

# Teacher Enhancement Program for K-12 Educators

AT THE COLORADO SCHOOL OF MINES



SUMMER 2016

<http://te.csmspace.com>

# COLORADO SCHOOL OF MINES

## Teacher Enhancement Program

### Summer 2016

#### REGISTRATION

All of the courses announced in this brochure are coordinated through the Office of Special Programs and Continuing Education at the Colorado School of Mines. **Unless another organization or individual is specified as the registration contact in a course listing, enrollment forms and tuition check(s) should be mailed to:**

Teacher Enhancement Program  
Office of Special Programs & Continuing Education  
Colorado School of Mines  
Golden, CO 80401-0028  
(303) 279-3855

**To view the most current course listings or to order an official TE transcript, visit our home page at:**  
**<http://te.csmospace.com>**

**You must pre-register at least 48 hours prior to the start of a workshop (Saturday and Sunday excluded). Do not show up for a class without a confirmed registration from the Teacher Enhancement Office or person/organization taking the registrations. You are likely to be turned away by the instructor. CSM reserves the right to assign audit (non-credit) status with full tuition responsibility to walk-in participants.**

#### TUITION AND REFUND POLICIES

Registration through Teacher Enhancement must be accompanied by full tuition payment by check or credit card authorization. If a course registrant cancels or transfers an enrollment, the tuition amount **minus** a \$25 cancellation/transfer fee will be refunded or applied to another course. Unless otherwise indicated, you must cancel at least 48 hours in advance of a workshop to qualify for a refund (Saturday and Sunday excluded). **Once a class has begun, no full or partial tuition refunds will be granted.** Colorado School of Mines reserves the right to cancel a course (usually one week prior to delivery) if the minimum enrollment is not reached (with full tuition refund to registrants). Colorado School of Mines and the Teacher Enhancement Office will not be liable for any other expenses incurred by registrants.

When paying tuition by check, please make out a **separate** check to "CSM Continuing Education" for **each** course and for **each** participant.

#### ATTENDANCE POLICY

**Course participants are expected to attend each class session in its entirety.** This includes arriving on time and staying until dismissal. Credit will be granted for a course only when the full contact hour requirements have been met. Missed sessions of a course cannot be made up by attending subsequent offerings of the same class or by completing additional assignments. In consideration of the instructor and other course registrants, **DO NOT** bring children of any age to class under any circumstances.

#### TRANSCRIPT AND CREDIT INFORMATION

The Teacher Enhancement Office and Colorado School of Mines cannot be responsible for meeting individual deadlines for credits toward teacher licensure and/or salary increases. Official transcripts for current course work can be printed upon written request approximately two weeks after the instructor submits course grades to the Teacher Enhancement Office. Individual letters of completion are not available. We are unable to give you any information via phone or email on what courses appear on your transcript due to FERPA. Graduate-level semester credit offered for each course is applicable for license renewal in the State of Colorado and is generally accepted elsewhere. The credit is not applicable toward a degree at CSM. Request for Transcript of Record forms can be found at <http://te.csmospace.com>.

**All policies and requirements stated above are program-wide and not at the discretion of individual instructors. Enrollment in any course offered for CSM credit implies your agreement to comply with program policies and requirements.**

*All courses offered in cooperation with the Extended Studies Program of the Colorado Commission on Higher Education*

## Summer 2016 Course Offerings

### SPAIN: HISTORY OF CRUSADERS AND KINGS (K-12)

CT-1201-16D  
4 semester credit hours  
Dates: June 2-12 (extension June 12-15)  
Locations: Spain  
Instructor: Joyce Webb  
Tuition Fee: \$3,470 (includes airfare, lodging, ground transportation, tours, credit; extension extra)

Experience Spain from the art and architecture of Madrid to Sevilla's Alcazar, Christopher Columbus' tomb, and the romance of Flamenco dancers. Visit the Rock of Gibraltar and take a day trip to the mysterious Tangiers on Africa's Moroccan coast. Wander Granada's grand Alhambra while learning of Spain's tangled history.

**To register or for more information, contact:**

Joyce Webb, 719/229-5482  
[joycewebb@ymail.com](mailto:joycewebb@ymail.com)  
[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

### PIKES PEAK GOLD RUSH (GR. 3-12)

CT-1533-16D  
1 semester credit hour  
Dates: June 4-5  
Time: 8:00am-6:30pm  
Locations: meet at Woolly Mammoth Lot, I-70 & CO 26  
Instructor: Michael Johnson  
Tuition Fee: \$55 (**payable during workshop**)  
Registration Fee: \$165 (includes tour fees)

Learn basic geology concepts and visit historical sites made famous during the Pikes Peak Gold Rush of '59. Tour an authentic gold mine, pan for gold, and visit the historical towns of Idaho Springs, Central City, and Georgetown.

**To register or for more information, contact:**

Michael Johnson, 720/548-0560  
[Montanamike8@gmail.com](mailto:Montanamike8@gmail.com)

### PRINCIPLES AND FOUNDATIONS FOR ENVIRONMENTAL EDUCATION ONLINE (K-12)

CT-1216-16M  
2 semester credit hours  
Dates: June 5-August 13  
Instructor: Katie Navin  
Tuition Fee: \$95 (**payable during workshop**)  
Registration Fee: \$125 CAEE members, \$160 non-members

Explore the history and goals of environmental education; develop an understanding of the professional roles and instructional methods of environmental educators; and interact with other educators online. Become eligible to submit your work for certification in CAEE's certification program for a discount. Register at [www.cae.org](http://www.cae.org).

**To register or for more information, contact:**

Hillary Mason, CAEE  
303/273-9527, [outreach@cae.org](mailto:outreach@cae.org)

### ROCKS AND MINERALS (K-12)

CT-9666-16D  
1 semester credit hour  
Dates: June 13-14  
Time: 8:00am-5:00pm  
Location: CSM campus, Golden  
Instructors: Pete Modreski, Jane Dianich  
Tuition Fee: \$100

Learn or review the basics of rocks and minerals in dynamic and interactive ways in order to engage your students to learn about them. Examine specimens, do activities, and tour the CSM Geology Museum. See complementary "Walking Tour of Building Stones" field course below.

