

urban advantage

science initiative

Urban Advantage Professional Learning Catalog for Continuing Teachers In years 2 through 5

2019-2020

version 1.2
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The Council of the
City of New York

This document is subject to revision; for the most current version consult the UA Portal:

<http://myUA.urbanadvantagenyc.org>

The screenshot shows the myUA Urban Advantage Web Portal sign-in page. On the left, there is a navigation menu with four sections: 'UA APPLICATION' (with 'SCHOOL' and 'TEACHER' links, both labeled 'Open'), 'STUDENTS' (with a 'Request Help' link), 'ACCOUNTS' (with a 'Recover Account' link), and 'CONTACT US' (with a 'Contact Us' link). The main content area on the right features the myUA logo (a magnifying glass over an apple) and the text 'myUA URBAN ADVANTAGE WEB PORTAL'. Below this is a 'PLEASE SIGN IN' heading, followed by two input fields: 'User Name' and 'Password'. A blue 'SIGN IN' button is positioned below the fields. At the bottom of the sign-in area, there are two links: 'Create myUA account' and 'Recover Account', each with an information icon.

UA APPLICATION
SCHOOL | Open
TEACHER | Open

STUDENTS
If you need help with your science investigations;
[Request Help](#)

ACCOUNTS
You already have a myUA account if you have ever applied, participated, or were listed on the school application by your admin;
[Recover Account](#)

CONTACT US
If you have any questions, comments, concerns, or issues;
[Contact Us](#)

 **myUA**
URBAN ADVANTAGE WEB PORTAL

PLEASE SIGN IN

User Name

Password

SIGN IN

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Sections:

1. General descriptions of the four types of Professional Learning opportunities.
2. Table of Professional Learning courses offered this year
3. Detailed Descriptions of each Professional Learning offering

Category 100: Scientific Investigation Courses: Introduction to one of the 4 types of investigations:

Controlled Investigations
Field Investigations
Design Experiments
Secondary Research

Course description: Participants will learn to utilize Urban Advantage resources to inspire and/or conduct long-term science investigations. Teachers will be introduced to science practice tools (IDD and DSET) and techniques necessary to plan and carry out a particular type of investigation with a focus on a content area.

Four and two day sessions are available:

Four day courses are intended for teachers in their 2nd and 3rd years of UA. In 4 day courses participants will complete an investigation.

Two day courses are intended for teachers in their 4th and higher year in UA.

Prerequisites: These sessions are intended for teachers who have been in UA for 1 or more years with an interest in learning about a particular type of investigation that they DID NOT explore during previous PD sessions (Cycle 2 or Continuing Teacher PD).

Learning goals for this course type:

- Improve teachers ability to leverage NYC's Science-Rich Cultural Institutions and other resources outside the classroom, especially NYC's natural setting, to support and deepen students' science literacy.
- Develop and deepen teachers' capacity to design various types of investigations (field study, controlled, design and secondary research), and the teachers' ability to structure learning experiences for all students that support the design of rigorous investigations.
- Strengthen teachers' understanding of and ability to teach students how to construct rigorous scientific explanations of phenomena based on claims, evidence, and reasoning.
- Deepen teachers' understanding of science - both science content knowledge and the practice of science.
- 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 activities:

- The 4 day versions of the Category 100 courses will involve an introduction to a particular investigation strategy and participant groups completing an investigation.
- The 2 day versions of the Category 100 courses will involve an introduction to a particular investigation strategy and consideration of the Investigation Design challenges associated with that strategy.
- Participants may be introduced to IDDs that have been modified for a particular type of investigation.

- Participants may use institution exhibitions to deepen content knowledge in preparation for an investigation.

Category 200: Scientific Investigation Courses: Methods and Strategies

Course description: Participants will explore techniques and scaffolding tools to help students develop strong scientific explanations around evidence gathered through investigations. Connections between New York State P-12 Science Learning Standards and Science Investigations will be explored via tools such as the “Designing a Scientific Explanation Tool (DSET).”

Prerequisites: Possible prerequisites around a particular type of investigation may apply.

Learning goals for this course type may include:

- Improve teachers ability to leverage NYC’s Science-Rich Cultural Institutions and other resources outside the classroom, especially NYC’s natural setting, to support and deepen students’ science literacy.
- Strengthen teachers’ understanding of and ability to teach students how to construct rigorous scientific explanations of phenomena including claims, evidence, and reasoning.
- 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 activities:

- Participants may explore various strategies to support ELL students and Special Education students
- Participants may apply various strategies to analyze data sets to reflect on connections between their IV and DV
- Participants may explore various scaffolding strategies to support students as they develop their investigation skills
- Participants may explore new content areas beyond a previous experience with a particular investigation strategy

Category 300: Courses on Science Content and Science Practices

Course description: Participants will reflect on how research on learning can inform their teaching practice around supporting students' science investigations. Using research on teaching and learning, and UA Partner exhibits, participants will explore a given science topic and/or science practice, including:

- the development of science concepts across grade levels (learning progressions)
- common misconceptions
- related science practices (inquiry)

Following a variety of strategies to explore science content, we will utilize diverse resources, including the AAAS Atlas for Science Literacy, other references, and exhibits, to explore these topics.

Prerequisites: Available to teachers who have completed 2 or more years of Urban Advantage. 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 areas.

Learning goals for this course type:

- Improve teachers' ability to leverage NYC's Science-Rich Cultural Institutions and other resources outside the classroom, especially NYC's natural setting, to support and deepen students' science literacy.
- Deepen teachers' understanding of science - both science content knowledge and the practice of science.
- 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 activities:

- 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:

NSDL Strand Maps <http://strandmaps.nsdl.org/http://strandmaps.nsdl.org/>

American Association for the Advancement of Science
[Benchmarks for Science Literacy](#) & [Science for all Americans](#)

Curriculum Topic Study Project: <https://www.curriculumtopicstudy2.org/>

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 \(2015\)](#)

Coming Soon – Additional Resources to be incorporated in the NEW CTS:

Mapping the NGSS – An NSTA Atlas –in press

[Disciplinary Core Ideas – Reshaping Teaching and Learning](#)

[Next Generation Science Standards](#)

NSTA Quick Reference Guide to the NGSS

- [Elementary](#)
- [Midle School](#)
- [High School](#)
- [K-12](#)

[Uncovering Student Ideas series](#)

Category 400: Courses on Reflective Practice

Course descriptions:

Using protocols for reflecting on teaching practices, participants will engage in opportunities to discuss (or address) key questions around student learning of science content and science practices. 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 professional development sessions

Prerequisites:

Available to teachers who have completed 2 or more years of Urban Advantage. These courses are intended for teachers who have been implementing UA tools in their classroom for 2 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:

- Develop and deepen teachers' capacity to design various types of investigations (field study, controlled, design and secondary research), and the teachers' ability to structure learning experiences for all students that support the design of rigorous investigations.
- Deepen teachers' capacity to reflect on and improve their pedagogical practice around supporting students in science.
- 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 activities:

- 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 identify and develop opportunities to provide additional supports and scaffolds to their students.
- Participants will present a puzzle of practice related to science investigations 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 science investigations.

