

National Science Resources Center

THE NATIONAL ACADEMIES



Smithsonian Institution

2009 SMITHSONIAN SCIENCE EDUCATION ACADEMIES FOR TEACHERS

July 12–17, 2009
Biodiversity



July 19–24, 2009
**Energy: Past,
Present, & Future**



July 26–31, 2009
**Earth's History &
Global Change**



August 2–7, 2009
**Ecological
Field Studies**



***I**gnorance more frequently begets confidence
than does knowledge.*

CHARLES DARWIN (1809–1882)

THE 2009 SMITHSONIAN SCIENCE EDUCATION ACADEMIES FOR TEACHERS

The Professional Development Center of the National Science Resources Center (NSRC), an organization of the Smithsonian Institution and the National Academies, and a world-recognized leader in improving the quality of science teaching and learning, is offering a series of exciting professional development opportunities for science teachers—the **Smithsonian Science Education Academies for Teachers**.

Each of the four Smithsonian Science Education Academies for Teachers—***Biodiversity; Energy: Past, Present, & Future; Earth's History & Global Change; and Ecological Field Studies***—is based in the museums and/or research centers of the Smithsonian and other locations near Washington, D.C. The NSRC's special access to the resources of the Smithsonian Institution will take you behind the scenes to explore the collections and meet the scientists and educators who make the Smithsonian the world's premier museum complex.

Each academy includes:

- Hotel accommodations* for Sunday through Thursday nights
- A Sunday evening orientation and reception
- Daily breakfast and lunch
- A special Thursday night celebration
- Transport to daily events (when appropriate)
- All materials and tuition

Academies *do not* include:

- Travel to and from Washington, D.C.
- Parking fees or airport transfers
- Evening meals Monday through Wednesday
- Registration fees for college credits with Virginia Commonwealth University

College Credits

Three graduate credits are offered by Virginia Commonwealth University for each academy. To earn credits participants must participate in all sessions and complete a special post-academy assignment. Graduate course fees are an additional \$300 for each academy. For more details on earning college credit, please contact the NSRC Professional Development Center at (202) 633-2968, nsrcpdcenter@si.edu or crowellj@si.edu

Accommodations

Hotel accommodations for the Washington, D.C., academies will be at the Holiday Inn Capitol, 550 C Street, SW, Washington, DC 20024. (See <http://www.hicapitoldc.com> for hotel features.) Accommodations for the ***Ecological Field Studies Academy*** will be at the Holiday Inn in Front Royal, VA.

*Participants should *not* contact the hotel directly for reservations—the NSRC will handle all hotel arrangements for you.



Biodiversity Academy



July 12–17, 2009

Washington, D.C.

What problems do scientists encounter when trying to determine biodiversity? Which group of insects has the greatest biodiversity? What are the impacts of global climate change on biodiversity? The **Biodiversity** Academy consists of exciting and unique experiences designed to introduce you to a variety of Earth's living organisms and to enhance your understanding of the nature and origins of biodiversity. Each day you will participate in inquiry-based, hands-on sessions, lectures, and field trips in and around the Smithsonian Institution. You will interact with Smithsonian scientists, curators, and museum educators as you explore aspects of biodiversity on our planet. Many of your experiences will provide you with information about resources that can be used in your classroom.

Who should attend?

- Life and Earth Science Teachers—grades 6–12
- Other teachers interested in Biodiversity issues

Contact Time: Approximately 36 hours

Where will you go?

The Smithsonian Institution's National Museum of Natural History, National Zoological Park, and National Air and Space Museum, all in Washington D.C.; and the Smithsonian Environmental Research Center, Edgewater, Maryland

What are the learning objectives?