To register, mail the enrollment form and full tuition amount to the CSM Teacher Enhancement Office.

### WHIZ BANG SCIENCE (GR. 1-7)

CT-0542-16D  
1 semester credit hour  
Dates: June 14-15  
Time: 8:00am-4:00pm  
Location: Steele School, Denver  
Instructor: Ralph Sodano  
Tuition Fee: \$135

Explore and arrive at a fuller understanding of subjects including electricity, magnetism, photosynthesis, water, atmosphere, combustion, light, and more through simple but striking demonstrations and activities that can be brought into your classroom. Topics on astronomy and space will be covered under the Steele Planetarium dome.

To register, mail the enrollment and full tuition amount to the CSM Teacher Enhancement Office.

### WALKING TOUR OF BUILDING STONES IN DENVER (K-12)

CT-04131-16D  
0.5 semester credit hour  
Date: June 15  
Time: 8:30am-5:00pm  
Location: Downtown Denver  
Instructors: Pete Modreski, Jane Dianich  
Tuition Fee: \$80

Learn about rocks and geology as you tour historic Denver buildings in the vicinity of the State Capitol, Denver City and County Building, and the 16<sup>th</sup> Street Mall. Receive a copy of a field guide written specifically for school groups. See the complementary "Rocks and Minerals" class above.

To register, mail the enrollment form and full tuition amount to the CSM Teacher Enhancement Office.

## **GERMANY: ROMANS, CASTLES, & KINGS (K-12)**

CT-1509-16D

6 semester credit hours

Dates: June 15-29

Location: Germany

Instructor: Joyce Webb

Tuition Fee: \$4,470 (includes airfare, lodging, ground transportation, tours, credit)

Visit historical castles, vibrant cities, and quaint villages while traveling across Germany. Cruise on the Rhine River and gaze in awe at the castles that line both sides. Ascend Zugspitze, the highest point in Germany. Discover where German unity and democracy were born, and then visit the infamous WWII death camp, Dachau.

### **To register or for more information, contact:**

Joyce Webb, 719/229-5482

[joycewebb@gmail.com](mailto:joycewebb@gmail.com)

[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## **WASTEWATER AND RENEWABLE RESOURCES (K-12)**

CT-1215-16D

0.5 semester credit hour

Date: June 16

Time: 8:00am-5:00pm

Location: Metro Wastewater Reclamation District, Denver

Instructor: Alicia Gilley

Tuition Fee: no charge (you must pre-register)

Learn the science behind wastewater treatment. Highlight the biosolids management process, including land application of solid materials, and the production of electricity. Tour the 52,000 acre METROGRO Farm, the Robert W. Hite Treatment Facility, and a working laboratory.

### **To register or for more information, contact:**

Dawn Hoffman, Metro Wastewater Rec. District

303/286-3285 or [dhoffman@mwr.district.co.us](mailto:dhoffman@mwr.district.co.us)

## **ALL ABOUT MINING HYBRID COURSE (K-12)**

CT-5700-16M

6 semester credit hours

Dates: June 23-July 1

Time: 8:00am-mid/late afternoon (except on full-day field trips)

Location: online, CSM campus, and field trips

Instructors: various speakers

Course Coordinator: Shannon Mann, 720/250-6635

Tuition Fee: \$300

Gain a detailed overview of America's modern mining industry, answering important questions such as: What does the mining industry really do? How does the mining industry function? Why is mining important to America's society? Visit the website for more information on course requirements.

### **To register or for more information, contact:**

CMA Education Foundation, Inc.

303/575-9199, [coordinator@allaboutmining.org](mailto:coordinator@allaboutmining.org)

[www.allaboutmining.org](http://www.allaboutmining.org)

## **HAWAII: VOLCANOES & CORAL REEFS (K-12)**

CT-0906-16M

4 semester credit hours

Dates: June 25-July 3

Location: Big Island of Hawaii

Instructor: Melanie Phelps

Tuition Fee: \$2,200 (includes ground transportation, lodging, entrance fees, credit)

Explore Hawaii's Big Island – the newest land on earth. Tiptoe across Kilauea's active volcano caldera; step gently through aa and pahoehoe lava flows; and gaze upon molten lava flowing to the sea. Submerge into the shimmering brilliance of coral reef life to conduct biodiversity and environmental impact research.

### **To register or for more information, contact:**

Melanie Phelps, 719/252-1789

[melaniephe@aol.com](mailto:melaniephe@aol.com)

[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## **SCOTLAND: THE HIGHLANDS OF GLADES AND LOCHS (K-12)**

CT-0706-16M

4 semester credit hours

Dates: June 29-July 8

Location: Scotland

Instructor: Joyce Webb

Tuition Fee: \$3,570 (includes airfare, lodging, ground transportation, tours, credit)

Journey along mossy mountains, salty isles, and bottomless lochs. Taste haggis, hear bagpipes, and feel the winds of history blowing through the glens. Go time tripping through stone castles, and savor the pristine atmosphere of the Hebrides Islands. Wander with us and scan Loch Ness for legendary monsters.

### **To register or for more information, contact:**

Joyce Webb, 719/229-5482

[joycewebb@gmail.com](mailto:joycewebb@gmail.com)

[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## **AQUARIUMS AND YOUR CLASSROOM (GR. 1-12)**

CT-0259-16M

0.5 semester credit hour

Date: July 7

Time: 9:00am-5:00pm

Location: Downtown Aquarium, Denver

Course Coordinator: Colleen Shipley, 303/561-4565

Tuition Fee: \$40 (**payable during workshop**)

Registration Fee: \$75

Learn and see how to do aquarium set-up, learn maintenance tips, and try out a variety of activities that you and your students can do with your classroom aquarium as well as with our million-gallon version. Receive an interdisciplinary curriculum guide, go on a behind-the-scenes tour, and meet staff to discuss aquarium careers. Bring the ocean to your classroom, and your class to the ocean, in Denver! Registrations close 2 weeks before the start of the course.

