

## **STEM in the Early Years**

**Early Childhood Institute, Castleton University**

**July 23-26, 2018**

### **Course Goals:**

- Educators will learn how to encourage and nurture children's natural curiosity about the world around them through STEM inquiry and explorations.
- Educators will learn how to intentionally incorporate the language, concepts and skills of STEM into their daily interactions with children.

### **Course Objectives:**

Educators will gain knowledge and experience about how to:

- Select materials and STEM content for STEM opportunities that are developmentally appropriate and can be explored from multiple perspectives, in depth, and over time, building on children's curiosity and prior experiences
- Use STEM practices by asking questions and fostering children's questioning, guiding discussions, encouraging new ideas and aiding in data collection and children's representations (drawings, etc.)
- Recognize and guide children's development of other important skills included in the VELs, including working with one another, basic large- and small-motor control, language, and early mathematical understanding while doing science
- Align planning and implementation with VELs with an understanding of recent research and ideas that influence children's science capabilities and learning
- Develop Documentation Panels for discussions and reflections about STEM explorations using text, video, photographs and children's work as part of observing and assessing children's thinking and skills
- Reflect on STEM interactions with children through writings, photos and other representations (in journal and template provided)
- Provide information and opportunities for families to participate in their child's STEM learning experiences

**Required Readings/Texts:**

- *Worms, Shadows and Whirlpools: Science in the Early Childhood Classroom* by Karen Worth and Sharon Grollman

**Other Suggested Readings/Texts:**

- Handouts and suggested websites for reference and projects (provided by instructor)
- “Early STEM Matters: Providing High-Quality STEM Experiences for All Young Learners”: University of Chicago STEM Education and Erikson Institute, January 2017 (online; link provided by instructor)

**Assignments:**

Identify and design investigation of an Action Research topic/question (for college credit)

Develop a unit based on template (provided by instructor; not for college credit)

**Projects:**

Action Research

Written journal (journal and template provided).

**Expectations:**

Students will be required to keep a written journal (journal and template provided).

Students will be required to identify and investigate an Action Research topic/question and document their investigations (for college credit).

Students will be required to develop a unit based on a template (not for college credit).

**Evaluation:**

Class participation

Action Research Project

**Castleton Expectations:**

Attendance for four days’ course instruction

In-class participation

Completion of assignments and projects in a timely manner

