



# CASE Conference 2013

## *Introducing the New CASE: Education and Outreach for the Future*

Hosted by: Center for the Advancement of STEM Education (CASE)

At Bridgewater State University

Thursday, February 28, 2013

~All activities will be in the Conant Science and Mathematics Center unless otherwise noted~

**~Please attend the presentation for which you have been assigned during each session~**

### **Summaries:      Session 1 (3:45 – 4:45 pm) and Session 2 (5:35 – 6:35 pm)**

**Title:**            *Bug Watch: One KEY to Watershed Education*  
**Presenter:**    Kim McCoy, Program Coordinator, CASE, CityLab and WAL, Bridgewater State University  
**Affiliation:**    Watershed Access Lab (WAL) at BSU's CASE  
**Location:**      CON267

Bug Watch uses representative aquatic insects as a reflection of environmental health. This exercise exposes students to biodiversity, a simple dichotomous key, and calculations for assessing river health. Through professional development opportunities, educators learn how to integrate environmental literacy and field experiences into their classroom in order to develop awareness, knowledge, and commitment to the decision makers of tomorrow.

**\*\*Title:**            *Chemicals of Concern: The Need for Green Chemistry (30 minute session)*  
**Presenter:**    Ed Brush, Professor, Chemical Sciences, Bridgewater State University  
**Affiliation:**    GreenLab at BSU's CASE  
**Location:**      CON381

Chemicals provide the function we demand in everyday products; however we have made some very poor choices in the use of chemicals resulting in unintended consequences on human health. Green Chemistry is the science of making smart choices in how we use chemicals and chemical products. This workshop session will focus on why green chemistry is so important, and how we can introduce this concept in the classroom with some simple exercises.

**\*\*Title:**            *Tour of BSU Observatory (30 minute session)*  
**Presenters:**    Jamie Kern, Observatory Manager, Physics, Bridgewater State University  
                          Joseph Doyle, Visiting Lecturer, Physics and Geology, Bridgewater State University  
**Affiliation:**    Observatory at BSU's CASE  
**Location:**      CON500

Visitors will be guided through the BSU Observatory's facilities, including our viewing patios, observatory workroom and dome. Our equipment's capabilities will be demonstrated. Weather allowing, visitors will have the opportunity to view objects through our telescopes.

**\*\* These two workshops will be run together. Please report to room CON381 at the beginning of the session.**

**Title:**            *Rotate, Reflect, Project, and Flatten: Transformers of the World, Unite!*  
**Presenter:**    Polina Sabinin, Assistant Professor, Mathematics, Bridgewater State University  
**Affiliation:**    Games Teachers Play at BSU's CASE  
**Location:**      TBD

Let the students engage with the 3-D world around them! Explore many quick-to-learn, yet challenging, games, puzzles, and activities with language-free visual clues that get all kids excited about 3-D geometry. Students from diverse backgrounds, ages, and preparation all get hooked! Come play and experience the challenge!



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**Title:**            *Engaging Students in “A Whale of a Mystery”*

**Presenters:**    Merideth Krevosky, Associate Professor, Biological Sciences, Bridgewater State University  
Jennifer Mendell, Assistant Professor, Biological Sciences, Bridgewater State University

**Affiliation:**    CityLab at Bridgewater State University’s Center for the Advancement of STEM Education

**Location:**      CON261

During this workshop, attendees will become familiar with the basic concepts and biology that underlie the Whale of a Mystery curriculum and the process of science. Participants will gain and practice some basic laboratory skills used in modern biology and biomedicine and gain insight into this exciting inquiry-based curriculum for potential introduction into the middle or high school classroom.

**Title:**            *EarthView: A Portable Globe Classroom for Geography and STEM Education*

**Presenters:**    James Hayes-Bohanan, Professor, Geography, Bridgewater State University  
Vernon Domingo, Professor, Geography, Bridgewater State University

**Affiliation:**    Project EarthView at BSU’s CASE

**Location:**      TBD

Since 2008, over 40,000 Bay State students have seen the world in a whole new way with EarthView, a portable globe classroom. The EarthView team of geography educators brings students of all ages into the inflatable classroom to learn about geography in a memorable way. During this session, we will discuss the role of EarthView in the promotion of both STEM Education and Global Education. We will also discuss professional development opportunities such as the EarthView Institute, in which teachers are encouraged to develop their own EarthView programs.

**Title:**            *MACS: Supporting Local Math Education*

**Presenters:**    Glenn Pavlicek, Professor/Grad. Coordinator, Computer Science, Bridgewater State University  
Rebecca Metcalf, Assistant Professor, Mathematics, Bridgewater State University  
Gloria Moran, Elementary and Early Childhood Education, Bridgewater State University  
Jenny Tsankova, Associate Professor of Education, Roger Williams University  
Dan Adams, Retired Mathematics Department Head, Brockton High School

**Affiliation:**    Mathematic and Computer Science Collaborative (MACS) at BSU’s CASE

**Location:**      TBD

MACS (Mathematics and Computer Science Collaborative) runs professional development seminars for area teachers. This year, our theme is “Rejuvenating Mathematics Instruction to Meet the New Standards Year 2: Implementing the Standards for Mathematical Practice”. We will give a brief overview of our organization and present a sample seminar on how to incorporate the Practice Standards into the Content Standards.



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### **Plenary Session (5:00 – 5:30 pm)**

**Title:** *Elements of Upcoming Revised Science and Technology/Engineering Standards*  
**Presenter:** Jacob Foster, Director, Science and Technology/Engineering  
**Affiliation:** MA Department of Elementary and Secondary Education  
**Location:** CON120

Massachusetts is getting close to a revised set of state science and technology/engineering standards. Revised standards must prepare students for the opportunities and needs of a dynamic economy, particularly a STEM-focused economy as Massachusetts has, and for the key scientific and technical issues that face society in the coming decades. Learn about several of the key features and differences the revised standards will embody and the implications those will likely have for STEM education across Massachusetts.

### **Keynote Address (7:40 – 9:00 pm)**

**Title:** *Evidence, Politics, and Reality: Does Science Really Matter in America Today?*  
**Speaker:** Kenneth Miller, PhD, Professor of Biology, Royce Family Professor for Teaching Excellence, Department of Molecular Biology, Cell Biology, & Biochemistry  
**Affiliation:** Brown University  
**Location:** CON120

From climate change to public health policy to the teaching of evolution, science seems to be at the center of one controversial issue after another in America today. A careful analysis reveals that there are common elements to the anti-science movements that have formed against fields such as evolution, climate change, as well as genetically modified food and mass vaccination programs. What is at the heart of our nation's difficulties with science, and is there a way in which we can improve the acceptance of science in our society? As I will suggest, I believe that the anti-science movement may actually present an unprecedented opportunity for scientists and science educators to change the public image of science.

### **Special Thanks**

The Center for the Advancement of STEM Education (CASE) at Bridgewater State University extends its appreciation to Vice President Clark of External Affairs and Dean Goldstein of the Bartlett College of Science and Mathematics for their continued support of CASE initiatives. CASE also thanks the President's Office and the Trustees Office, faculty and staff associated with CASE, as well as all other departments and individuals at Bridgewater State University who have worked behind the scenes to make this conference possible.

Thank you for attending!