### **To register or for more information, contact:**

Downtown Aquarium Sales & Service Center

303/561-4444

## THE GRAND CANYON OF THE COLORADO – THE ULTIMATE RIVER EXPEDITION (K-12)

CT-0428-16M  
3.5 semester credit hours  
Dates: July 7-13  
Location: Grand Canyon  
Instructor: Melanie Phelps  
Tuition Fee: \$3,110

Experience the stunning geology of more than two billion years of earth history as you whitewater raft through some of the world's most famous rapids. Includes 6.5 days on a motorized raft, helicopter airlift to the rim, flight on a twin engine plane, and all food. This is the ultimate river trip.

### To register or for more information, contact:

Melanie Phelps, 719/252-1789  
[melaniephe@aol.com](mailto:melaniephe@aol.com)  
[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## IRELAND: HAUNTED BY HISTORY AND RICH IN LEGENDS (K-12)

CT-0419-16M  
4 semester credit hours  
Dates: July 8-17  
Location: Ireland  
Instructor: Joyce Webb  
Tuition Fee: \$3,270 (includes airfare, lodging, ground transportation, tours, credit)

Experience the unpretentious simplicity of Ireland. Tour the southwestern Emerald Isle from castles to peat bogs, and explore the famous Aran Islands, the Burrens, and the Gaelic-speaking Dingle Peninsula. Kiss the Blarney Stone and climb the Rock of Cashel.

### To register or for more information, contact:

Joyce Webb, 719/229-5482  
[joycewebb@ymail.com](mailto:joycewebb@ymail.com)  
[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## DINOSAUR RIDGE TEACHERS' WORKSHOP (K-12)

CT-9206-16M  
1 semester credit hour  
Dates: July 11-12  
Time: 8:30am-5:00pm  
Location: Dinosaur Ridge Visitors Center, Morrison  
Instructors: Pete Modreski, Norb Cygan  
Tuition Fee: \$130

Experience an in-depth orientation to the dinosaur bones and tracks found on Dinosaur Ridge near Morrison, and learn how to use them as a resource for teaching. Visit the Trek Through Time Learning Center, the Morrison Natural History Museum, and the Triceratops Trail interpretive site in Golden.

To register, mail the enrollment form and full tuition amount to the CSM Teacher Enhancement Office.

## MIDDLE/HIGH SCHOOL IPS PHYSICAL SCIENCE (GR. 7-10)

CT-0786/CT-0845/CT-1039-16M  
2 semester credit hours (each week)  
Dates:  
July 11-15 (chapters 1-6)  
July 18-22 (chapters 7-11)  
July 18-22 (chapters 12-16)  
Time: 8:30am-4:00pm  
Location: CSM Campus, Golden  
Course Coordinator: Bob Stair  
Tuition Fee: \$380 (per week)

Cover 6, 11 or all 16 chapters of the 9<sup>th</sup> edition of the IPS text to enhance your knowledge and classroom performance in physical science. Experience the use of student experiments while developing an understanding of basic concepts and laboratory skills.

### To obtain an application, contact:

Bob Stair, SCI  
303/988-5041 or [rstair@sci-ips.com](mailto:rstair@sci-ips.com)

## BLACK CANYON OF THE GUNNISON: SECRET GEM OF THE WEST (K-12)

CT-0557-16M  
1 semester credit hour  
Dates & Times:  
July 12 (8:00am-5:00pm)  
July 13 (7:30am-3:30pm)  
Locations: Montrose to Delta  
Instructor: Tonya MacKendrick  
Tuition Fee: \$55 (**payable during workshop**)  
Registration Fee: \$80 (meals, lodging, and transportation on your own)

Trace the importance of the Gunnison River as it carved the spectacular views and canyons of the Black Canyon of the Gunnison. Explore the living history of Fort Uncompahgre, followed by a breathtaking guided boat ride at Curcanti National Park on Morrow Point Lake. Class includes a 1 1/2 mile round trip hike and over 200 steps.

### To register or for more information, contact:

Tonya MacKendrick, 970/216-2326  
[TJS4294@aol.com](mailto:TJS4294@aol.com)  
[www.wcoloradohistoricadventures.weebly.com](http://www.wcoloradohistoricadventures.weebly.com)

## INTRO TO PLANT PHENOLOGY AND CLIMATE CHANGE ONLINE (K-12)

CT-1213-16M  
2 semester credit hours  
Dates: July 12-August 12  
Instructor: Dennis Ward  
Tuition Fee: \$95 (**payable during workshop**)  
Registration Fee: \$35

Obtain detailed information about Project BudBurst (a plant-based citizen science program). Learn how to select your plants and make observations, get suggestions for structuring your classroom involvement, receive activities to engage your students in making observations and analyzing data, as well as forming a community with other educators.

### To register or for more information, contact:

Dennis Ward, NEON  
720/746-4924 or [dward@neoninc.org](mailto:dward@neoninc.org)

## **INTRODUCTION TO CITIZEN SCIENCE ONLINE (K-12)**

CT-1430-16M  
2 semester credit hours  
Dates: July 12-August 12  
Instructor: Dennis Ward  
Tuition Fee: \$95 (**payable during workshop**)  
Registration Fee: \$35

Receive an overview of citizen science, highlighting several existing programs that are targeted towards educators. Explore each of these programs, including how to participate, suggestions for structuring your involvement, education activities to engage your students, as well as forming a community with other educators.

### **To register or for more information, contact:**

Dennis Ward, NEON  
720/746-4924 or [dward@neoninc.org](mailto:dward@neoninc.org)

## **USING CITIZEN SCIENCE DATA IN THE CLASSROOM ONLINE (K-12)**

CT-1620-16M  
2 semester credit hours  
Dates: July 12-August 12  
Instructor: Sandra Henderson  
Tuition Fee: \$95 (**payable during workshop**)  
Registration Fee: \$35

The focus of this course is data – its use, analysis, and interpretation – and specifically citizen science collected data. Become comfortable with exploring, analyzing, and visualizing citizen science data. Create a custom lesson plan aligned with education standards for use in your classroom.

