climate change? What effect does climate change have on New York City? How can humans work to mitigate the effects of climate change? In this course we will explore what it means to have a conceptual understanding of the cause and effects of climate change, as well as what students should understand in middle school. We will pay special attention to making learning personal and relevant, using the New York Aquarium itself to frame our learning about our changing climate.

# Category 300

Course number

**319**

Title

**Seeds and Discourse**

Host Institution

**QBG**

Course Format



**In-Person**

In-Person Dates

**12/4/24 & 12/11/24; 9:00am - 2:30pm**

## Description

How can you use conversation to explore the ins and outs of why and how seeds sprout? This workshop will use a discourse-based, constructivist approach that will lead to participants creating their own knowledge about seed germination.

Once we've explored the science we'll engage in deep exploration of the pedagogical research on student discourse in the classroom. We will work together to plan to increase student discourse and create a plan for implementation in your classroom.

# Category 300

Course number

**323**

Title

**Evolving Landscapes: Exploring Biodiversity and Human Impact by the Lens of Teaching and Learning**

Host Institution

**SIZ**

Course Format



**In-Person**

In-Person Dates

**3/8/25 & 3/22/25; 9:00am - 3:00pm**

## Description

In this Curriculum Topic Study (CTS) course, we will dive into in-depth research and standards about science learning to improve classroom instruction, curriculum, and assessments. The topic is Biodiversity and Human Impact. Join us to develop a shared knowledge base that enhances teaching and enriches student understanding of the relationship between biodiversity and human activities.



# Category 300

Course number

**324**

Title

**Life on the Water's Edge: Ecosystem Stability, Disruptions, and Change**

Host Institution

**BBG**

Course Format



**In-Person**

In-Person Dates

**4/27/25 & 5/4/25; 9:00am - 2:30pm**

## Description

New York City is made up of numerous local wetland ecosystems. There have been disruptions to these throughout history, but many are undergoing restorations now to perform naturally under changing climate conditions. Participants will learn what makes plants in these ecosystems adapted to life on the water's edge and examine research on how to teach ecosystem stability and change through a curriculum topic study.

# Category 400

Courses on reflective practice.

## Course description

Using protocols for analyzing and reflecting on student work and teaching practices, participants will engage in opportunities to address key questions around student learning of science content, and will reflect on high-leverage teaching practices that support student sense-making in science over time. Teachers will engage in collaborative, critical, and supportive dialogue using methods that may include examinations of student work, lesson plans, a puzzle of practice, and/or video of classroom teaching.

Note: These are 3-day (15 hour) professional development courses.

## Prerequisites:

Available to teachers who have completed 3 or more years of Urban Advantage. These courses are intended for teachers who have been implementing UA tools in their classroom for 3 or more years and are ready to reflect on their teaching and student learning and refine their teaching practice.

## Learning goals for this course type may include:

- Developing and deepening teachers' capacity to employ UA scaffolds to engage their students in explaining phenomena and designing solutions through applying the SEPs, DCIs and CCCs (NYS P-12 Science Learning Standards).
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## Category 400

- Deepening teachers' capacity to improve their pedagogical practices through purposeful reflection that supports students in science by developing inclusive, equitable practices in the classroom.
- Engage teachers with their UA community to share, collaborate, and seek assistance from their UA peers.

Participation in this course will include one or more of the following:

- Participants, with the support of protocols and community building exercises, will examine and reflect on student work with the goal of surfacing student thinking.
- Participants will engage in a collegial and collaborative learning experience where teachers will explore a puzzle of practice related to their teaching, and identify and develop opportunities to provide additional support and scaffolds to their students.
- Participants will present a puzzle of practice related to explaining scientific phenomena, and engage in a protocol to think about ways to improve their work.
- Participants will use video of themselves teaching to provide feedback to each other through protocols about specific instructional practices related to explaining scientific phenomena.