Urban Advantage Continuing Teacher Professional Learning for the 2019-2020 School Year

	100 Category Workshops				200 Category Workshops	300 Category Workshops	400 Category Workshops
	Controlled Experiments	Field Studies	Design Experiments	Secondary Research	Investigations, Evidence and Explanation	Science Content & Investigations	Reflective Practice
AMNH	Science Practices in Darwin's Garden (1 day at NYBG) (136) (Su: 3/15 & 3/29)			Investigating Climate (134) (Sa: 11/2, 11/23)	Analyzing and Interpreting Data: Secondary Research (216) (Tu: 3/31 online work starts & Su: 5/17 face-to-face)	Evidence & Explanation & Plate Tectonics (301) (Th: 11/21 & We: 12/11)	Reflecting on literacy strategies in science curriculum (3-day equivalent) (453) (all online between 3/1 & 4/1) <hr/> Reflecting on Practice: Inter-visitation (3-day equivalent) (470) Sa: 12/14, Su: 12/15, plus one TBD)
BBG		Phenology and Ecosystem Dynamics (4 day) (130) (Su: 3/8, 3/29, 4/5, 5/3)			Meet the Parents: Asking Questions about Reproduction & Heredity (222) (Su: 1/26 & 2/2)	FrankenFood: Arguing from Evidence (316) (We: 1/22 & Th: 2/13)	
BZ				Investigating Amphibian Populations (129) (4 days) (Sa: 3/7, 3/14, 3/21, 4/4)	Analyzing and Interpreting Data: Wildlife & Human interactions (203) (Su: 12/8 & 12/15)	Addressing Student Misconceptions of Adaptation and Natural Selection (302) (Su: 5/3, & 5/17)	
NYAQ	Investigating Water Turbidity (111) (We: 5/6 & Tu: 5/19)				Analyzing and Interpreting Data: Field Study Investigations (201) (Sa 2/1 & 2/8)	Human Impact on Climate (315) (Sa: 1/28 & 1/25)	Exploring Evidence and Explanation for the Shark "Surge" (438) (Su: 4/5, 4/26 & 5/3)

Urban Advantage Continuing Teacher Professional Learning for the 2019-2020 School Year

	100 Category Workshops				200 Category Workshops	300 Category Workshops	400 Category Workshops
	Controlled Experiments	Field Studies	Design Experiments	Secondary Research	Investigations, Evidence and Explanation	Science Content & Investigations	Reflective Practice
NYBG	<p>Controlled Investigations - Special Ed (112) (Sa: 11/2 & 11/23)</p> <hr/> <p>Sci Practices in Darwin's Garden (1 day at AMNH) (136) (Su: 3/15 & 3/29)</p>				<p>Analyzing and Interpreting Data: Plant and Ecology Investigations (202) (Su: 1/19 & 2/2)</p> <hr/> <p>Investigating the Bronx River Watershed (231) (Sa: 5/9, 5/16)</p>		<p>Examining Student Work at NYBG: Special Ed Focus (3 days) (406) (Sa: 1/4, 1/18, 2/8)</p>
NYSCI	<p>Bounce Factor (132) (Sa: 11/9 & 11/23)</p>				<p>Phenomenal Rockets (208) (Sa: 5/9, 5/23)</p>	<p>Developing Design Investigations (310) (Sa: 11/2, 11/16)</p>	<p>Examining Teacher Practice using Video (452) (Sa: 3/14 & 3/28, Online work due by 4/25)</p>
QBG		<p>Field Investigations: Plant Diversity (113) (Su: 4/5, 4/26)</p>			<p>Germination & Explanation (233) (Sa: 2/1 & 2/8)</p> <hr/> <p>Soils & Scientific Explanations (234) (Sa: 1/4 & 1/11)</p>		<p>Examining Student Work at QBG (403) (Sa: 12/21, 1/18 & 2/15)</p>
SIZ		<p>Citizen Science: Animal Behavior/Sch Yard Sci (135) (Tu: 4/28, We: 5/6)</p>			<p>Skull tells all: Using Claim, Evidence, & Reasoning to Explore Adaptations (232) (Sa: 1/11 & 1/18)</p> <hr/> <p>Animal Behavior Field Studies for Students with Dev. Variations (241) (Tu: 11/12 & 11/20)</p>	<p>Ecosystems and the Practice of Modeling (306) (We: 3/18 & Th: 4/2)</p>	<p>Examining Student Work at SIZ (405) (Th: 12/19, Tu: 1/7, Th: 1/23)</p>

PD Type: Science Investigation Course
Category 100

Title: Controlled Experiment: Investigating Water Turbidity
Course number 111

Location: New York Aquarium

Dates: Wednesday, May 6, and Tuesday, May 19, 2020
(This is a 2-day course)

Time: 9:30 AM to 3:00 PM (breakfast at 9:00 AM)

Instructors: Partner Staff: Daniel O’Shoney and Christine DeMauro

Course 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 ecology of Coney Island, 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.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about controlled experiments and those who DID NOT explore controlled experiments during previous Urban Advantage Professional Learning courses.

Learning goals for this course:

- Increase teachers’ knowledge of and ability to teach students how to design controlled investigations and link scientific investigations to classroom science content.
- Reinforce and build on the use of UA tools, including the IDD and DSET.
- Help teachers understand how to integrate UA institutional resources, including field trip learning experiences to support a specific type of investigation.
- Expose teachers to new science content knowledge and related pedagogical knowledge through an investigation that promotes science practices.

PD Type:	Science Investigation Course Category 100
Title:	Controlled Investigations with a Focus on Special Education Workshop 112
Location:	The New York Botanical Garden (Bronx)
Date:	Saturday, November 2, 2019 Saturday, November 23, 2019 (This is a two-day course)
Time:	9:30 am – 3:30pm (Breakfast at 9:00 AM)
Instructors:	Partner Staff: Mona McNamara and Shannon Haas Lead Teachers: Cristine Maisano, Deborah Sarria, Jennifer Johnson

Workshop description:

Spark students' interest in plants both in the classroom and outdoors! Participants will learn how to utilize the natural environment at The New York Botanical Garden to inspire long-term investigations with a focus on special education. Teachers will consider how to plan and carry out a controlled investigation with plants. Time will be provided to explore how to adapt UA tools and techniques to support diverse student learners.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about controlled investigations.

Learning goals for this workshop:

- Deepen teachers' knowledge and ability to teach students how to design investigations
- Reinforce and build on the use of UA tools, including the IDD and DSET
- Help teachers understand how to integrate UA institutional resources, including field trip learning experiences to support a specific type of investigation
- Expose teachers to new science content knowledge and related pedagogical strategies through an investigation that promotes science practices

PL Type: Science Investigation Course
Category 100

Title: Field Investigations - Plant Diversity
Course number 113

Location: Queens Botanical Garden

Dates: Sunday, April 5th, 2020
Sunday, April 26th, 2020

Time: 10:00 AM - 3:30 PM (Breakfast at 9:30 AM)

Instructors: Partner Staff: Gennadyi Gurman, Miranda Gray
Lead Teachers: Nancy Saint Pierre, Cody Gordon

Course Description:

From a botanical garden to a rainforest to a crack in a sidewalk, plants can tell a story. Participants in this course will practice: plant identification methods, field data collection, population sampling methods, and plant specific research. These experiences are tailored to highlight the use of urban landscapes with students and provide participants with the tools and methods needed to support teaching science content via plant-based field investigations.

