

Urban Advantage Professional Learning: Description of Course Formats and Professional Learning Category Descriptions and Goals (ONLINE LEARNING COURSES ONLY)

for

Continuing Teachers In Years 2 through 5

And

Alumni Teachers

2023-2024

updated on 08/25/2023

Full course descriptions can also be found when you click the green CTPL Preference button in myUA (https://myua.amnh.org)

















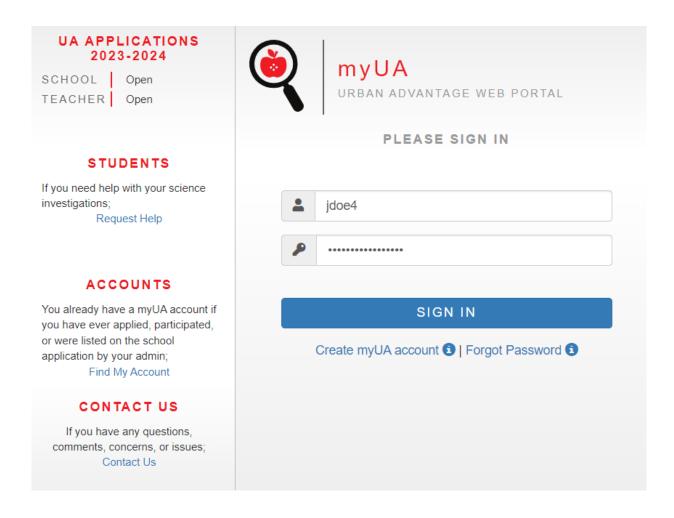






This document is subject to revision; for the most current version consult the UA Portal:

https://myua.amnh.org



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Course Formats: Definitions

All Urban Advantage Professional Learning will take a wide variety of formats. We hope this mix will provide you with options that suit your learning preferences and schedule. In the course descriptions you will see the following terms used:

- **IP (In-person):** The course is in-person at one or more institutions
- **IPO (In-Person & Online):** Some in-person sessions and some online work, either on Zoom or Moodle
- OZM (Online Zoom & Moodle): All online via Zoom and some self-paced work on Moodle
- **OM (Online Moodle):** All self-paced work on Moodle
- OZ (Online Zoom): All online via Zoom

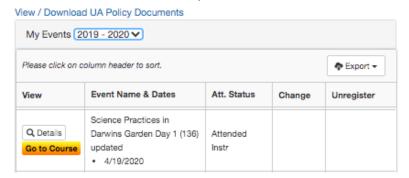
For courses with an online component (OZM, OM, OZ), pay special attention to these terms which describe how you will participate in learning for a specific day of the course:

- **Zoom**: All course participants are online at the same time, **LIVE via Zoom**.
- **Moodle**: Can work on assignments on own schedule within a given span of days. This will happen via our "Moodle" online platform (more on that below).

Other Terms:

- **Hosting Institution:** This is the institution that will be organizing and facilitating the course.
- **Moodle:** The platform that we use to host our written course discussions, share videos and other resources, hand in assignments, and complete various online activities.

To access Moodle for the self-paced parts of courses, you will log-in to the portal via your "myUA" account at https://myua.amnh.org and, once registered, your courses will appear in the "My Events" table on the right of your "Dashboard" or home screen, an example here:



You will click on the yellow "**Go to Course**" button to get to the self-paced online portion of your course on Moodle.

Computers vs Phones:

For the live sessions, we use Zoom and often a variety of tools such as "Padlets" and "Jam Boards" which can be tricky on mobile phones and small screens; for example Jam Boards require you to download an App to be used on cell phones. **We recommend using a computer**, but we do understand that is not always possible.

Course Category Descriptions and Goals

The following pages contain general descriptions and goals for each course level in our Continuing Teacher Professional Learning catalog. Please note that your instructors will be sharing your course specific goals, and specific deadlines for completing course work in the logistics email that goes out to you once you are officially registered.

<u>Category 100</u>: 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).

Two- and Four-day courses available:

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 <u>DID NOT</u> explore during previous PL courses (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.

- 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.