# Category 400

Course number

**408**

Title

**Teacher Practice in Coaching and Guiding  
Investigation Design**

Host Institution

**NYA**

Course Format



**In-Person**

In-Person Dates

**3/3/25 & 3/17/25; 9:00am - 2:30pm**

## Description

Teachers will engage in teacher-led coaching and questioning that will lead students to create rigorous and scientifically supported long-term investigations. This course emphasizes teacher collaboration and support from lead teachers in order to improve the implementation of science investigations in the classroom. Teachers will engage in collaborative, critical and supportive dialogue as they examine the strategies and artifacts they use to guide and support students in the design of their investigations.

# Category 400

Course number

**412**

Title

**Ambitious Science Teaching Book Study Group**

Host Institution

**NYBG**

Course Format



Zoom



Moodle

Zoom Dates

**1/16/25, 1/30/25, 2/13/25, 2/27/25 & 3/27/25;**

**4:30pm - 6:00pm**

Moodle Dates

**1/16/24 through 3/27/24**

## Description

Course Description: Participants will work together to discuss and make sense of the book, *Ambitious Science Teaching* by Mark Windschitl, and workshop its practices in their classrooms. This course will meet over Zoom and require self-paced work to read chapters from *Ambitious Science Teaching*, share ideas using Perusall, and apply ideas to personal practice. Zoom sessions will focus on discussing the reading and reflecting on classroom practice.

Online Course Expectations:

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Please make your best effort to use a computer (not a phone or tablet) in a stationary, reasonably controlled location with stable wi-fi, no other obligations and minimal distractions. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

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# Category 400

Course number

452

Title

**Framing Progress: Reflecting on Practice  
Using Video**

Host Institution

**AMNH & NYSCI**

Course Format



Zoom



Moodle

Zoom Dates

**2/2/25 & 3/2/25; 9:30am - 1:30pm**

Moodle Dates

**2/9/25 through 3/2/25**

## Description

Participants will focus on enhancing their teaching practice through video recording and reflection using the SWIVL platform. Throughout the program, participants will engage in a supportive community, where they will share recorded sessions and collaboratively reflect on pedagogical approaches using specific protocols. Participants will focus on the Ambitious Science Teaching principle of Eliciting Student Ideas, concentrating on how their teaching practice aligns with this principle. Through this reflective process, participants will develop actionable steps to increase the implementation of this principle in their classrooms.

\*Note: You will be required to go to BOTH institutions in-person (1 day at AMNH and 1 day at NYSCI). Participants are required to attend all 3 days including Zoom. Online Course Expectations:

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

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# Category 400

Course number

**453**

Title

**Reflecting on Embedding Literacy Strategies  
in Science Curriculum**

Host Institution

**BXZ**

Course Format



Zoom



Moodle

Zoom Dates

**11/2/24, 11/9/24, 11/23/24 & 1/11/25;**

**9:00am - 11:00am**

Moodle Dates

**11/2/24 through 1/11/25**

Description

The purpose of this course is to help teachers reflect on the use of literacy strategies in their classrooms. Participants will briefly review literacy strategies and then select one strategy they would like to have more practice embedding into their science instruction. Next, they will discuss plans for implementation and get support and feedback from their colleagues and UA partners. They will modify and teach a lesson of their choosing with the selected literacy strategy. As a final reflection, teachers will share an artifact of student work to analyze with the group. This course is entirely online where a minimum number of posts will be required to receive credit for completion, including posting a lesson plan, a student work artifact, a short reflection, and more.

Online Course Expectations:

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

# Category 400

Course number

**455**

Title

**Integrating Digital Museum Resources in Field Trip Planning**

Host Institution

**AMNH**

Course Format



Moodle



Zoom

Moodle Dates



In-Person

**3/24/25 - 3/28/25 & 3/30/25 - 4/4/25**

Zoom Dates

**3/29/25 & 4/5/25; 9:30am - 12:00pm**

In- Person Dates

**4/12/25; 10:00am - 2:00pm**

Description

Field trips are an important part of the New York City school experience, but planning for them can be stressful! Enter... the Museum and its digital resources! This session is designed to introduce participants to the wealth of digital resources that all UA institutions produce. We will also reflect on how these resources can be utilized to enhance pre-visit and post-visit learning and for planning and facilitating memorable field trip experiences. We will also discuss the place-based learning, the teacher's experience of field trips, and reflect on the dos and don'ts of field trips and field trip planning. The course will be held mostly online (via Moodle and Zoom) and culminates in a "mini-field trip" around the American Museum of Natural History's new Gilder Center for Science, Education, and Innovation to demo how teachers can confidently make use of the different digital technologies around the Museum during their own field trips.