By completing this course, you will:

- Improve your understanding of key concepts that relate to the origins and nature of biodiversity
- Explore the variety of life as you access the museum collections and other scientific and educational resources of the Smithsonian
- Experience pedagogical techniques that facilitate a hands-on, inquiry approach in teaching about biodiversity
- Increase your awareness of some major threats to biodiversity

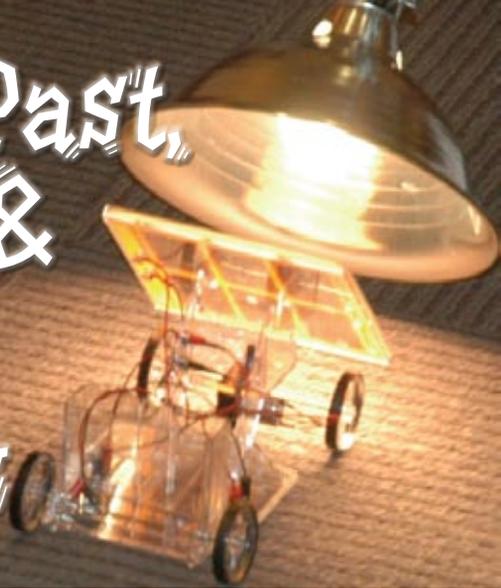
Course Fee

\$1,990 covers course materials, hotel accommodations near the National Mall, daily breakfasts and lunches, a Sunday evening dinner and orientation, a special Thursday evening Academy banquet, and field trip transportation.

To register, fill out and return attached registration form or go to: **http://www.nsrconline.org/professional_development/SSEAT_BIO.html**.



Energy: Past, Present, & Future Academy



July 19–24, 2009

Washington, D.C.

Energy: Past, Present, and Future looks at the history of energy development and use in the United States, current energy needs, and alternative energy sources for the future. Topics to be explored include fossil fuels, the generation of electricity, solar energy, wind power, fuel cells, other energy sources, and the use of energy in transportation. Each day participants will engage with scientists, curators, engineers, and educators at the Smithsonian Institution museums and other local venues. This new academy will incorporate some experiences from our previous *Energy & Motion* and *Electricity & Magnetism* academies.

Who should attend?

- Physical Science Teachers and any interested science teachers—grades 5–12

Contact Time: Approximately 36 hours

Where will you go?

The Smithsonian Institution's National Museum of American History and National Museum of Natural History; the National Institute of Standards and Technology; BP Solar Cell Facility; the Baltimore and Ohio Railroad Museum; and electricity-generating facilities (locations may vary from the ones listed)

What are the learning objectives?

By completing this course, you will:

- Develop your understanding of key concepts relating to energy sources and how they have been used
- Improve your understanding of current research and development being conducted into alternative energy resources
- Enjoy special access to the scientific and educational resources of the Smithsonian's collections, scientists, and historians
- Engage in hands-on inquiry sessions that facilitate the teaching of this topic
- Form rich connections through experiences with scientists and educators

Course Fee

\$ 1,990 covers course materials, hotel accommodations near the National Mall, daily breakfasts and lunches, a Sunday evening dinner and orientation, a special Thursday evening Academy event, and field trip transportation.

To register, fill out and return attached registration form, or go to: http://www.nsrconline.org/professional_development/SSEAT_energy.html



Earth's History & Global Change Academy

July 26–31, 2009

Washington, D.C.

How was the Earth formed? What is the oldest known rock on Earth? How is human activity altering the systems of our planet? These are some of the questions investigated in this Academy, which looks at change from the perspective of the history of our planet, from its formation through the origins of life and its impacts.

You will get the opportunity to interact with Smithsonian educators, curators, and research scientists as you go behind the scenes at the museums and elsewhere. Topics you will explore include planetary processes, volcanism and plate tectonics, the changing oceans, and atmosphere. Sessions will include some hands-on experiences relevant to your classroom as well as subject content delivered by world-class experts in their field.

Where will you go?

The Smithsonian Institution's National Museum of Natural History, National Zoological Park, and National Air and Space Museum; The Marian Koshland Science Museum; The Carnegie Institution for Science

Who should attend?

- Teachers of earth sciences and interested science teachers—grades 6–12

Contact Time: Approximately 36 hours

What are the learning objectives?

During the Academy you will

- Develop your understanding of key concepts relating to the history of the Earth
- Discover how scientists use rocks to investigate how the earth has changed over time
- Enjoy special access to the resources of the Smithsonian Institution
- Meet earth scientists from NOAA, NASA, the International Ocean Drilling Program, and the Carnegie Institution
- Learn about pedagogical approaches and resources that can facilitate student learning of earth science concepts

Course Fee

\$1,990 covers course materials, hotel accommodations, breakfast and lunch daily, a Sunday evening meal and orientation, a Thursday evening celebratory meal and field trip transportation.