### **To register or for more information, contact:**

Dennis Ward, NEON  
720/746-4924 or [dward@neoninc.org](mailto:dward@neoninc.org)

## **WASTEWATER AND AQUATIC BIOLOGY (K-12)**

CT-1082-16M  
0.5 semester credit hour  
**Session I:**

Date: July 13

**Session II:**

Date: July 14

Time: 8:00am-5:00pm

Location: Metro Wastewater Reclamation District,  
Denver

Instructor: Steve Lundt

Tuition Fee: no charge (you must pre-register)

Obtain an introduction to the science behind wastewater treatment. Learn about industry efforts to preserve, protect, and improve aquatic environments while protecting public health. Tour a wastewater treatment plant, a water quality laboratory, and visit a river site with a Metro District water quality scientist.

### **To register or for more information, contact:**

Dawn Hoffman, Metro Wastewater Rec. District  
303/286-3285 or [dhoffman@mwr.district.co.us](mailto:dhoffman@mwr.district.co.us)

## **MINING AND MURDER: COLORFUL HISTORY OF LAKE CITY & CREEDE (K-12)**

CT-1618-16M  
1 semester credit hour  
Dates & Times:  
July 14 (7:15am-5:00pm)  
July 13 (9:00am-4:00pm)  
Locations: Lake City & Creede  
Instructor: Tonya MacKendrick  
Tuition Fee: \$55 (**payable during workshop**)  
Registration Fee: \$175 (meals, lodging, and transportation on your own)

Step back in time when legends (like Alferd Packer) were made and mining reigned supreme. Enjoy a guided 4wd jeep tour into the heart of the san Juans starting in Lake City. Then take in Creede's rich silver history by touring a mining museum and visiting ghost towns and structures of long ago.

### **To register or for more information, contact:**

Tonya MacKendrick, 970/216-2326

[TJS4294@aol.com](mailto:TJS4294@aol.com)

[www.wcoloradohistoricadventures.weebly.com](http://www.wcoloradohistoricadventures.weebly.com)

## **ALASKA: GLACIERS, GOLD, AND GRIZZLIES (K-12)**

CT-1304-16M  
6 semester credit hours  
Dates: July 15-29  
Location: Alaska  
Instructor: Melanie Phelps  
Tuition Fee: \$5,600 (includes some airfare, ferry, lodging, ground transportation, credit)

Explore Alaska's towering mountains with sparkling deep blue glaciers, fjords, whales, grizzlies, sea lions, and rookeries. Cruise the Inland Passage on the Marine Alaska Highway Ferry. Tour Ketchikan Totem Pole Park, Glacier Bay, Kenai Fjords, Denali, and Lake Clark to see fishing grizzlies.

### **To register or for more information, contact:**

Melanie Phelps, 719/252-1789

[melaniephe@aol.com](mailto:melaniephe@aol.com)

[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## **IRELAND II: DAWNING OF A NEW DAY (K-12)**

CT-0905-16M  
4 semester credit hours  
Dates: July 16-25  
Location: Ireland  
Instructor: Joyce Webb  
Tuition Fee: \$3,270 (includes airfare, lodging, ground transportation, tours, credit)

Tour Dublin, Belfast, and the east coast of Ireland. Discover the past as you gaze upon the Book of Kells, explore the tomb of Newgrange, and wander through the 6<sup>th</sup> century Monastery of Glendolough. Visit Trim Castle and explore the volcanic columns of the Giant's Causeway. The past and present become blended into another Irish adventure.

### **To register or for more information, contact:**

Joyce Webb, 719/229-5482

[joycewebb@ymail.com](mailto:joycewebb@ymail.com)

[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## **CAVES, CASTLES, AND COLORFUL CHARACTERS: HISTORY OF GLENWOOD SPRINGS TO MARBLE (K-12)**

CT-1042-16M

1 semester credit hour

Dates & Times:

July 19 (8:00am-5:00pm)

July 20 (8:00am-4:00pm)

Locations: Glenwood Springs, Redstone, Marble

Instructor: Tonya MacKendrick

Tuition Fee: \$55 (**payable during workshop**)

Registration Fee: \$165 (meals, lodging, and transportation on your own)

Experience the rich natural and human history of Glenwood Springs, Redstone, and Marble. Pass into the underworld for a thrilling tour of the Glenwood caverns. Enjoy learning about colorful characters such as Doc Holiday. Take a guided jeep tour to the historic Crystal Mill and Crystal City, learning about the rich mining history of the Marble area.

### **To register or for more information, contact:**

Tonya MacKendrick, 970/216-2326

[TJS4294@aol.com](mailto:TJS4294@aol.com)

[www.wcoloradohistoricadventures.weebly.com](http://www.wcoloradohistoricadventures.weebly.com)

## **OCEAN LITERACY (K-12)**

CT-0710-16M

0.5 semester credit hour

Date: July 28

Time: 9:00am-5:00pm

Location: Downtown Aquarium, Denver

Course Coordinator: Colleen Shipley, 303/561-4565

Tuition Fee: \$40 (**payable during workshop**)

Registration Fee: \$75

Even though Colorado is not near an ocean, we are tied to it in many ways. Ocean literacy is an understanding of the ocean's influence on you, and your influence on the ocean. Learn the 7 essential principles of ocean literacy through interactive lessons and visiting the Aquarium residents. Registrations close 2 weeks prior to the start date.

### **To register or for more information, contact:**

Downtown Aquarium Sales & Service Center

303/561-4444

## **SKY ABOVE, WATER BELOW: COLORADO RIVER I & II (K-12)**

CT-1507-16M

2 semester credit hours

Dates & Times:

Lecture: July 28 (12:30pm-8:30pm)

Canoe Trip: July 30-August 1

Locations: Sommers-Bausch Observatory, Boulder (lecture)

Instructor: Sanlyn Buxner

Tuition Fee: \$499

Get away from city lights and explore magnificent canyons and deep sky objects on a canoe trip on the Colorado River. Learn to find objects in the sky and discover how scientists study planets, stars, and galaxies. Learn how the Earth helps us make claims about far away worlds, including the possibility of life. Conduct your own research project in the field and discuss how classroom investigations support the Next Generation Science Standards.