Prerequisites: N/A

Learning goals for this course:

- Deepen teachers' content knowledge about identification of and niches of different plant species
- Deepen teachers' knowledge of how environmental factors can affect plant species and plant growth
- Deepen teachers' knowledge of field data collection methods
- Deepen teachers' abilities to support their students in utilizing field investigations to learn science content

PD Type:	Scientific Investigation Course Category 100
Title:	Secondary Research: Investigating Amphibian Populations Course number 129
Location:	Bronx Zoo
Dates:	Saturdays, March 7 th , March 14 th , March 21 st , and April 4 th , 2020 (This is a 4-day course)
Time:	9:30 AM to 3:00 PM (Breakfast at 9:00 AM)
Instructors:	Partner Staff: Paloma Krakower Lead Teachers: Christopher Joya and Elizabeth Martinez

Course 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 designing strong investigations using evidence obtained from secondary data sets from FrogWatch, a citizen science program of the Association of Zoos and Aquariums. Participants will study frog and toad populations by observing amphibians at the zoo and using secondary data to create and analyze graphs. Participants will receive valuable resources for reference 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.

Special Reference: FrogWatch USA Data: <http://frogwatch.fieldscope.org/v3>

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about helping students develop strong secondary research investigations. Teachers who took CTPL 115 cannot take this course.

Learning goals for this course:

- Improve teachers' ability to leverage the Bronx Zoo and other resources outside the classroom like citizen science programs, to support and deepen students' science literacy.
- Develop and deepen teachers' capacity to design a secondary research investigation using a modified IDD and data from FrogWatch USA, and teachers' ability to develop learning experiences that support their students in conducting this type of investigation.
- Strengthen teachers' understanding of and ability to teach students how to critically look at citizen science data in order to construct rigorous scientific explanations based on claims, evidence, and reasoning.

PD Type:	Science Investigation Course Category 100
Title:	Introduction to Phenology and Ecosystem Dynamics Course number 130
Location:	Brooklyn Botanic Garden
Date:	Sundays, March 8 th , 29 th , April 5 th , May 3 rd , 2020 (This is a four-day session)
Time:	10:00am - 3:30pm (Breakfast at 9:30 am)
Instructors:	Partner Staff: Candyce Johnson and Barbara Kurland Lead Teachers: TBD

Workshop descriptions:

Participants will explore the significance of ecosystem dynamics by digging deeply into the practice of Developing & Using Models to explain phenomena. Through our models, we will examine a current local phenomenon and attempt to use both first-hand and secondary *phenology* data to construct an argument about the effects of ecosystem change on populations of organisms. *Phenology* is the study of seasonal changes and events in an organism's life cycle.

Prerequisites:

Intended for teachers who have been in UA for two or more years with an interest in exploring the possibilities for outdoor learning in an urban forest ecosystem.

Learning goals for this course:

- Deepen teachers' knowledge and ability to guide students in developing and using models to explain phenomena
- Support teachers thinking of how to integrate field learning experiences into science content instruction through citizen science projects.
- Reinforce and build on the use of UA tools.
- Expose teachers to new botanical content knowledge within the context of field learning and investigation design.

PL Type:	Science Investigation Course Category 100
Title:	Controlled Investigation: Bounce Factor Course number 132
Location:	New York Hall of Science
Dates:	Saturdays, November 9 th and 23 rd , 2019 (This is a 2-day course)
Time:	10:00 AM - 3:30 PM (Breakfast at 9:30 AM)
Instructors:	Partner Staff: Grace Andrews Lead Teacher: Andrea Bonosoro, Theresa Tonis, Erin Sheehan

Course description:

This professional development 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.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about controlled experiments and they DID NOT explore controlled experiments during previous PL courses.

Learning goals for this course:

- Increase teachers' knowledge of and ability to teach students how to design investigations which apply to one of the four types of UA recognized science investigations and link scientific investigations to the curriculum.
- Reinforce and build on the use of UA tools, including the IDD and DSET.
- Help teachers understand how to integrate UA institutional resources, including field trip learning experiences to support a specific type of investigation.
- Expose teachers to new science content knowledge and related pedagogical knowledge through an investigation that promotes science practices.

PD Type:	Scientific Investigation Course Category 100
Title:	Secondary Research: Investigating Climate Course number 134
Location:	American Museum of Natural History
Dates:	Saturday, November 2 nd , and Saturday, November 23 rd , 2019 (This is a 2-day course)
Time:	10:00 AM - 4:00 PM (Breakfast at 9:30 AM)
Instructors:	Partner Staff: Matthew Mirabello Lead Teachers: Jon Franks

Course description:

Participants will focus on helping students design strong investigations around evidence obtained from secondary data sets on climate variables. Through explorations in the museum's newly updated climate exhibit in the Hall of Planet Earth we will build student content knowledge, construct models, and support stronger investigations. The investigations will focus on climate using real data collected by NOAA-NCDC. We will be using video, museum exhibits, online resources, and a powerful graphing website to build content and inquiry knowledge.

Special Reference: <http://uanyc.science/pwc>

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about helping students develop strong secondary research investigations and DID NOT explore secondary research during previous professional development courses and DID NOT attend the AMNH FY16 cycle 2 on Weather & Climate.

Learning goals for this course:

- Improve teachers' ability to leverage the museum and other resources outside the classroom like citizen science programs, to support and deepen students' science literacy.
- Develop and deepen teachers' capacity to design a secondary research investigation using a modified IDD and data from the graphing tool, and teachers' ability to develop learning experiences that support their students in conducting this type of investigation.
- Strengthen teachers' understanding of and ability to teach students how to critically look at secondary data in order to construct rigorous scientific explanations of phenomena based on claims, evidence, and reasoning.

PD Type: Science Investigation Course - 100 Level

Title: Citizen Science: Animal Behavior Field Studies Adapted To Schoolyard Science Investigations
Course number 135

Location: Staten Island Zoo

Dates: Tuesday, April 28th and Wednesday, May, 6th, 2020
(This is a 2-day course)

Time: 9:30 AM – 3:00 PM (Breakfast at 9:00 AM)

Instructors: Partner Staff: David Zaitz, Megan Orens
Lead Teachers: Christine Carroll, Isabelle Cammayo, Jessica Kuhl

Course Description:

This professional learning course will explore science investigation content within the parameters of animal sampling surveys, morphological biomarker analysis, and data collection methods employed by citizen scientists on the field. Participants will learn how to record data on species occurrences and make observations on species diversity by taking a short walk to Clove Lakes Park. We will also use Zoo exhibits and zoo biofacts to show participants how they can use the zoo to further reinforce these concepts with their students on field trips.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about helping students develop strong scientific field studies.