To register, fill out and return attached registration form, or go to:

http://www.nsrconline.org/professional_development/SSEAT_earth.html



Ecological Field Studies Academy



August 2–7, 2009

Front Royal, Va.

How can you establish a field studies program at your school? How do you set up a forest plot using recognized scientific protocols? What technology can you use in a field studies program?

During the *Ecological Field Studies Academy*, you will discover what is required to create a world-class field studies program at your school. The venue is at the **Smithsonian Conservation and Research Center**, in Front Royal, a small town nestled in the scenic Shenandoah Valley, in close proximity to the Shenandoah National Park and the famous Skyline Drive.

Each day you will hone your field studies skills and expertise while working in the field with educators, scientists, and researchers, who will share the techniques they use in their own research and fieldwork and help you develop student-appropriate mapping, data-collection, and research projects.

Where will you go?

Most work takes place at the Smithsonian Conservation and Research Center in Front Royal, Virginia. **This Academy will take place predominantly outdoors** and will require you to walk and work in the field under a variety of weather conditions.

Who Should Attend?

- Life and Earth Science Teachers—grades 4–12

Contact Time: Approximately 40 hours

What are the learning objectives?

By completing the field work conducted in this course, you will:

- Develop and plan a field studies program for your school
- Improve your understanding and experience the nature of the work of scientists who study life on our planet
- Learn techniques and protocols for the collection/classification of organisms
- Improve your ecological field skills

Course Fee

\$ 1,700 covers course materials, hotel accommodations, all meals, and field trip transportation. A late afternoon shuttle to Front Royal will be available from Dulles International Airport on August 2, returning August 7. Please contact the NSRC for details.

To register, fill out and return attached registration form, or go to:

http://www.nsrconline.org/professional_development/SSEAT_ECO.html

2009 Smithsonian Science Education Academies for Teachers

Registration Form (or register online at URLs provided)

Name _____

Home Address _____

City/State/Zip _____

Phone/Fax/Email _____

Summer Contact Information (if different from above)

Phone/Email _____

Hotel Room Registration

(Include self first and indicate fellow registrant from same school/district sharing room.)

#1 _____

#2 _____

If you have special mobility, dietary, or other needs, please identify here:

FEES	Biodiversity July 12–17	Energy: Past, Present, & Future July 19–24	Earth's History & Global Change July 26–31	Ecological Field Studies August 2–7
Course Fee	1,990	1,990	1,990	1,700
Discounts: (check as apply)				
Early-bird registration Payment deadline: May 15, 2009	-100	-100	-100	-100
Hotel				
Not staying at hotel	-500	-500	-500	-500
Roommate- sharing a room with fellow registrant	-350	-350	-350	-350

Please detach form and send, along with check, purchase order, or credit card information to:

NSRC Professional Development Center
901 D Street, SW, Suite 704-B
Washington, DC 20024

or fax to: (202) 287-2070

Please make checks payable to “National Science Resources Center.”

Credit card information: VISA MasterCard

Name on card _____

Card number _____

Expiration date _____

National Science Resources Center



The National Science Resources Center
Professional Development Center
901 D Street, SW, Suite 704-B
Washington, DC 20024-2169



THE NSRC IS AN ORGANIZATION OF:

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine



**Smithsonian
Institution**

ABOUT THE NSRC

The National Science Resources Center was established in 1985 by the **Smithsonian Institution** and **the National Academies** to improve the learning and teaching of science for all students in the United States and throughout the world. The prestige and credibility of these two world-renowned institutions provide the NSRC with access to research, scientific expertise, and resources to inform our work. The NSRC works with leaders representing school districts, academic institutions, businesses, museums, foundations, government agencies, scientific and engineering societies, publishers of education resources, and nonprofit organizations, to improve K–12 science education.

Support for the **Smithsonian Science Education Academies for Teachers** has been provided by a grant from the Smithsonian Women's Committee and by generous gifts from the Dow Chemical Company, Wachovia Foundation, and Baltimore Gas & Electric, A Constellation Energy Company.



A Constellation Energy Company



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