### **To register or for more information, contact:**

Centennial Canoe Outfitters, 720/283-0553

[info@centennialcanoe.com](mailto:info@centennialcanoe.com)

[www.centennialcanoe.com/destinations/?trip=184&river=16](http://www.centennialcanoe.com/destinations/?trip=184&river=16)

## **CLIFF DWELLINGS AND VOLCANOES OF NEW MEXICO (K-12)**

CT-1031-16M

1 semester credit hour

Dates: August 2-3

Location: meet in Pueblo; drive to NM

Instructor: Melanie Phelps

Tuition Fee: \$140

Experience the volcanoes of New Mexico and the Bandelier ruins of the ancient Pueblo Indians who tunneled their homes into volcanic tuff cliffs. See the youngest volcanic fields in the continental U.S., with cinder cones, a massive caldera, radial dikes, and more. Discover the Rio Grande Rift, which causes the volcanoes as North America is being stretched apart. Learn the history of southern Colorado coal mines and labor wars, and tour the site of the Ludlow Massacre.

### **To register or for more information, contact:**

Melanie Phelps, 719/252-1789

[melaniephe@aol.com](mailto:melaniephe@aol.com)

[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## **RUINS AND VOLCANOES OF NEW MEXICO II (K-12)**

CT-1402-16M

2 semester credit hours

Dates: August 4-7

Location: meet in Santa Fe, NM

Instructor: Melanie Phelps

Tuition Fee: \$330 (includes entrance fees, credit)

Explore the history of Santa Fe, a trading hub of Old Mexico. Hike through Petroglyph National Monument where the ancient natives etched 15,000 petroglyphs into the black basalt. Continue to El Malpais to explore lava tubes, pahoehoe, aa, cinder cones, craters, and calderas. Seek out the peacefulness of Chaco Canyon, one of the largest trade centers of the Ancient Pueblo Indians.

### **To register or for more information, contact:**

Melanie Phelps, 719/252-1789

[melaniephe@aol.com](mailto:melaniephe@aol.com)

[www.coloradorivertrip.com](http://www.coloradorivertrip.com)

## **Additional Programs of Interest**

### **Rocky Mountain Conservancy – Field Institute**

Most field seminars are field-based, hands-on learning experiences in Rocky Mountain National Park. A wide range of topics are available. Visit our website at [www.rmconservancy.org](http://www.rmconservancy.org). If you have any questions, including information on our refund policy, would like to talk with a person at the Field Seminar Center, or experience technical difficulties, please call 970/586-3262. Many of our seminars fill up, so please register early. We look forward to seeing you in a field seminar this year. RMNA membership discounts are available.

## EcoAdventure Course Offerings

**Note: Register for EcoAdventure courses through EcoAdventures. See box on next page.**

### **WILDFLOWERS OF THE ROCKIES (K-12)**

CT-9613-16D

1 semester credit hour

Dates & Times:

June 11 (9:00am-5:00pm)

June 12 (9:00am-4:00pm)

Location: EcoAdventures, Morrison

Instructor: Pam Batton

Tuition Fee: \$160 (**\$180 after May 26<sup>th</sup>**)

Spend time in the wildflowers as you explore a variety of elevations and identify and discover interesting botanical facts, uses, myths and legends about wildflowers. Experience “botany in a bowl,” a creative activity to help kids understand the basics of botany.

### **SWEET WITH A STING: THE NATURAL HISTORY OF HONEYBEES (K-12)**

CT-0519-16D

1 semester credit hour

Dates & Times:

June 15 (9:00am-5:00pm)

June 16 (9:00am-4:00pm)

Location: EcoAdventures, Morrison

Instructor: Pam Batton

Tuition Fee: \$160 (**\$180 after May 31<sup>st</sup>**)

Peer into a glass hive and learn about the natural history of honeybees and their relatives. Examine the life cycle and jobs of a hive bee. Watch field bees in action as they pollinate flowers and do the “waggle dance.” Take a field trip to a bee yard to learn about a beekeeper’s daily activities.

### **THE UTE - A NATIVE AMERICAN WAY OF LIFE IN THE ROCKIES (K-12)**

CT-95106-16D

1 semester credit hour

Dates & Times:

June 23 (9:00am-5:00pm)

June 24 (9:00am-4:00pm)

Location: EcoAdventures, Morrison

Instructor: Pam Batton

Tuition Fee: \$165 (**\$185 after June 2<sup>nd</sup>**)

Discover the history of the people of the shining mountains - Ute. Get a campsite up and running; learn the basics of ancient skills used in everyday life; try your hand at fire building, cooking, sewing, beading, twining, tanning and flint knapping.

### **BEAR ME IN MIND: NATURAL HISTORY OF THE BLACK BEAR (K-12)**

CT-9737-16M

1 semester credit hour

Dates & Times:

July 30 (8:00am-5:00pm)

July 31 (2:00pm-8:00pm)

Location: EcoAdventures, Morrison

Instructor: Pam Batton

Tuition Fee: \$170 (**\$190 after July 18<sup>th</sup>**)

The natural history of the black bear will unfold through hands-on activities and a field trip to a wildlife sanctuary. Discover unique adaptations and behaviors of this large omnivore. Supplement any animal study/ecology curriculum with topics such as habitat, predator/prey relationships, and human/bear relationships.

### **EARLY EXPLORERS OF THE ROCKY MOUNTAINS (K-12)**

CT-0518-16M

1 semester credit hour

Dates & Times:

August 6 (9:00am-5:00pm)

August 7 (9:00am-4:00pm)

Location: EcoAdventures, Morrison

Instructor: Trey Corkern

Tuition Fee: \$160 (**\$180 after July 18<sup>th</sup>**)

Discover the history of soldiers, trappers, priests, and spies in the Rocky Mountains. Use botany, zoology, cartography, journaling, geometry, and celestial navigation to keep up with the likes of Zebulon Pike, Father Escalante, and Kit Carson. Go home with field specimens.

### **BACK IN BLACK - RAVENS, CROWS, AND MAGPIES (K-12)**

CT-0463-16F

1 semester credit hour

Dates & Times:

September 17 (12:00-7:00pm)

September 18 (8:00am-4:00pm)

Location: EcoAdventures, Morrison

Instructor: Pam Batton

Tuition Fee: \$160 (**\$180 after September 6<sup>th</sup>**)

Ravens, crows, magpies, and jays form the Corvid family. They are intelligent, social, curious, and one of the most adaptable bird species on earth. Their success is noted in cultural folklore and history. Discover the natural and cultural history of these remarkable birds through hands-on activities and outdoor treks.