Learning goals for this course:

- Improve teachers' ability to leverage NYC's Science-Rich Cultural institutions and other resources outside the classroom, especially NYC's natural setting, to support and deepen students' science literacy.
- Develop and deepen teachers' capacity to design various types of investigations (field study, controlled, design, and secondary research), and the teachers' ability to structure learning experiences for all students that support the design of rigorous investigations.
- Deepen teachers' understanding of science—both science content knowledge and the practice of science.
- Deepen teachers' capacity to share with, collaborate and seek assistance from their UA community.

PD Type:	Science Investigation Course Category 100
Title:	Field & Controlled investigations: Science Practices in Darwin’s Garden Course number 136
Location:	American Museum of Natural History and the New York Botanical Garden
Date:	Sunday, March 15, and Sunday, March 29 (This is a 2-day course, Day 1 at NYBG, and Day 2 at AMNH)
Time:	10:00 AM – 4:00 PM (breakfast at 9:30 AM)
Instructors:	Partner Staff: Jay Holmes, and Mona McNamara Guest educator: David Kohn, AMNH, Director, Darwin Manuscripts Project Lead Teachers: Alicia Crawford, Lauren DeFino, Jon Franks, Deborah Sarria

Course description:

Participants will explore science practices and the nature of science through controlled and field investigations paralleling those conducted by Charles Darwin. We will utilize Garden and Museum exhibitions, primary source documents, and live plants observations (including microscopic observation). In this two day version of the course we will explore adaptation and natural selection in insectivorous plants.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning about plant investigations and the nature of science.

Learning goals for this course:

- Deepen ability to apply science practices in our classrooms, backyards and neighborhoods in controlled and field investigations.
- Support teachers’ integration of field learning experiences into science content instruction.
- Reinforce and build on the use of UA tools, including the IDD and DSET.

PD Type:	Scientific Investigation Courses: Methods and Strategies Category 200
Title:	Analyzing and Interpreting Data: Field Study Investigations Course number 201
Location:	New York Aquarium
Dates:	Saturday, February 1 st , and February 8 th , 2020 (This is a 2-day course)
Time:	9:30 AM - 3:00 PM (Breakfast at 9:00 AM)
Instructors:	Partner Staff: Christine DeMauro Lead Teacher Staff: Catherine Calogero, Olivia Bello

Course 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.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about helping students analyze and interpret data. It is recommended that the teacher DID explore field investigations during previous PL courses.

Learning goals for this course:

- Improve teachers' ability to apply science and math practice skills and knowledge in the context of a scientific investigation.
- Develop teachers' science content knowledge through the use of scientific investigations, institutional resources of UA partners, and classroom activities that promote science practices.
- Strengthen teachers' ability to implement UA tools and strategies that support the science practices across the science curriculum.

PD Type: Scientific Investigation Course: Methods and Strategies
Category 200

Title: Analyzing and Interpreting Data: Plant and Ecology Investigations
Course number 202

Location: The New York Botanical Garden (Bronx)

Date: Sunday, January 19, 2020
Sunday, February 2, 2020
(This is a two-day course)

Time: 9:30 am – 3:30 pm (Breakfast at 9:00 AM)

Instructors: Partner: Mona McNamara
Lead Teachers: Deborah Sarria, Shahid Wright, Jennifer Johnson

Workshop description:

What does your data really mean? How (and how strongly) does it support your claim? We will conduct controlled experiments using plants with a focus on understanding and using the math standards to analyze and interpret data. Teachers will explore how to use both small and large data sets with students as well as consider how to integrate grade level appropriate math.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about plant based investigations.

Learning goals for this workshop:

- Improve teachers' ability to apply math and/or ELA skills and knowledge in the context of a scientific investigation
- Develop teachers' science content knowledge through the use of scientific investigations, institutional resources of UA partners, and classroom activities that promote science practices
- Strengthen teachers' ability to implement UA tools and strategies that support math and/or ELA standards across the science curriculum

PD Type: Scientific Investigation Courses: Methods and Strategies
Category 200

Title: Analyzing and Interpreting Data using Phenomena: Interactions between
Wildlife and Human Populations
Course number 203

Location: Bronx Zoo

Dates: Sunday, December 8th, 2019 and
Sunday, December 15, 2019
(This is a 2-day course)

Time: 9:30 AM - 3:00 PM (Breakfast at 9:00 AM)

Instructors: Partner Staff: Jeanie Yeo
Lead Teachers: Christine Abraham and Christopher Joya

Course description:

Help strengthen your own competency in analyzing complex data by closely examining the local phenomenon of the human-black bear conflict in upstate New York, particularly the Adirondack region. This course will utilize authentic data to identify causal and correlational relationships in data by engaging in math practices - applying concepts of statistics and probability such as measures of center and variation. There will be opportunities to share ideas with colleagues on how strong data analysis supports in the development of scientific explanations that are rooted in empirical evidence and have real-world application. Each participant will receive valuable resources for reference at the conclusion of the course.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about helping students analyze and interpret data.

Learning Goals for this Course:

- Improve teachers' ability to leverage the Bronx Zoo and other resources outside the classroom, to support and deepen students' science literacy.
- Deepen teachers' ability to utilize animal data to teach students how to collect, summarize, graph, and analyze authentic data in a way that supports the science practices.
- Improve teachers' ability to use phenomena to practice science and math skills to deepen their knowledge of strategies for guiding students to develop strong skills in analyzing and interpreting data.

PL Type:	Scientific Investigation Courses: Methods and Strategies Category 200
Title:	Phenomenal Rockets Course number 208
Location:	New York Hall of Science
Dates:	Saturdays, May 9th and 23rd 2020 (This is a 2-day course)
Time:	10:00 AM - 3:30 PM (Breakfast at 9:30 AM)
Instructors:	Partner Staff: Deon Daniels Lead Teacher: Erin Sheehan, Theresa Tonis

Course description:

This professional development focuses on the use of literacy strategies to develop strong hypothesis and background information to support the construction of scientific explanations using eighth grade content around Newton's laws of motion, and aerodynamics.

Participants will focus on a number of literacy skills and strategies that scaffold citing textual evidence, and choosing relevant, well-chosen facts to develop the background information component of the long-term science investigation.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about helping students develop strong scientific arguments around a design experiment and you DID NOT explore rockets design experiments during previous PL courses.

Learning goals for this course:

- Improve teachers' ability to apply Common Core Math and/or ELA skills and knowledge in the context of a scientific investigation.
- Develop teachers' science content knowledge through the use of scientific investigations, institutional resources of UA partners, and classroom activities that promote science practices.
- Strengthen teachers' ability to implement UA tools and strategies that support phenomenon based learning.

