

## Locations

The academy will operate at two sites – Columbus and Akron – inviting students and teachers from each of the surrounding areas to apply. At the Columbus site, professors from the College of Engineering at The Ohio State University will oversee the program preparation and instruction for 20 students and five teachers. Professors from the College of Engineering at The University of Akron will do the same for the northeast Ohio site.

## Cost

Students will have all of their tuition and fees paid for the college credits. Also, students and teachers will receive stipends, as well as a laptop computer to use during the program. Participants will, however, be responsible for the cost of food and transportation to the program site.

“The STEM Academy is a great opportunity for students and teachers to experience first-hand the use of modeling and simulation in computational science – a field that has been cited by prominent state and federal committees and panels as keys to continued competitiveness in science and engineering.”

— Steve Gordon, Director of  
the Ralph Regula School

For more information about the STEM Academy or its student and teacher applications, please visit our website  
[www.rrscs.org/STEM\\_academy](http://www.rrscs.org/STEM_academy)

### Program Event Dates

Summer Workshop - June 16 - July 2, 2008  
1 Day Event - November 8, 2008  
1 Day Event - February 21, 2009

### Summer Workshop Application Deadline

April 30, 2008

### Apply!

For student or teachers applications to be considered, applications must be received by April 30, 2008. Students and teachers selected for enrollment in the Academy will be notified by May 14, 2008.

### Criteria

- Rising Ohio high school junior and seniors (2007-08 school year)
- Ohio high school teachers



### OSC Contact Information

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Ohio Supercomputer Center

Computational Science & Engineering

## STEM Academy

The Ralph Regula School  
of Computational Science,  
The Ohio State University,  
& The University of Akron



An innovative program that introduces high school students and teachers to modeling and simulation approaches to engineering design.



**Professional Tools  
Challenging Design Projects  
High School & College Credits**

The STEM Academy in Computational Science and Engineering is a 13-day, non-residential summer workshop with a number of academic-year, follow-up events where participants will learn how physical phenomena are represented in mathematical models and translated into computer simulations. Ohio high school teachers and students (juniors and seniors) with a strong interest in computational science and engineering and who are able to commute to a host site are eligible and encouraged to apply. Experts with the Ohio Supercomputer Center's Ralph Regula School of Computational Science, the University of Akron and The Ohio State University will guide participants attending workshop sessions in Columbus or in Akron.

With an overall goal of staying competitive in today's global economy, STEM Academies focus student inquiry and increase teacher capacity in the fields of Science, Technology, Engineering and Mathematics. This statewide and national movement seeks to grow and nurture creative students who are problem solvers, innovators, inventors, logical thinkers, and strong communicators.

## Student Advantages

Innovative companies today use the power of modeling and simulation – computational science – to design new products and processes, to test designs without the building of costly prototypes, and to bring better products to market faster and more cheaply. The Goodyear Tire and Rubber Company uses computer modeling and simulation to design new tires, and Procter and Gamble uses similar methods to produce Pringles that won't fly off the conveyor belt.

Students and teachers will learn how to build, use, and test computer models of many interesting phenomena – from the descent of a skydiver jumping from a plane, to the strength of a steel beam holding up a structure, to the transport of heat through a system, to the growth of an aquatic population. The program continues through the year with mentoring and additional work on projects, as well as two Saturday events focusing on more sophisticated approaches and improvements in the student's own projects.

- Use professional engineering tools
- Utilize math and technology to solve interesting practical problems
- Demonstrate ability in STEM fields
- Build a portfolio of projects
- Earn college and high school credits
- Learn from accomplished experts
- Build teamwork and leadership skills

## Teacher Benefits

Along with 40 talented high school participants, the Academy is seeking ten enthusiastic teachers interested in implementing a computational science and engineering course in their schools, especially those from schools with current or prospective Project Lead The Way programs.

- Obtain experience using project-based learning on applied problems to teach interdisciplinary-oriented science, math, and engineering materials
- Explore science and engineering principles with the students
- Earn graduate credits
- Receive certification to teach this course in your high school