## BEYOND THE SPIRIT OF 1776: LIFE IN COLONIAL AMERICA (K-12)

CT-1101-16F  
1 semester credit hour  
Dates & Times:  
October 1 (9:00am-5:00pm)  
October 2 (9:00am-4:00pm)  
Location: CSM campus, Golden  
Instructor: Trey Corkern  
Tuition Fee: \$160 (**\$180 after September 15<sup>th</sup>**)

Discover how we built a nation, from before the arrival of the Pilgrims at Plymouth to the fledgling colony's victory over the British Empire. Try your hand at pickling, weaving, blacksmithing, and more.

## JUST BUTTING HEADS? BIGHORN SHEEP & MOUNTAIN GOATS (K-12)

CT-0757-16F  
1 semester credit hour  
Dates & Times:  
November 5 (9:00am-5:00pm)  
November 6 (9:00am-4:00pm)  
Location: CSM campus, Golden  
Instructor: Pam Batton  
Tuition Fee: \$160 (**\$180 after October 20<sup>th</sup>**)

Discover why head butting is common among bighorn sheep and rare (but serious) among mountain goats. Learn about unique adaptations for survival in a rugged habitat. Hike into bighorn country as the mating season begins to observe their behavior. Learn why the mountain goat truly is a beast the color of winter.

To register, mail the CSM enrollment form along with a check payable to EcoAdventures to:

**Pam Batton**  
**EcoAdventures**  
**5894 South Meadow Drive**  
**Morrison, CO 80465**  
**303/697-0327, Fax 303/697-0329**  
**Pamsecoadventures.com**

### Registration/Cancellation/Refund Policy

If payments have not been received by the registration deadline (2 ½ weeks before the class), EcoAdventures reserves the right to charge a late registration fee of \$10.00 or delete you from the class and allow a person from the waiting list to take your spot.

If you notify us of a cancellation before the registration deadline, we will refund your tuition less a \$25.00 cancellation fee. If you cancel after the registration deadline, we will refund your tuition less a cancellation fee of \$35.00. If you cancel 48 hours before a class begins, we will refund half of your tuition. If you cancel 24 hours before a class begins or on the day of class or are a no-show to class, no refund will be offered. These fees also apply to class transfers.

## Native Plant Master Program Course Offerings

**Note: Register for course through Native Plant Master Program. See box below.**

### NATIVE PLANT MASTER (K-12)

CT-1611  
0.5 semester credit hour  
**Session I:**  
Dates & Times:  
May 23 (6:00-9:00pm), June 14, 21, 28 (8:00am-12:00pm)  
Locations: Golden & Hayden Green Mtn. Park  
Instructor: Phil Lyon  
**Session II:**  
Dates & Times:  
May 23 (6:00-9:00pm), July 8, 15, 22 (8:30am-12:30pm)  
Locations: Golden & Golden Gate Canyon State Park  
Instructor: Mariska Hamstra  
**Session III:**  
Dates & Times:  
May 23 (6:00-9:00pm), July 12, 19, 26 (8:30am-12:30pm)  
Locations: Golden & Rollinsville  
Instructor: Irene Shonle  
Tuition Fee: \$40 (**payable during chosen workshop**)  
Registration Fee: \$105

Choose to visit a close-in park filled with prairie wildflowers, grasses, and shrubs, a wildflower-filled state park, or a wilderness area filled with wildflowers, forests, and meadows. Learn fascinating facts about the characteristics, ecology, and human connections for 40+ plants, and develop skills in using a botanical key to identify them during three field sessions.

To register or for more information, contact:

**Lisa Vernon**  
**lverson@jeffco.us**  
**303/271-6621**

## Denver Botanic Gardens Course Offerings

**Note: Register for DBG courses through the Gardens. See box below.**

### **BUILDING A SCHOOLYARD GARDEN (K-12)**

CT-0812-16D  
0.5 semester credit hour  
Date: June 13  
Time: 8:30am-4:30pm  
Location: Denver Botanic Gardens  
Instructor: Kirsten Bell  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 DBG member; \$55 non-member

Learn how to create a simple vegetable garden in your schoolyard either in the ground or in containers. Get tips on gardening, plants suitable for your school year season, and ideas on how to incorporate a school yard garden curriculum into your reading, writing, math, science, and social studies.

### **THE GROWING CLASSROOM (K-12)**

CT-1221-16D  
0.5 semester credit hour  
Date: June 20  
Time: 8:30am-4:30pm  
Location: Denver Botanic Gardens  
Instructor: Kirsten Bell  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 DBG member, \$55 non-member

Classrooms are often hot, cold, or have little to no natural light – all conditions not suitable for growing plants. With a little know-how, your classroom can be green and lush year round. Learn techniques and tips for successfully growing plants in your classroom, and take home a variety of plants you planted yourself.

### **TEACHING PLANTS FROM ROOT TO SEED (K-12)**

CT-0646-16M  
0.5 semester credit hour  
Date: July 11  
Time: 8:30am-4:30pm  
Location: Denver Botanic Gardens  
Instructor: Kirsten Bell  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 DBG member; \$55 non-member

Learn fun and unique ways to teach plant structure and function. Explore what each part of the plant does through hands-on activities that you can transfer easily to your classroom. Cover concepts such as photosynthesis, transpiration, and pollination.

### **READING, WRITING & ARITHMETIC IN THE GARDEN (K-5)**

CT-1220-16M  
0.5 semester credit hour  
Date: July 18  
Time: 8:30am-4:30pm  
Location: Denver Botanic Gardens  
Instructor: Kirsten Bell  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 DBG member; \$55 non-member

Learn how to use your garden or classroom plants to teach a variety of subjects. Get easy-to-implement ideas on how to teach your content area requirements using plants and gardens. Explore a variety of activities that provide hands-on learning opportunities for your students in math, reading, writing, and social studies.