PL Type:	Scientific Investigation Courses: Methods and Strategies Category 200
Title:	Analyzing and Interpreting Data: Secondary Research Course number 216
Location:	Blended – Online work followed up with Face-to-face session at the American Museum of Natural History
Dates:	Tuesday, March 31 st , 2020– Monday, May 11 th , 2020 (ONLINE asynchronous) Sunday, May 17 th , 2020 (Face-to-Face) (This is a “2-day” course, with 5 hours of online work before the in-person session)
Time:	Online work will be asynchronous, (5 hours) with due dates prior to in-person session. In-person day, (5 hours) 10:00 AM - 4:00 PM (Breakfast at 9:30 AM)
Instructors:	Partner Staff: Matthew Mirabello Lead Teachers: Rachelle Travis, Aimee Malin

Course description:

What does your data really mean? How (and how strongly) does it support your claim? We will use secondary research investigations to focus on understanding and using the Math CCLS to analyze and interpret data. Teachers will explore how to use both small and large data sets with students as well as consider how to integrate grade level appropriate math within the context of secondary research. Science content area will be in Climate & Weather but skills are applicable to Earthquakes, Ecosystems, & other museum related content areas.

Prerequisites:

Intended for teachers who have been in UA for 1 or more years with an interest in learning more about secondary research that they DID explore during previous PL courses.

Learning Goals for this course:

- Improve teachers’ ability to apply Common Core Math and/or ELA skills and knowledge in the context of a scientific investigation.
- Develop teachers’ science content knowledge through the use of scientific investigations, institutional resources of UA partners, and classroom activities that promote science practices.
- Strengthen teachers’ ability to implement UA tools and strategies that support Common Core Math and/or ELA standards across the science curriculum.

PD Type:	Methods and Strategies Category 200
Title:	Meet the Parents: Asking Questions about Reproduction & Heredity Course number 222
Location:	Brooklyn Botanic Garden
Dates:	Sundays, January 26 th and February 2 nd , 2020
Time:	10:00 AM to 3:30 PM (Breakfast at 9:30 am)
Instructors:	Partners: Candyce Johnson and Barbara Kurland

Course 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. Keeping with the spirit of the new standards, 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.

Prerequisites:

Available to teachers who have completed one or more years of Urban Advantage. This course is intended for teachers who are interested in refining their skill with inspiring student questions that drive instruction about science concepts.

Learning goals for this course:

- Improve teachers' ability to spark and use student questions to drive instruction toward explaining naturally-occurring phenomena.
- Develop teachers' science content knowledge through the use of institutional resources of UA partners.
- Strengthen teachers' ability to support NYSSLS standards as well as the NYC Scope & Sequence.

PD Type: Scientific Investigation Courses: Methods and Strategies
Category 200

Title: Investigating the Bronx River Watershed
Course number 231

Location: The New York Botanical Garden (Bronx)

Dates: Saturday, May 9, 2020
Saturday, May 16, 2020
(This is a two-day course)

Time: 9:30 AM - 3:30 PM (Breakfast at 9:00 AM)

Instructors: Partners: Shannon Haas
Lead Teachers: Cristine Maisano, Jennifer Johnson

Workshop description:

Teachers will study human impact on natural systems through investigating water quality indicators along the Bronx River watershed. Participants will consider how to use informal outdoor resources and existing secondary research to help students explore claims, evidence and reasoning. This workshop emphasizes practical skills for incorporating ELA and science writing throughout the long term investigation process.

Prerequisites:

Available to teachers who have completed one or more years of Urban Advantage.

Learning goals for this workshop:

- Improve teachers' ability to apply math and/or ELA skills and knowledge in the context of a scientific investigation
- Develop teachers' science content knowledge through the use of scientific investigations, institutional resources of UA partners, and classroom activities that promote science practices
- Strengthen teachers' ability to implement UA tools and strategies that support math and/or ELA standards across the science curriculum

PD Type:	Scientific Investigation Courses: Methods and Strategies - 200 Level
Title:	The Skull Tells All: Using Claim, Evidence, & Reasoning to Explore Adaptations Course 232
Location:	Staten Island Zoo
Dates:	Saturday, January 11th and Saturday, January 18th, 2020 (This is a 2-day course)
Time:	10:00 AM – 3:30 PM (Breakfast at 9:30 AM)
Instructors:	Partner Staff: David Zaitz, Megan Orens Lead Teachers: Isabelle Cammayo, Jessica Kuhl

Course Description:

You can learn a lot about an animal simply by examining its skull! This professional learning course will explore content in animal adaptations, while developing further skills using the DSET. Participants will learn how to take several measurements focusing on specific aspects of skull morphology in order to determine what characteristics the focal species possesses to help it to survive in its natural habitat. We will also use zoo exhibits to reinforce how & why these adaptations evolved. Participants will use claim, evidence, and reasoning to draw conclusions about the adaptations their final “mystery animal” possessed. Participants will also develop and understanding on how they can use the zoo to further reinforce these concepts with their students on field trips.

Prerequisites:

Intended for teachers in UA for 1 or more years who seek additional content in adaptations or support in developing a DSET in order to guide their students in a long term science investigation.

Learning goals for this course:

- Improve teachers’ ability to apply Common Core math and/or ELA skills and knowledge in the context of a scientific investigation.
- Develop teachers’ science content knowledge through the use of scientific investigations, institutional resources of UA partners, and classroom activities that promote science practices.
- Strengthen teachers’ ability to implement UA tools and strategies that support Common Core Math and/or ELA standards across the science curriculum.

PL Type:	Scientific Investigation Courses: Methods and Strategies Category 200
Title:	Germination and Explanation Course number 233
Location:	Queens Botanical Garden
Dates:	Saturday, February 1, 2020 Saturday, February 8, 2020 (This is a 2-day course)
Time:	10:00 AM-3:30 PM (Breakfast at 9:30 AM)
Instructors:	Partner Staff: Marnie Rackmill, Miranda Gray Lead Teacher: Nancy Saint Pierre, Cody Gordon

Course Description:

Explore the ins and outs of why seeds sprout! This course will use a question-based, constructivist approach that will lead to participants creating their own knowledge about seed germination. Once participants have engaged in observation, investigation, data analysis and research they will write their own scientific explanations. As we go along we'll explore ways in which teachers can support students in creating their own scientific explanations.

Prerequisites: N/A

Learning goals for this course:

- Deepen teachers' understanding of science content related to plant structure and function
- Deepen teachers' ability to support students in writing scientific explanations
- Deepen teachers' ability to support students using student-centric teaching methods that focus on asking questions and writing explanations

PL Type: Scientific Investigation Courses: Methods and Strategies
Category 200

Title: Soils and Scientific Explanations
Course number 234

Location: Queens Botanical Garden

Dates: Saturday, January 4, 2020
Saturday, January 11, 2020
(This is a 2-day course)

Time: 10:00 AM - 3:30 PM (Breakfast at 9:30 AM)

Instructors: Partner Staff: Marnie Rackmill, Miranda Gray
Lead Teachers: Nancy Saint Pierre, Cody Gordon

Course Description:

How does soil function? Which soil is the “best”? Day one of this course will be spent exploring soils & soil properties, and writing scientific explanations. Day two of the course will be spent working in groups to design strategies, scaffolds, and other related materials to support your students’ scientific explanations.

