Endeavor

Science Teaching Certificate Project

Sponsored by:
National Aeronautics and Space Administration
(NASA Award: NNX08BA63A)

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GOAL: Contribute to STEM workforce through a national ESTCP for K-12 educators, and attract K-12 students to STEM through what teachers implement

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The **NASA Endeavor Science Teaching Certificate Project** awards over 40, one-year fellowships each year to current and prospective teachers. Funding authorization for the Project is provided through the NASA Endeavor Teacher Fellowship Trust Fund as a tribute to the dedicated crew of the Space Shuttle Challenger.

The Project is administered by U.S. Satellite Laboratory, Inc. In partnership with State Departments of Education, Endeavor Fellows take five graduate courses in an innovative, LIVE (online) format from the comfort of their home or school. They learn to apply research-based pedagogical strategies and cutting-edge content to their classroom contexts while becoming a part of a special network of like-minded educators across the Nation. Endeavor Fellows will be awarded a Certificate in Applied Science Education from Teachers College Innovations at Teachers College, Columbia University, as they apply STEM (Science, Technology, Engineering and Mathematics) principles to their classroom practice.

NASA will work in partnership with State Departments of Education to ensure program participants can apply credit from project courses towards state certification requirements.

Visit the NASA Press Release >>

TC Innovations
Teachers College/Columbia University

U.S. Satellite

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Click here to find out more about U.S. Satellite and its pipeline of education programs.
Endeavor Privacy Policy

Endeavor
Science Teaching Certificate Project

What is the ESTCP?

Highly-competitive Fellowship Project for K-12 *formal*, in-service, alternative-route and pre-service educators

Endeavor Fellows will take online courses and earn a certificate of completion in Applied Science Education.

Why U.S. Satellite?

Expansion from:

-NASA-sponsored PD for NES:

'Live Short Courses for NASA Explorer Schools'

-U.S. Satellite/ TEACHERS COLLEGE COLUMBIA UNIVERSITY

Certificate in Applied Science Education

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NASA Explorer Schools
LIVE, Short Courses

Overview | Courses | Contact Us

Available to the faculty at each NASA Explorer School (NES) and schools that applied to be NES schools, sign up for award-winning professional development and implement popular, standards-based educational programs with NASA content. