

## Course Requirements for Continuing Education Credit

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<b>Location:</b>	Great Falls College MSU - 2100 16th Ave South, Great Falls, MT (Room G45/G46)
<b>EDUC 1591</b> <i>Title of Course:</i>	Science Inquiry: Unlocking the Scientist in EVERY Child!
<b>1 CREDIT</b> <b>Date of Course:</b>	June 18-19, 2025

### Course Description:

Discover how to ignite curiosity and scientific thinking in every student! This highly interactive, hands-on, two-day course immerses PreK-5th grade teachers in inquiry-based learning using the 5E Lesson Model (Engage, Explore, Explain, Extend, Evaluate). Aligned with NGSS & GTCC Standards, this training integrates STEM and literacy, helping educators design engaging, real-world investigations that build critical thinking, problem-solving, and interdisciplinary connections. Conduct experiments, collaborate, and leave with ready-to-use lesson plans and strategies that will transform your classroom into a hub of exploration and discovery. This is an invaluable opportunity for PK-5th grade teachers to deepen their understanding of inquiry-based science and leave with the confidence to inspire the next generation of young scientists. Join us and inspire the next generation of young scientists, engineers, and innovators!

### What to Expect:

- Hands-on experimentation, collaborative discussions, and lesson planning.
- Engage in inquiry-based learning and student-driven questioning.
- Explore through hands-on investigations, data collection, and engineering challenges.
- Explain by making sense of scientific concepts through discussion, reading, and writing.
- Extend/Elaborate through cross-curricular connections to math, literacy, and real world applications.
- Evaluate student learning using assessment tools that measure understanding and scientific thinking.

This highly interactive training will model the 5E Learning Cycle across different science topics, providing teachers with strategies to replicate and adapt this approach in their own classrooms

Text: N/A

### Outcomes (participants will...):

1. Participants will Foster Inquiry-Based Science Learning (NGSS Science and Engineering Practices)
  - a. Implement strategies to engage students in authentic scientific inquiry using the 5E model.
  - b. Guide students through exploring, explaining, and applying science concepts.
2. Participants will Integrate Science with Math, Engineering, Technology, and Literacy
  - a. Apply math concepts (measurement, graphing, data analysis) in science experiments.

- b. Use engineering challenges to deepen understanding of physical and life sciences.
  - c. Incorporate technology tools for data collection, modeling, and simulations.
  - d. Use informational texts, scientific writing, and discussions to connect science and literacy.
3. Participants will Develop Critical Thinking and Problem-Solving Skills
  - a. Equip students with the ability to analyze evidence, construct explanations, and engage in argumentation.
  - b. Implement hands-on, open-ended explorations that encourage higher-order thinking.
4. Participants will Design Purposeful, Engaging Science Experiences
  - a. Balance hands-on excitement with structured, standards-aligned learning.
  - b. Use the 5E framework to scaffold inquiry-based learning at different grade levels.
5. Participants will Empower Every Child as a Scientist
  - a. Create an inclusive learning environment that nurtures curiosity and scientific identity.
  - b. Foster student ownership of learning through self-directed inquiry.

### **Requirements to meet outcomes:**

### **Points**

Participants will demonstrate their understanding of the course outcomes through a combination of hands-on activities, collaborative discussions, reflections, and lesson planning. By completing these activities, participants will actively engage in and apply inquiry-based teaching methods while demonstrating their understanding of the 5E model and interdisciplinary science instruction.

Hands-On Experimentation & Inquiry (participation) 30

*Actively engage in experiments, engineering challenges, and discussions using the 5E model.*

- Conduct at least three hands-on investigations.
- Participate in group discussions and share observations.

Science Inquiry Lesson Plan (application) 25

*Develop a standards-aligned 5E lesson plan integrating science, math, literacy, and engineering.*

- Must include at least one experiment or investigation.
- Aligns with NGSS and integrates STEM disciplines.
- Includes assessment strategies for evaluating student learning.

Experiment Modification & Presentation 20

*Work in small groups to modify an experiment for different grade levels and present findings.*

- Adjust an experiment for a different grade level (PK-2 or 3-5).
- Explain modifications and connections to literacy, math, and engineering.
- Present findings to peers.

Reflection & Application Response 15

*Write a one-page reflection on how the workshop's strategies will impact classroom instruction.*

- Address how inquiry-based learning will be implemented.
- Discuss how the 5E model and interdisciplinary connections will be used.

Exit Ticket: Assessment & Takeaways 10

*Complete an individual reflection and self-assessment on key takeaways from the workshop.*

- List three instructional changes you plan to make.
- Identify one challenge and propose a solution.

**Total Points: 100**

Evaluation:

Grade points will be accumulated throughout the workshop with the grading scale as follows:

<b>GRADE:</b>	<b>PERCENTAGE NEEDED:</b>
<b>A</b>	<b>100-90 percent</b>
<b>B</b>	<b>89-80 percent</b>
<b>C</b>	<b>79-70 percent</b>

For graduate level coursework, a grade below a “C” is considered a failing grade.