Prerequisites:

Intended for teachers who are already familiar with and able to use at least one strategy for data analysis (for example, the I² or “What I See / What it Means” strategy)

Learning goals for this course:

- Deepen teachers’ abilities to support students’ abilities to write scientific explanations
- Deepen teachers’ knowledge of soils and soil properties

PD Type: Science Investigation Workshops - 200 Category

Title: Modifying ABFS for Students with Developmental Variations
Course 241

Location: Staten Island Zoo

Dates: Tuesday, November 12th and
Wednesday, November 20th, 2019
(This is a 2-day course)

Time: 9:30 AM – 3:30 PM (Breakfast at 9:00 AM)

Instructors: Partner Staff: David Zaitz, Megan Orens
Lead Teachers: Christine Carroll, Isabelle Cammayo, Jessica Kuhl

Course Description:

This professional learning session focuses on implementing animal behavior field studies (ABFS) using various differentiation strategies and resources. We will cover how to introduce the zoo as a study site and prepare students for learning outside the classroom. Participants will be provided with models on how to effectively differentiate ABFS for students with various learning styles and capabilities. We will be paying special attention to methods for ethogramming and data collection, as well as modifying and scaffolding of the UA graphic organizers. In addition, teachers will have an opportunity to collaborate to share best practices on scaffolding ABFS with colleagues.

Prerequisites:

Intended for teachers in UA for 1 or more years who seek additional differentiation resources for guiding their students in a long term science investigation. Completion of Level 100 Introductory Animal Behavior Field Investigations or Animal Behavior Field Investigations focused Cycle 2 PL.

Learning goals for this course:

- Improve teachers' ability to apply Common Core math and/or ELA skills and knowledge in the context of a scientific investigation.
- Develop teachers' science content knowledge through the use of scientific investigations, institutional resources of UA partners, and classroom activities that promote science practices.
- Strengthen teachers' ability to implement UA tools and strategies that support Common Core Math and/or ELA standards across the science curriculum.

PD Type:	Workshops on Science Content and Practices - 300 Category
Title	Evidence & Explanation and Plate Tectonics Workshop 301
Location:	American Museum of Natural History
Dates:	Thursday, November 21 st , 2019 Wednesday, December 11 th , 2019
Time:	9:00 AM to 3:00 PM (Breakfast at 8:30 AM)
Instructors:	Partner Staff: Matthew Mirabello Lead Teachers: Rachelle Travis

Workshop description:

Join us for an expedition around the world to discover the evidence for plate tectonics and the central organizing role of scientific theories. We will explore concept development and student misconceptions in the areas of plate tectonics and the role of Theories in science. Participants will reflect on how these concepts might affect our teaching practice and our students' investigations. Modelled on the Curriculum Topic Studies format we will utilize the AAAS Atlas for Science Literacy, the NYS Science Learning Standards and a variety of other resources including the AMNH exhibits to explore these topics.

Special Reference:

NSDL Strand Maps on Scientific Theories and Plate Tectonics:

<http://strandmaps.nsdl.org/?id=SMS-MAP-1216>

<http://strandmaps.nsdl.org/?id=SMS-MAP-0049>

Prerequisites:

Intended for teachers who have been implementing UA tools in their classroom for 2 or more years and are ready to take a deeper look at this science content area and current research on learners needs and goals in these areas.

Learning goals for this workshop:

- Deepen teachers' understanding of scientific explanations and theories and specifically Plate Tectonic Theory
- Broaden teachers' ability to leverage museum resources and exhibition to support and deepen students' science literacy.
- To deepen the understanding of research on teaching and learning that can support pedagogical planning.

PD Type:	Courses on Science Content and Science Practices Category 300
Title:	Addressing Student Misconceptions of Adaptation and Natural Selection Course number 302
Location:	The Bronx Zoo
Dates:	Sunday, May 3 rd , 2020 and Sunday, May 17 th , 2020 (This is a 2-day course)
Time:	9:30 AM - 3:00 PM (Breakfast at 9:00 AM)
Instructors:	Partner Staff: Paloma Krakower Lead Teachers: Elizabeth Martinez and Christine Abraham

Course descriptions:

Following the Curriculum Topic Studies 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.

Related References:

NSDL Strand Map on Natural Selection: <http://strandmaps.nsd.org/?id=SMS-MAP-1437>

Prerequisites:

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

Learning goals for this course:

- Strengthen teachers' ability to teach middle school science content and/or practices in a way that is consistent with research on teaching and learning
- Develop teachers' knowledge of research findings on the teaching and learning of science content and/or practices
- Strengthen teachers' ability to develop effective teaching strategies and activities that integrate UA partner institutional resources

PD Type: Workshops on Science Content and Investigations – 300 Level

Title: Science Content in Ecosystems and the Practice of Modeling Course 306

Location: Staten Island Zoo

Dates: Wednesday, March 18th and Thursday, April 2nd, 2020
(This is a 2-day course)

Time: 9:30 AM – 3:00 PM (Breakfast at 9:00 AM)

Instructors: Partner Staff: David Zaitz, Megan Orens
Lead Teachers: Christine Carroll, Isabelle Cammayo, Jessica Kuhl

Course Description:

Using research-based findings on teaching and learning, participants will explore concept development and misconceptions in the area of ecosystems and the scientific practice of modeling. Utilizing direct observation within the Zoo environment, we will incorporate modeling as a way to develop a scientific explanation. Participants will reflect on how these concepts might affect our teaching practice and our students' science investigations. Following the Curriculum Topic Studies format, we will utilize the AAAS *Atlas for Science Literacy*, and a variety of other resources including Staten Island Zoo's species rich exhibits to explore these topics.

Special Reference:

NSDL Strand Map on Flow of Energy and Flow of Matter in an Ecosystem

- <http://strandmaps.nsd.org/?id=SMS-MAP-1422>
- <http://strandmaps.nsd.org/?id=SMS-MAP-9001>

Prerequisites:

Available to teachers who have completed 2 or more years of Urban Advantage. 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 teacher practices, learners' needs and goals in particular science content areas.

Learning goals for this course:

- Strengthen teachers' ability to teach middle school science content and/or practices in a way that is consistent with current research on teaching and learning by:
 - o Providing opportunities for teachers to examine research findings on the teaching and learning of science content and/or practices
 - o Using research on teaching and learning to develop effective teaching strategies and activities that integrate UA partner institutional resources

PL Type:	Courses on Science Content and Science Practices Category 300
Title:	Developing Design Experiments Course number 310
Location:	New York Hall of Science
Dates:	Saturday, November 2nd and November 16th, 2019 (This is a 2-day course)
Time:	10:00 AM - 3:30 PM (Breakfast at 9:30AM)
Instructors:	Partner Staff: Deon Daniels Lead Teacher: Theresa Tonis, Chris Hernandez

Course description:

This professional development provides participants with the opportunity to deeply examine engineering design standards, engineering practices, and research on how students approach engineering and design. We will define “design” within the context of Urban Advantage through examination of standards, collaborative experience in NYSCI Design Lab, and exploration of the instructional sequence of an Urban Advantage design experiment.