# Category 400

Course number

**455**

Title

**Integrating Digital Museum Resources in Field Trip Planning**

Host Institution

**AMNH**

Course Format



Moodle



Zoom

Moodle Dates



In-Person

**3/24/25 - 3/28/25 & 3/30/25 - 4/4/25**

Zoom Dates

**3/29/25 & 4/5/25; 9:30am - 12:00pm**

In- Person Dates

**4/12/25; 10:00am - 2:00pm**

Description (Continued)

Online Course Expectations:

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

# Category 400

Course number

**470 (Fall)**

Title

**Reflecting on Practice Through Inter-Visitation Session A**

Host Institution

**AMNH**

Course Format



**In-Person**

In-Person Dates

**10/19/24; 9:00am - 2:30pm &  
1 classroom visit date of teachers' choosing  
(TBD)**

## Description

Have you been looking for rich examples of what powerful three-dimensional science instruction can look like? In this course, participants will reflect on and grow their practice by visiting veteran UA teachers (the UA Fellows) who have successfully integrated the program's tools and resources, and cutting-edge research on teaching and learning, into their practice. You will develop a repertoire of tools for observation and implementing inter-visitation in your schools. This course runs once in spring, and once in fall. Each session includes a one 5-hour day of professional learning, and one 5-hour classroom visit day (includes travel time; date and location of your choosing; substitute reimbursement provided to your school).

# Category 400

Course number

**470 (Spring)**

Title

**Reflecting on Practice Through Inter-Visitation Session B**

Host Institution

**AMNH**

Course Format



**In-Person**

In-Person Dates

**4/9/25; 9:00am - 2:30pm &**

**1 classroom visit date of teachers' choosing (TBD)**

## Description

Have you been looking for rich examples of what powerful three-dimensional science instruction can look like? In this course, participants will reflect on and grow their practice by visiting veteran UA teachers (the UA Fellows) who have successfully integrated the program's tools and resources, and cutting-edge research on teaching and learning, into their practice. You will develop a repertoire of tools for observation and implementing inter-visitation in your schools. This course runs once in spring, and once in fall. Each session includes a one 5-hour day of professional learning, and one 5-hour classroom visit day (includes travel time; date and location of your choosing; substitute reimbursement provided to your school).

# Category 400

Course number

**471**

Title

**Building Our Practice Through Critical Friends  
Group Communities**

Host Institution

**BBG**

Course Format



Zoom



Moodle

Zoom Dates

**1/5/25, 1/26/25, 2/9/25; 9:00am - 12:00pm**

Moodle Dates

**12/18/24 through 2/14/24**

## Description

In this online course, we'll be applying the approach and resources of the NSRF to develop a Critical Friends Group (CFG) that will support one another as science teaching professionals! Our work will begin with self-paced work on Moodle dedicated to building community, becoming more familiar with what a CFG looks like in practice, the importance of protocols, and preparing for giving and receiving meaningful feedback. During Zoom meetings together, we will be taking a deeper dive into CFG work, including participants presenting their own puzzles of practice to get feedback from their peers. The remaining work on Moodle will be dedicated to prep meetings with your assigned Lead Teacher mentors ahead of your own presentations, as well as some activities to prep for protocol work.

Online Course Expectations:

\*Teachers registered for this course must be available to login via Zoom for each of the date(s) listed. Teachers are also expected to actively participate in every aspect of the course (online activities, live discussions, breakout rooms, polls, discussion forums, quizzes, etc.). Course instructors reserve the right to warn or remove participants from the course for non-participation.

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