



Science Seminars

New! Science Content Seminar: Force and Motion for Middle School Teachers

In this Content Short Course, participants will develop knowledge needed for teaching force and motion concepts, including:

- Understanding motion in relation to position, speed & velocity
- Understanding changes in motion—a.k.a. acceleration
- Building knowledge of Newton's First Law of Motion as it explains acceleration and force, net force, and inertia
- Building knowledge of Newton's Third Law of Motion related to defining and identifying forces, force diagrams, and friction
- Building knowledge of Newton's Second Law of Motion in terms of acceleration and mass, gravity, mass, and acceleration due to gravity

The course features best practices in science teaching and learning, including:

Teaching Cases- The course focuses on core science concepts in the context of teaching cases—teacher-written narratives of actual classroom practice that illustrate students' science ideas and highlight important teaching dilemmas.

Language and Literacy- Language and literacy course components help teachers to unpack the academic language of force and motion and learn how to more effectively support students' science discourse and language development.

Nationally Field-tested Materials- The courses are part of the WesEd, Understanding Science, a nationally field-tested professional development curriculum for teachers.

Allegheny Intermediate Unit

July 26-30, 2010, 8:30-4:00

2 credits

Immersion into Inquiry

This 5-day Inquiry module enables participants to deepen their understanding of inquiry-based instruction. In this course, participants will:

- Investigate the role and form of "Science as Inquiry" in content-strand specific instruction as described in the National Science Education Standards
- Analyze inquiry-based learning by experiencing the BSCS 5E Instructional Model
- Explore the Five Essential Features of Inquiry through lesson analysis
- Examine the research on How People Learn and apply this research to inform lesson design and instructional practice
- Become familiar with the contents and organization of the PA Standards Aligned System, and learn how the SAS curriculum framework can be used to build conceptual coherence to strengthen science teaching and learning
- Develop strategies for building Professional Learning Communities by examining the essential characteristics of leadership, the change process and facilitating best practices
- Understand the importance of supporting students in constructing evidence-based explanations so that they develop a deeper understanding of importance science concepts and the nature of science
- Develop and awareness of Science Curriculum Topic Study as a tool to use for connecting standards and research on learning to classroom practice.

Allegheny Intermediate Unit

July 12-16, 2010, 8:30-4:00

2 credits

Formative Classroom Assessment

(Pre-requisite: Immersion Into Inquiry)

This 5-day Formative Classroom Assessment module enables participants to understand and practice formative assessment, or assessment for learning. In this module, participants will:

- Develop an understanding of the role formative assessment can play in informing teaching and enhancing student learning
- Deepen understanding of K-12 students' commonly held ideas
- Apply research findings by practicing effective formative feedback approaches
- Learn how *Assessment Probes* and a variety of formative assessment classroom techniques can be used to support teaching and promote learning
- Assess students' evidence-based explanations using rubrics and practice formative comments
- Learn how to facilitate productive classroom discourse through effective questioning techniques as a strategy to elicit high quality student responses
- Experience *Think, Share, Analyze, Revise (TSAR)* as a strategy to make student thinking explicit and support students in monitoring their own learning.
- Experience *Highlight Comments and Captions* as a strategy to interpret and explain data collected during investigations
- Experience *Collaborative Inquiry in Examining Student Thinking (CIEST)* as a protocol for uncovering student ideas in science
- Define the seven *Norms of Collaborative Work* and apply them to their interactions in professional Learning Communities.

Allegheny Intermediate Unit

July 19-23, 2010, 8:30-4:00

2 credits



Information and Registration

For further information about any of the science academies, contact Ruth Martin (ruth.martin@aiu3.net) or call 412-394-4600. Registration will be handled through the AIU Continuing Professional Education (CPE)/Edu-Link registration system at <https://www.edulinkinc.com/IU3Registration/Default.aspx?tabid=1> Registration will open on May 17 (12:00 a.m.).

No-Show Fees

ALL DISTRICTS will be assessed a **\$20.00 fee** for each educator who RSVPs to attend an Academy session but does not actually attend.