Participants gain skills and strategies that will help them to scaffold the planning and pacing of their own design experiment instructional sequence in the classroom with a focus on defining the problem, developing possible solutions, and improving designs.

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.

Learning Goals for this course:

- Strengthen teachers’ ability to teach middle school science content and/or practices in a way that is consistent with current research on teaching and learning by:
 - a. Providing opportunities for teachers to examine research findings on the teaching and learning of science content and/or practices
 - b. Using research on teaching and learning to develop effective teaching strategies and activities that integrate UA partner institutional resources

PD Type:	Courses on Science Content and Science Practices Category 300
Title:	Human Impact on Climate Course number 315
Location:	New York Aquarium
Dates:	Saturdays, January 28, and January 25, 2020 (This is a 2-day course)
Time:	9:30 AM - 3:00 PM (breakfast at 9:00 AM).
Instructors:	Partner Staff: Daniel O'Shoney Lead Teacher Staff: Sarah Rosenblum and Catherine Calogero

Course 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.

Prerequisites:

Available to teachers who have completed 2 or more years of Urban Advantage. 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 areas.

Learning goals for this Course:

- Strengthen teachers' ability to teach middle school science content and/or practices in a way that is consistent with current research on teaching and learning by:
 - Providing opportunities for teachers to examine research findings on the teaching and learning of science content and/or practices
 - Using research on teaching and learning to develop effective teaching strategies and activities that integrate UA partner institutional resources

PD Type:	Science Investigation Course Category 300
Title:	FrankenFood: Arguing from Evidence Course number 316
Location:	Brooklyn Botanic Garden
Date:	Wednesday, January 22 nd and Thursday February 13 th , 2020 (This is a two-day session)
Time:	9:00am - 2:30pm
Instructors:	Partner Staff: Candyce Johnson and Barbara Kurland

Workshop descriptions:

Students have a world of information at their fingertips and thumbs. A large portion of it is credible and enlightening. A growing portion unfortunately, is fabricated and misleading. The practice of Engaging in Argument requires that students formulate and support a claim with evidence, as well as evaluate and critique claims presented by others with cited evidence and/or questioning. Using genetic modification and reproduction as the content frame, participants will explore developmental targets for argumentation skills such as citing relevant evidence and logical reasoning, while also recognizing and questioning flawed arguments.

Prerequisites:

Intended for teachers who have been in UA for two or more years and are interested in examining research-based findings around student understanding of evidence, reasoning, and logic.

Learning goals for this course:

- Deepen teachers' knowledge and ability to guide students in identifying and citing evidence to support claims.
- Support teachers thinking of how students receive and process claims about scientific phenomena.
- Expose teachers to strategies and techniques for helping students become more critical consumers and communicators of scientific information.

PL Type:	Courses on Reflective Practice Category 400
Title:	Examining Teacher and Student Work at the Queens Botanical Garden Course number 403
Location:	Queens Botanical Garden
Dates:	Saturday, December 21, 2019 Saturday, January 18, 2020 Saturday, February 15, 2020 (This is a 3-day course)
Time:	10:00 AM - 3:30 PM (Breakfast at 9:30 AM)
Instructors:	Partner Staff: Marnie Rackmill, Miranda Gray Lead Teachers: Nancy Saint Pierre, Cody Gordon

Course description:

Using resources from National School Reform Faculty (<https://www.nsrffharmony.org/>) and other strategies, teachers will engage in opportunities to reflect together on key questions around teaching practice and student learning. Teachers will share their work and the work of their students to engage in collaborative, critical and supportive dialogue around focused examination of that work.

Prerequisites:

Available to teachers who have completed 2 or more years of Urban Advantage. These CFG or PLC groups are intended for teachers who wish to discuss and examine student work and pedagogical strategies at use in their classroom.

Learning goals for this CFG:

- Teachers, with the support of protocols and community building exercises, will examine and reflect on student work with the goal of surfacing student thinking. Each teacher will present work, in a small group, supported by a facilitator and a protocol.
- Participants will engage in a collegial, collaborative and supportive experience to identify and develop opportunities to provide additional supports and scaffolds to students.

PD Type:	Courses on Reflective Practice - 400 Level
Title:	Examining Student Work at the Staten Island Zoo Course 405
Location:	Staten Island Zoo
Dates:	Thursday, December 19th, 2019, Tuesday, January 7th and Thursday, January 23th, 2020 (This is a 3-day course)
Time:	9:30 AM – 3:30 PM (Breakfast at 9:00 AM)
Instructors:	Partner Staff: Jessica Hartmann, Megan Orens, David Zaitz Lead Teachers: Christine Carroll, Isabelle Cammayo, Jessica Kuhl

Course Description:

Using protocols, participants will engage in opportunities to reflect together on key questions that arise for them and their students when they undertake field study investigations focused on animal behavior. Teachers will engage in collaborative, critical, and supportive dialogue as they examine authentic aspects of their teaching practice and their students' work that arise in these unique types of long term investigations.

Prerequisites:

Available to teachers who have completed two or more years of Urban Advantage and at least 1 year of Animal Behavior Field Studies. These courses are intended for teachers who have been implementing UA Animal Behavior Field Study tools in their classroom for 1 or more years and are ready to reflect on student work and refine their teaching practice using animal behavior field studies.

Learning goals for this course:

- Participants, with the support of protocols and community building exercise, will examine and reflect on student work with the goal of surfacing student thinking.
- Participants will engage in collegial and collaborative learning experience where teachers will identify and develop opportunities to provide additional supports and scaffolds to their students.

PD Type:	Courses on Reflective Practice Category 400
Title:	Examining Student Work at NYBG: Special Education Focus Course number 406
Location:	The New York Botanical Garden (Bronx)
Dates:	Saturday, January 4, 2020 Saturday, January 18, 2020 Saturday, February 8, 2020 (This is a three-day course)
Time:	9:30 AM to 3:30 PM (Breakfast at 9:00 AM)
Instructors:	Partners: Mona McNamara, Shannon Haas Lead Teachers: Deborah Sarria, Shahid Wright

Workshop description:

Using professional learning protocols, participants will engage in opportunities to reflect together on key questions around teaching practice and student learning in Special Education contexts. Teachers will share their students' work and engage in collaborative, critical and supportive dialogue around focused examination of that work.

Prerequisites:

Available to teachers who have completed 2 or more years of Urban Advantage. These courses are intended for teachers who have been implementing UA tools in their classroom for 2 or more years and are ready to reflect on student work and refine their teaching practice.

Learning goals for this workshop:

- 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 identify and develop opportunities to provide additional supports and scaffolds to their students.

PL Type:	Courses on Reflective Practice 400 Category
Title:	Exploring Evidence and Explanation for the Shark “Surge” Course number 438
Location:	New York Aquarium
Dates:	Sundays, April 5 th , April 26 th , and May 3 rd , 2020 (This is a 3-day course)
Time:	9:30 AM to 3:00 PM (Breakfast at 9:00 AM)
Instructors:	Partner Staff: Christine DeMauro Lead Teachers: Sarah Rosenblum, Olivia Bello

Course 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. The third day will focus on implementation of these strategies while framing our work in professional learning community protocols. Participants will be expected to bring a student artifact or lesson to reflect on.