**To register by phone/email:**

**DBG Registrar, 720/865-3580**

[registrar@botanicgardens.org](mailto:registrar@botanicgardens.org)

**To register online:**

[www.catalog.botanicgardens.org](http://www.catalog.botanicgardens.org)

## Denver Museum of Nature & Science Course Offerings

**Note: Register for Museum courses through the Museum. See box below.**

### **NATIVE PLANTS, ANIMALS, PEOPLE & SKIES**

#### **CANOE TRIP (K-12)**

CT-1603-16F

1.5 semester credit hours

Dates:

June 11 (lecture)

June 24-26 (canoe trip)

September (classroom implementation)

Time: 8:30am-3:30pm (lecture)

Instructor: Tim Blesse, 303/370-8298

Tuition Fee: \$421

Participate in a 4-day river/museum field course led by Museum staff. Learn to become guides for your students, building "essential nature literacy" that promotes both cognitive development and responsible citizenship. Gain important knowledge about topics from your science and social studies curriculum.

#### **SIMPLY SCIENCE (PREK-1)**

CT-1025-16D

1 semester credit hour

**Session I:**

Dates: June 13-14

**Session II:**

Dates: June 27-28

Time: 8:00am-4:30pm

Instructors: Cybil Holmes, Harmony Hey

Tuition Fee: \$60

Build your science content knowledge while learning how to incorporate and nurture science into your classroom. Enjoy a variety of in-depth experiences that explore an inquiry approach to science. Workshop will include discussions with Museum staff and scientists; connections to science concepts through math and children's fiction and nonfiction books; and hands-on interdisciplinary activities that incorporate art and manipulatives.

#### **ELEMENTARY INQUIRY ACADEMY HYBRID COURSE (GR. 3-5)**

CT-1150-16F

3 semester credit hours

Dates: June 20-October 8

June 20-23 (8:00am-3:30pm)

October 8 (8:00am-3:00pm)

August 28-Oct. 8 (online portion)

Instructor: Robert Payo, 303/370-6014

Tuition Fee: \$150

Become inspired by what inquiry teaching can do for you and your students while delving into inquiry learning for your classroom. This hands-on learning experience provides fun and inventive ways of using inquiry while capitalizing on the life and physical science resources and experts available to you at the Museum. After experiencing inquiry learning first-hand during the onsite sessions, the six-week online portion extends your experience as you put your skills into practice with the support of your Museum facilitator and your fellow colleagues. Focus on how support inquiry across the curriculum through Colorado Standards and Next Generation Science Standards. Receive a \$150 stipend upon successful completion of the workshop.

#### **SECONDARY INQUIRY ACADEMY HYBRID COURSE (GR. 6-12)**

CT-1214-16F

3 semester credit hours

Dates: July 11-October 15

July 11-July 14 (8:00am-3:30pm)

October 15 (8:00am-3:00pm)

September 4-October 15 (online portion)

Instructor: Tim Blesse, 303/370-8298

Tuition Fee: \$150

Become inspired by what inquiry teaching can do for you and your students. Delve into inquiry learning for your classroom with particular attention to 21<sup>st</sup> century skills. This hands-on learning experience provides fun and inventive ways of using inquiry while capitalizing on the life and physical science resources and experts available at the Museum. After finding out about inquiry learning first-hand during the onsite sessions, the six-week online portion extends your experience as you put your skills into practice with the support of your Museum facilitator and your fellow colleagues. Focus on how to support inquiry across the curriculum through Colorado Standards and Next Generation Science Standards. Receive a \$150 stipend upon successful completion of the workshop.

#### **SIMPLY SCIENCE II (PREK-1)**

CT-1118-16M

1 semester credit hour

Dates: July 25-26

Time: 8:00am-4:30pm

Instructors: Cybil Holmes, Harmony Hey

Tuition Fee: \$60

Build your science content knowledge while learning how to incorporate more science inquiry into your classroom. Receive ample time to collaborate, brainstorm, and discuss ways to apply concepts.

**To register or for more information, contact:  
Denver Museum of Nature & Science  
teacherprograms@dmns.org  
www.dmns.org/teachers/professional-  
development/**

## Butterfly Pavilion Course Offerings

**Note: Register for Butterfly Pavilion courses through the Pavilion. See box below.**

### BEYOND BUTTERFLIES (K-12)

CT-1536-16D  
0.5 semester credit hour  
Dates: June 7 & 9  
Time: 10:00am-2:00pm  
Location: Butterfly Pavilion, Westminster  
Instructor: Christine Leahy  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 BP member; \$55 non-member

What creatures come to mind when you think of invertebrates? Explore the Butterfly Pavilion's newest exhibit, Invertebrate World, to experience learning tools to tap curiosity, design a lesson using the 5E Model of Science Instruction to use/adapt, and discover incredible invertebrate diversity, butterflies, and beyond.

### EARLY CHILDHOOD EDUCATION

#### EXTRAVAGANZA (PREK-2)

CT-1616-16D  
0.5 semester credit hour  
Dates: June 14 & 16  
Time: 10:00am-2:00pm  
Location: Butterfly Pavilion, Westminster  
Instructor: Christine Leahy  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 BP member; \$55 non-member

Butterflies and bugs are naturally fascinating to most young learners. Discover how to tap into each child's natural curiosity and deepen their learning. Learn science content and how to scaffold it to capitalize on natural curiosity; experience and deconstruct an ECE lesson; design a lesson using the 5E Model of Science Instruction to use/adapt; and gain confidence with facilitating ECE field trips and science lessons.

### THE GOOD, THE BAD, THE BUG-LY (K-12)

CT-1521-16D  
0.5 semester credit hour  
Dates: June 21 & 23  
Time: 10:00am-2:00pm  
Location: Butterfly Pavilion, Westminster  
Instructor: Christine Leahy  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 BP member; \$55 non-member

What is it about invertebrates that attracts or repels humans? Use inquiry to challenge misconception-based fears and develop a new lens through which to empower you to see and value invertebrates. Experience and deconstruct a science lesson to evaluate alignment with the 5E Model of Science Instruction, then design a lesson using the 5E Model to use/adapt.

