

April 3, 2014

# CSU Regional Workshop

## Overview of Computational Science Education Materials

# XSEDE

Extreme Science and Engineering  
Discovery Environment



# Why Computational Science?

- How science and engineering is done while emerging efforts in social sciences and humanities
  - Models allow insights when systems are too large, too small, or too complex to fully understand through experimentation
  - Reduces time to solution for many types of research and design
  - Can explore virtual environments of past and present
  - Allows exploration of wide variety of digital media
  - Facilitates research that could not be done in any other way



# Computational Science Skills

- Computational science provides skills needed in the present and future workforce
  - Understanding of modeling techniques that are used in research and business
  - Analytical skills
  - Teamwork skills
  - Communications skills
- Inquiry-based education approach engages students in learning

# Benefits to Students

- Inquiry-based learning is more effective than traditional lecture oriented instruction
  - Students are actively engaged in the learning process
  - Students gain deeper insights and have higher retention rates for the information
  - Facilitates the integration of information across academic disciplines – math, science, engineering, computer science



# Goals for the Session

- Demonstrate the pedagogy for computational science education
- Introduce materials and models that can be incorporated for classroom use
- Introduce simple tools that can be used to build and demonstrate modeling techniques
- Provide examples of projects and links to related materials from a variety of fields



# Getting Started


- Point your browser here:
- <https://www.osc.edu/~sgordon>
  - Choose **Workshop Materials**
  - Then **Links to other materials**

# Session Evaluation

- - <http://bit.ly/CSUXSEDE>







Our reach will forever  
exceed our grasp, but,  
in stretching our horizon,  
we forever improve our world.

**XSEDE**

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