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 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:

- Strengthen teachers’ ability to teach middle school science content and/or practices in a way that is consistent with current research on teaching and learning
- Develop teachers’ knowledge of research findings on the teaching and learning of science content and/or practices
- Strengthen teachers’ ability to develop effective teaching strategies and activities that integrate UA partner institutional resources

PD Type:	Courses on Reflective Practice Category 400
Title:	Examining Teacher Practice Using Video Course number 452
Location:	Onsite sessions: New York Hall of Science Online sessions
Dates:	This is a blended course with two onsite sessions and ongoing asynchronous online work. Work associated with this course is comparable to a 3-day session and enrolled teachers will be paid a stipend for 3 days of professional learning (15 hours).
Onsite sessions:	Saturday, March 14, 2020 & Saturday, March 28, 2020
Online sessions:	The online work MUST be completed by April 25, 2020
Time:	Onsite sessions (4 hours per day; 8 hours total): 10:00 AM -2:30 PM (Breakfast at 9:30 AM) Online sessions (7 hours): Asynchronous
Instructors:	Partner Staff: Grace Andrews (NYSCI), Deon Daniels (NYSCI) Lead Teachers:

Course description:

Watching and analyzing videos with UA colleagues can enhance professional learning and enable you to learn new strategies. In this course, participants will use protocols to view and analyze videos demonstrating implementation of Urban Advantage tools and resources. Using protocols, participants will engage in opportunities to reflect together on videotaped lessons using a powerful platform for sharing and analyzing videos. Participants will be expected to videotape classroom work and analyze the work online with other participants. Teachers will engage in collaborative, critical, supportive dialogue around teaching.

Prerequisites:

Available to teachers who have completed 2 or more years of Urban Advantage. These courses are intended for teachers who: 1) Have been implementing UA tools in their classroom for 2 or more years. 2) Are ready to reflect on and refine their teaching practice by sharing a videotaped lesson to be analyzed with UA colleagues. 3) Are prepared to think deeply and critically when watching the videotaped lessons of their colleagues in order to provide meaningful feedback.

Learning goals for this course:

- Deepen teachers' ability to reflect on and improve their pedagogical practice by analyzing video to better support students in science.
- Deepen teachers' capacity to share with, collaborate and seek assistance from their Urban Advantage colleagues using Teaching Channel as a resource.

PD Type:	Courses on Reflective Practice Category 400
Title:	Reflecting on embedding literacy strategies in science curriculum Course number 453
Location:	This course is entirely online.
Dates:	Activities associated with this course are comparable to a three-day course and enrolled teachers who complete the course in its entirety will be paid a stipend for three days of professional development (15 hours).
Online sessions:	Online tasks must be completed between March 1st and April 1st, 2020.
Time:	Deadlines for assignments will be communicated prior to start date.
Instructors:	Partner Staff: Ali Irwin (AMNH), John Sapida (AMNH)

Course description:

The purpose of this course is to help teachers reflect on their use of literacy strategies learned in previous PD. Participants will briefly review the strategies and corresponding resources and select the strategy which they would like to have more practice embedding as part of a long-term science investigation. Next they will discuss plans for implementation and get support and feedback from their peers and UA staff. They will modify and implement a lesson of their choosing with a selected literacy strategy. Finally, they will share an artifact of student work to analyze with the group. As this course is entirely online, a minimum number of posts will be required to receive credit for completion, including the posting of a student work artifact.

Prerequisites:

Available to teachers who have completed two or more years of Urban Advantage. This course is intended for teachers who: 1) have been implementing UA tools in their classroom for two or more years; 2) are ready to reflect on and refine their teaching practice by sharing a lesson plan and a sample of student work to be analyzed with UA colleagues; and 3) are prepared to think deeply and critically when reviewing the lesson plans and student work of their colleagues in order to provide meaningful feedback.

Learning goals for this course:

- Deepen teachers' ability to reflect on and improve their use of literacy strategies by analyzing lesson plans and student work to better support students in science.
- Deepen teachers' capacity to share with, collaborate and seek assistance from their Urban Advantage colleagues.

PD Type:	Inter-Visitation - 400 Category
Title	Reflecting on Practice Through Inter-Visitation Course 470
Location:	2 days at the American Museum of Natural History; 1 day at hosting Fellow's school
Dates:	Saturday, December 14, 2019 and Sunday, December 15, 2019 plus 1 day at hosting Fellows' school in January 2020 (TBD) (This is a 3 day course. <u>All 3 days are required for course credit</u>)
Time:	10:00 AM to 3:30 PM (Breakfast at 9:30 AM; 30-minute lunch); School visits will take place in January 2020 (specific dates will be determined this fall)
Instructors:	Partners: Colleen Owen and Hudson Roditi Fellows: Adam Lammers, Laura Fontanills, Leslie Buxton Kristina Zammit, and Sam D'Angelo

Course description:

Have you been looking for rich examples of what powerful science instruction can look like and a common language to describe it? Are you excited to learn more about your own practice by observing your peers? If so, this course is for you! In this course, participants will work closely with professional learning facilitators and the Urban Advantage Fellows (UAF) to develop the skills and mindset necessary for reflecting on practice through inter-visitiation. The UAF is a professional learning community of veteran teachers who have successfully integrated the program's tools and resources, and cutting edge research on teaching and learning, into their practice. In this course, you will develop a repertoire of tools, which can be used to support individual growth and the development of a professional learning community. In addition, you will learn about and apply tools to record evidence of powerful science instruction as it pertains to a puzzle about one's own teaching practice. Finally, you will walk away having a deeper understanding of what rigorous science instruction looks and sounds like, and a set of tools for beginning to engage in inter-visitiation at your own schools. This course consists of:*

- Two 5-hour days of professional learning dedicated preparing participants for observing teachers who will be modeling core practices (preparation might include working with protocols to build community and reflect on practice, applying tools to make evidence-based observations of teaching, developing focus questions, etc).
- One 5-hour day observing the UAF's classroom, meeting their principal, and debriefing the observation.

***Participants will be expected to attend both days of professional learning at the museum, in addition to the classroom visit (substitute reimbursement will be provided; be sure to speak to your principal about being out of the classroom on a weekday).**

Prerequisites:

Available to Continuing Teachers who have completed 3+ or more years of Urban Advantage. Teachers who register for this course will be expected to engage in collaborative, critical, supportive dialogue around teaching and may be asked to participate in the evaluation of this pilot program.

To learn more about the different teaching practices you might see in the UAF's classrooms, please visit <https://uanyc.site/470>. If enrolled in this course, participants will be asked to select the top two classrooms they would like to visit.

Learning goals for this course:

- Develop a repertoire of tools, which can be used to support individual growth and the development of a professional learning community.
- Apply tools to record evidence of powerful science instruction as it pertains to a particular question or puzzle about one's own teaching practice.
- Articulate the value of observing peers as a means of reflecting on and improving practice in light of the New York State Science Learning Standards.