

Marine Science for Teachers - 2019

July 8 – 14, 2019

Shoals Marine Laboratory, Appledore Island, Isles of Shoals, ME

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I. Rationale:

Marine Science for Teachers is a one-week workshop at the Shoals Marine Laboratory on Appledore Island for New Hampshire middle and high school science teachers. The purpose of the workshop is to provide teachers with hands-on marine field experiences that can be developed into science practice-based curriculum they can use in their classrooms. These curricula can support the practice-based approach and standards of the Next Generation Science Standards (NGSS). The curricula will also support the Ocean Literacy Principles and other STEM-related programs in New Hampshire schools.

II. Course Aims and Outcomes:

Aims

The workshop will provide teachers with field experiences in marine science. These experiences will form the basis of team-based curriculum development that is aligned with the NGSS and the Ocean Literacy Principles, and that will also include field or classroom based pedagogical approaches and aligned assessment.

Specific Learning Outcomes:

By the end of this workshop, teachers will:

- have participated in field marine science activities including, but not limited to:
 - intertidal ecology investigation
 - water chemistry
 - plankton ecology
 - seabird ecology
 - marine mammal adaptations and ecology
 - ocean data collection and use
- developed classroom curriculum aligned with the NGSS, Ocean Literacy principles, and other content standards
- developed appropriate assessment aligned to the NGSS performance expectations

III. Format and Procedures:

The workshop is a one-week, residential experience located at the Shoals Marine Laboratory, a research and teaching facility of the University of New Hampshire and Cornell University. Participants will be expected to engage in all field, laboratory, and classroom activities. Participants will form teams for the development of classroom curricula that build upon the field experiences, is aligned with NGSS and the Ocean Literacy Principles, and includes aligned assessment. Field-based, classroom-based, and virtual approaches will be explored and, when appropriate, incorporated into the developed curricula. Curricula developed by the teams will be made available to all participants. The workshop leader hopes to maintain contact with participants after the workshop to share feedback on the effectiveness of developed curricula.

IV. Course Requirements:

1. Participants will actively participate in all field, lab, and classroom activities. Participants will actively engage with teammates to develop and refine related curricula.

2. Course readings:

(a) Next Generation Science Standards - <https://ngss.nsta.org/>

(b) Ocean Literacy Principles and the Ocean Literacy Scope and Sequence - <http://oceanliteracy.wp2.coexploration.org/ocean-literacy-framework/conceptual-flows2/>

V. Code of Conduct

We understand that our members represent a rich variety of backgrounds and perspectives. The workshop leader is committed to providing an atmosphere for learning that respects diversity.

While working together to build this community we ask all members to:

- share their unique experiences, values and beliefs;
- appreciate the opportunity that we have to learn from each other in this community;
- keep confidential discussions that the community has of a personal (or professional) nature;
- treat all participants with kindness, respect and consideration, valuing a diversity of views and opinions (including those you may not share); and,
- treat the physical and biological environment of the island, including SML buildings, furniture and equipment, with care and respect.

VI. Professional Development Credit

Professional development credits are being arranged through the University of New Hampshire. Additional details about the credits will be forthcoming.