### AMAZING INVERTEBRATE ADAPTATIONS & PARTNERSHIPS (GR. 2-5)

CT-1617-16D  
0.5 semester credit hour  
Dates: June 28 & 30  
Time: 10:00am-2:00pm  
Location: Butterfly Pavilion, Westminster  
Instructor: Christine Leahy  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 BP member; \$55 non-member

Explore amazing adaptations and intricate partnerships from the invertebrate world. Through close-up encounters with live invertebrates, props, and media, investigate camouflage and mimicry, bioluminescence, stunning behavioral adaptation, and partnerships from pollination for predator protection and more. Experience science lessons designed using the 5E Model of Science Instruction and collaborate to design one you can use/adapt for your own classroom.

### POLLINATORS IN PERIL – MONARCHS & BEES (GR. 3-6)

CT-1615-16M  
0.5 semester credit hour  
Dates: July 12 & 14  
Time: 10:00am-2:00pm  
Location: Butterfly Pavilion, Westminster  
Instructor: Christine Leahy  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$50 BP member; \$55 non-member

Combining the strengths of distance learning, project-based learning, and citizen science, this workshop will empower you to connect your students to authentic science. Experience and deconstruct two digital lessons rich with content and engaging activities about monarch butterflies and bees; learn about citizen science projects students can do; and outline steps for implementing project-based learning with your students. Receive booking priority for fall virtual field trips Monarch Mysteries or Besieged Bees.

**To register or for more information, contact:**  
**Butterfly Pavilion Adult Education**  
**720/974-1862**  
[www.butterflies.org/learn](http://www.butterflies.org/learn)  
[education@butterflies.org](mailto:education@butterflies.org)

## Project WILD - Project Learning Tree - WET

Projects WILD and Learning Tree are supplemental, interdisciplinary environmental education programs emphasizing wildlife, forest and water resources, and our interdependence with the natural world. Using hands-on activities that create awareness, appreciation, understanding, skills and commitment, you and your students learn to address environmental issues within the framework of your existing curriculum. You will receive activity guides, posters, prizes, and other supplemental materials.

All Project WILD and Learning Tree PreK-12 activities have been correlated to the Colorado Model Content Standards for Science, Math, Geography, History, Reading and Writing. Spanish translations of activities are available for Project Learning Tree and Project WILD. New PLT materials are available for integrated middle and high school curricula.

Following is a list of upcoming workshops. **Pre-register by calling the person listed and sending in the non-refundable registration fee at least 7 days prior to the first day of the workshop (unless otherwise noted). Tuition will be due on the first day of the workshop. Please register through the person listed, not through the Colorado School of Mines.** Workshops may be cancelled one week before the start date if minimum enrollment numbers have not been met. Other dates may have been added; call for updated workshop listings.

### PROJECT WET (K-12)

CT-9629-16M  
13 semester credit hour  
Date: July 27  
Time: 9:00am-5:00pm  
Location: Downtown Aquarium  
Tuition Fee: \$40 (**payable during workshop**)  
Registration Fee: \$35

Project WET is a collection of innovative, water-related K-12 activities that are interdisciplinary, hands-on, and are fun and easy to use. Focus on large and small group learning and laboratory investigations. Practice teaching WET activities to fellow workshop participants. Registration must be received two weeks prior to the start date.

#### **To register or for more information, contact:**

Downtown Aquarium  
303/561-4444

**For updated information:**  
**Project WILD, 303/291-7165**  
**Project Learning Tree, 303/278-8822**  
[www.coloradoplnt.org](http://www.coloradoplnt.org)  
[www.wildlife.state.co.us/Education](http://www.wildlife.state.co.us/Education)

## Fall 2016 Course Preview

### **PERSEVERING PIKA: SECRETS OF ALPINE SURVIVAL (K-12)**

CT-1534-16F

0.5 semester credit hour

Date: September 3

Time: 8:30am-5:00pm

Location: Rocky Mtn. Conservancy, Estes Park

Instructor: Chris Ray

Tuition Fee: \$40 (**payable during workshop**)

Registration Fee: \$80

Have you ever wondered how non-hibernating animals like yourself might fare trying to survive in the alpine year-round? Watch the American pika demonstrate its survival strategy. Pikas and their hibernating neighbors, yellow-bellied marmots, chipmunks, and squirrels, are easy to watch in the summer and fall as they forage among the alpine wildflowers. Learn how to spot different animals behaviors that provide clues to how each survives the long, cold winter.

**To register or for more information, contact:**

Rachel Balduzzi, Rocky Mtn. Conservancy

970/586-3262

[Rachel.balduzzi@rmconservancy.org](mailto:Rachel.balduzzi@rmconservancy.org)

## Course Enrollment Form

**Please Print**

Full Name: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Social Security Number\*: \_\_\_\_\_ Date of Birth: \_\_\_\_\_  
 Telephone: (school) \_\_\_\_\_ (home) \_\_\_\_\_  
 School: \_\_\_\_\_ Grade Level: \_\_\_\_\_  
 Email: \_\_\_\_\_

**When CSM is the registration contact, I prefer to receive a confirmation letter by:**

**E-mail:** \_\_\_\_\_

**Fax; fax number: ( )** \_\_\_\_\_

**Mail** **\*required if taking course for credit**

Are you Hispanic/Latino? Yes/No

Select one or more:

\_\_\_\_\_ American Indian or Alaska Native

\_\_\_\_\_ Native Hawaiian or Other Pacific Islander

\_\_\_\_\_ Asian

\_\_\_\_\_ White

\_\_\_\_\_ Black or African American

### Indicate the course(s) for which you are registering

Course #	Course Title	Course Dates	Tuition
CT-_____	_____	_____	_____
CT-_____	_____	_____	_____
CT-_____	_____	_____	_____
CT-_____	_____	_____	_____
CT-_____	_____	_____	_____
<b>Total:</b>			_____

*Please follow carefully the specific registration instructions which accompany each course listing in this catalog. When the Teacher Enhancement Program is the registration contact fill out the enrollment form and mail along with the tuition amount to the Colorado School of Mines Teacher Enhancement Program. Please send a separate check for each course, and for each participant. Do NOT mail this form to us unless we are listed as the registration contact!*

**Make checks payable to CSM Office of Continuing Education.**

**Mail check(s) and application form (unless otherwise noted in course listing) to:**

CSM Teacher Enhancement Program  
 1600 Jackson St., Ste. 160A  
 Golden, CO 80401  
 Phone: (303) 279-3855  
<http://te.csmspace.com>