

The 2020 Professional Development Seminar Series is designed for the education staff and volunteers from science, environmental, natural history, technology, art, history and other cultural institutions and centers in New England. Each seminar is a full-day, split into two sessions. The mornings are spent exploring STEM content areas with scientists and policy makers. Afternoon sessions are skill-based, focusing on turning real-life science into exciting, inquiry-based, minds-on, hands-on lessons and activities for your programs with K-12 students and teachers and other youth programs.

The seminars are designed as professional development opportunities to provide content and teaching resources for your staff as well as networking opportunities for professionals in informal education settings. Teachers, science coordinators and other formal educators are also welcome to join us for these seminars. This year we are offering 4 STEM seminars. Join us on January 16th, February 6th and April 9th for seminars in the traditional morning/afternoon format, and on March 12th for a special full-day seminar. All 4 seminars promise to provide an exciting, hands-on professional development opportunity for you and your staff!

Cost: The registration fee for participants is \$45 per seminar (includes lunch). Discounted fees of \$125 are offered for attending 3 seminars or \$160 for attending all 4 seminars. Certificates of participation are available for each seminar. PDPs are available for those participating in 2 or more seminar dates.

For more information contact 617-328-1515 or wadeinstitute@wadeinstitutema.org, or visit www.wadeinstitutema.org.

Registration is required. Please detach and return form below with Check or Purchase Order to the Wade Institute for Science Education, 1354 Hancock St., Ste. 302, Quincy, MA 02169 OR register online at www.wadeinstitutema.org.

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 Registration Form

Name _____

Organization _____ Title _____

Address _____

Contact Phone _____ How Did You Hear About This? _____

Email _____ Alternate Email _____

Please check the seminars you will attend:

<input type="checkbox"/> Jan 16 \$45	<input type="checkbox"/> March 12 \$45	<input type="checkbox"/> All 4 Dates \$160*
<input type="checkbox"/> Feb 6 \$45	<input type="checkbox"/> April 9 \$45	<input type="checkbox"/> 3 Dates (Specify) \$125*

* Discounted Rate

Registration fee includes lunch Total Amount Enclosed: _____

Wade Institute for Science Education
 1354 Hancock Street, Suite 302
 Quincy, MA 02169

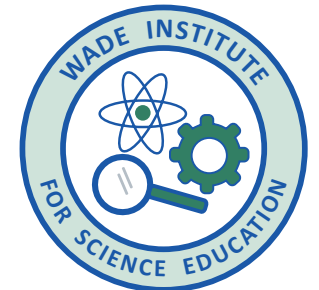


Explore place-based phenomena with hands-on, minds-on, inquiry investigations!

Wade Institute for Science Education

2020 Professional Development Seminar Series

January 16, February 6,
 March 12 & April 9
 9:30 a.m. - 3:30 p.m.



Higgins University Center, Clark University
 Worcester, MA

Thursday, January 16th

Ornithology and Our Changing Environment: Understanding Climate Change Through Bird Research

*Trevor Lloyd-Evans, Director of Landbird
Conservation Program, Manomet*



How can birds be indicators of environmental change? What technologies can we use to collect data about climate change from bird populations?

Since 1966, Manomet has sought the answer to these questions as they study seasonal migrations of land birds near Plymouth, MA. During this session, discover what 50+ years of bird migration research reveals about climate change. Explore what researchers have learned about climate change by studying canaries in coal mines to Peregrine Falcons and DDT. Investigate curriculum co-designed by Manomet and TERC's Biosphere and Climate Initiative, and explore ways to connect your school programs to the study of local and global aspects of climate change.

Spark Creativity and Fuel Innovation by Teaching Students to Ask Their Own Questions

Kathy Shay, STEM Educator, Duxbury Public Schools

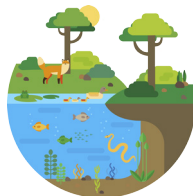
Asking questions is essential for students' ability to investigate and solve problems in Science and Engineering. Yet question formulation is not often deliberately taught to students. This session introduces the Question Formulation Technique (QFT), a simple but powerful process which teaches students to produce, improve, and strategize how to use their own questions. The QFT was developed by the Right Question Institute, and this effective pedagogical strategy is used by over 400,000 educators around the world. In this session, experience the QFT and see examples of how it benefits student learning, stimulating curiosity and investigation across disciplines and grade levels. Explore how you can use QFT in your school programs to build science process skills that will support their studies back at school.