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.
- Participants may be introduced to UA scaffolding tools (such as the IDD and DSET) that have been modified to support explaining specific types of phenomena or design problems.
- Participants may use institutional resources to deepen knowledge of science content and practices to support explaining a phenomenon.

<u>Category 200</u>: 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.

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.
- 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 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 (DCls). 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.

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.
- 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)
- <u>Uncovering Student Ideas series</u>
- NSDL Strand Maps http://strandmaps.nsdl.org/
- American Association for the Advancement of Science
- Benchmarks for Science Literacy & Science for all Americans
- 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)

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 <u>3-day</u> (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)
- 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 Number: 200 Using science and engineering practices to explain

phenomena and design solutions: diving deeper into

scaffolding and teaching practices

Course Number: 225

Title: Amplifying Underrepresented Voices in Nature

Host Institution: QBG

Course Format: OM: All Online- Self-Paced (All Moodle) (key below)

Dates 1/8/2024 through 1/24/2024

Course 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 studentshave 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 whoare underrepresented in

nature within existing science curriculum.

This course is open from 1/8/2024 to 1/24/2024. While it is fully self-paced work online via Moodle, instructors will be available throughout the course to support

you.

Course Format key:

IP (In-Person) The course is in-person at one or more institutions

IPO (In-Person & Online)Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle



Category Number: 200 Using science and engineering practices to explain

phenomena and design solutions: diving deeper into

scaffolding and teaching practices

Course Number: 227

Title: March Mammal Madness: Bring the Madness to

Your Classroom

Host Institution: SIZ

Course Format: OZ: All Online- Faciliated (All Zoom) (key below)

Dates 1/7/2024, 1/14/2024, 1/21/2024, 1/28/2024 (all via Zoom meeting)

Course Description: This course is all about bringing the madness of March Mammal Madness into

your classroom! And by madness, we mean exciting, educational, and structured animal madness. Each year in March, animals from around the globe go head-to-head in a simulated battle called March Mammal Madness to determine the ultimate champion. This battle, inspired by the NCAA March Madness College Basketball Tournament, was created by Dr. Katie Hinde in 2013 as an exciting, unique tournament-style game backed by actual science. Through the use of storytelling (narrated by a talented team of scientists from universities around the US) participants learn about "interspecies interactions, the importance of ecological context, how natural selection has shaped adaptations, and

conservation management of endangered species." In this course, you will learn

all about this fun, educational immersion into a virtual world of animal encounters and will receive tips and tricks for facilitating student engagement

and incorporating March Mammal Madness into your curriculum.

*Please note that this course will be completely held ONLINE in the form of FOUR 2.5 hour facilitated Zoom sessions. Attendance and active participation in these

Zoom sessions is required.

Course Format key:

IP (In-Person) The course is in-person at one or more institutions

IPO (In-Person & Online)Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle



Course Number: 408

Title: Teacher Practice in Coaching and Guiding

Investigation Design

Host Institution: NYA

Course Format: IPO: In-Person and Online (Zoom and/or Moodle) (key below)

Dates 4/27/2024, 5/11/2024 (In-Person)

with online work via Moodle in between in-person sessions

Course 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.

Course Format key:

IP (In-Person) The course is in-person at one or more institutions

IPO (In-Person & Online) Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle



Course Number: 412

Title: Ambitious Science Teaching Book Group

Host Institution: NYBG

Course Format: OZM: All Online (Zoom and Moodle) (key below)

Dates 2/8/2024, 3/7/2024, 4/4/2024, 5/2/2024, 5/30/2024 (all via Zoom

meeting) with online work via Moodle in between sessions

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 online 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.

Course Format key:

IP (In-Person) The course is in-person at one or more institutions

IPO (In-Person & Online) Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle



Course Number: 452

Title: Framing Progress: Reflecting on Practice Using

Video

Host Institution: AMNH, NYSCI

Course Format: IPO: In-Person and Online (Zoom and/or Moodle) (key below)

Dates 3/16/2024 (In-Person at AMNH),

4/6/2024 (via Zoom meeting),

4/13/2024 (In-Person at NYSCI)

Course Description: In this course, 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.