Thursday, February 6th

Insights Into Climate Change From Long-Term Ecological Research (LTER) Sites

*Anne Giblin, Lead Investigator, Plum Island
Ecosystems LTER; Senior Scientist and Interim
Director, The Ecosystems Center, Marine Biological
Laboratory*



What does climate change look like? We used to talk about climate change as "global warming". We now know the impacts of climate change can vary greatly depending on the location. Using examples from Long-Term Ecological Research sites along the

Atlantic coast, Alaska, and central Massachusetts, we'll explore some of the expected as well as very unexpected ways in which ecosystems have responded to climate change. We'll investigate how students can examine data near their homes for long-term trends and identify aspects of climate change most important to them. We'll also examine new resources that are becoming available to help communities become engaged in resiliency planning, focusing on those where youth can become involved. Come away with ideas for how to address this climate change research in your own programming.

Digging Into Data Analysis!

*Liz Duff, Education Coordinator, Mass Audubon's Salt
Marsh Science Project*

Analyzing and interpreting data is an essential NGSS Science and Engineering Practice that students may have little experience with. Educational resources such as on-line databases and "Data Nugget" lessons give students the opportunity to practice this skill while learning about local, regional and national research. Data Nuggets in particular offer real-time data that students can explore, collected from contemporary researchers at sites in Massachusetts like Plum Island and the Harvard Forest Long-Term Ecological Research (LTER) sites. Liz will lead us through some graphing data analysis exercises and introduce us to online resources available to support developing this practice. Join us to learn how you can use tools like Data Nuggets to integrate more data analysis into school programs and learning experiences.



Thursday, March 12th

Join us for a special, full-day, inquiry- based, hands-on, minds-on seminar!

Becoming a 21st Century Organization For All

*Ann Hernandez, Senior Manager of Inclusion
Activities, Association of Science-Technology
Centers (ASTC)*



Diversity, equity, accessibility, and inclusion (DEAI) are words we often hear are important for guiding the development of a successful program or organization, but it is often hard applying them in practice, especially in educational settings.

During this seminar, an expert from the Cultural Competence Learning Institute (CCLI), a partnership between Children's Discovery Museum of San Jose, Association of Science and Technology Centers, Association of Children's Museums, and Garibay Group, will help you explore dimensions of diversity, establish common language in DEAI, identify practices in your organization that can be built upon, and reflect on experiences from individuals and organizations working in informal STEM education across the United States. Participants will plan strategies to apply DEAI concepts to teaching and programming development and to create culturally-relevant content. Participants will walk away with access to various resources for further development in cultural competence and DEAI. CCLI is a process and set of resources designed to help informal educators catalyze diversity and inclusion efforts in their institutions and think differently about what success looks like in the 21st century.

**For more information on the
Professional Development
Seminar Series and to register,
visit www.wadeinstitutema.org.**

Thursday, April 9th

Weather-Wise, Not Otherwise

*Rob Gilman, Meteorologist at 95.9 WATD-FM;
Co-owner, Precision Weather Forecasting, Inc.*



It's only a matter of time before a major hurricane hits southern New England. Can we be ready to respond to such major impacts of a changing climate? In this session,

Rob will lead us through a history of weather events in New England, remembering the "Blizzard of '78", the "Great New England Hurricane," and the deadly tornadoes in Springfield in 2011, and highlighting a few of the biggest impacts on travel and power distribution in recent times. We'll explore the science behind these weather events, including how our winter-storms, or Nor'easters, differ from tropical storms in formation and track. And finally, we'll look into the data and how we can better understand forecasting. Come away with a new perspective on how to investigate extreme weather in your school programs.

Phenomena Are Not Always Phenomenal: The Hows and Whys of Engaging Students in Phenomena-Based Instruction

*Peter McLaren, Executive Director, Next Gen
Education, LLC.*

How do we promote deeper connections to learning among students? Today's multiple-dimension state science standards provide guidelines for educators to move away from fact-based, topic-focused instruction and toward engaging students by having them figure out explanations for various phenomena they experience in the natural world. Phenomena-based learning helps elicit prior knowledge, develop conceptual understanding, and build science process skills. Join us to learn how educators can support student sense-making of phenomena and how to use this teaching strategy in your school programs. Explore different types of phenomena, from anchoring to investigative. Consider criteria for choosing quality phenomena, as well as the appropriateness of phenomena in different settings.