*Please note that this is a 3 day course (2 in person and 1 online). You will be required to go to BOTH institutions in-person (1 session at each NYSCI and 1 Session at AMNH). Participants are required to attend all 3 sessions,

as well as submit online work via Moodle.

Course Format key:

IP (In-Person) The course is in-person at one or more institutions

IPO (In-Person & Online) Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle



Course Number: 453

Title: Reflecting on Embedding Literacy Strategies in

Science Curriculum

Host Institution: BXZ

Course Format: OZM: All Online (Zoom and Moodle) (key below)

Dates 1/10/2024, 1/17/2024, 1/31/2024, 3/6/2024 (all via Zoom meeting)

with online work via Moodle in between sessions

Course Description: The purpose of this course is to help teachers reflect on the use of literacy

strategies in their classrooms. Throughout the duration of the course, participants will briefly review literacy strategies (e.g., summarizing, paraphrasing, interactive reading guides, and vocabulary instruction) 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. As this course is entirely online, 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.

Course Format key:

IP (In-Person) The course is in-person at one or more institutions

IPO (In-Person & Online) Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle



Course Number: 455

Integrating Digital Museum Resources in Field

Trip Planning

Host Institution: AMNH

Course Format: IPO: In-Person and Online (Zoom and/or Moodle) (key below)

Dates Online work via Moodle begins on 4/3/2024,

4/14/2024 (via Zoom), 4/21/2024 (via Zoom),

5/5/2024 (In-Person at AMNH)

Course Description: Cultural institutions increasingly produce digital learning resources and

technologies to expand their education efforts in the ever changing digital world. This session will introduce participants to various digital resources

made available by UA partner institutions and discuss the unique

affordances of museum digital media and technologies. Participants will also reflect on how these resources can be utilized in their classroom and for field trip planning. The course will be held mostly online (via Moodle and Zoom) and culminates in a 3-hour workshop at the American Museum

of Natural History's new Gilder Center for Science, Education, and

Innovation.

Course Format key:

IP (In-Person) The course is in-person at one or more institutions

IPO (In-Person & Online) Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle



Course Number: 471

Building Our Practice Through Critical Friends

Group Communities

Host Institution: BBG

Course Format: OZM: All Online (Zoom and Moodle) (key below)

Dates 1/6/2024, 1/20/2024, 1/27/2024 (all via Zoom meeting)

with online work in between sessions via Moodle

Course Description: Critical Friends Group (CFG) work originated with the National School Reform Faculty (NSRF) in

1994. The key differences between CFG communities and other professional learning communities (PLCs) are: 1) an intentional cultivation of safety and trust between the members, and 2) a focus on solving problems and accomplishing goals brought by its participants. It's critical that teachers have

time and space together for this kind of work.

In this 15-hour fully online course, we'll be applying the approach and resources of NSRF to develop our own CFG that will support one another as science teaching professionals! Our work will begin with 2.5 hours of asynchronous work in 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. The three 3-hour synchronous Zoom meetings will take place on weekend mornings. During this portion of work, we will be taking a deeper dive into CFG work, including several teacher participants presenting their own puzzles of practice to get feedback from their peers. This will be a great opportunity to support the presenter's in improving their

instruction, and for the whole group to reflect on their experience in participating in protocol work! The remaining asynchronous work will be mostly dedicated to prep meetings with your assigned

mentor ahead of your own presentations.

During our time together in this course, the Urban Advantage Lead Teachers, will be supporting teachers with preparing for their presentations and ensuring your voices are heard and honored as you give non-judgmental, but open and honest feedback to UA colleagues who volunteer to share a puzzle of practice!

Puzzles of practice may include:

- Dealing with issues and dilemmas related to student learning
- Looking closely at and learning from student work/student learning data
- Looking at and reflecting upon teacher/educator work

Course Format key:

IP (In-Person)The course is in-person at one or more institutions

IPO (In-Person & Online) Some in-person sessions and some online work, either on Zoom or Moodle

OZM (Online Zoom & Moodle) All online via Zoom and some self-paced work on Moodle

OM (Online Moodle) All self-paced work on Moodle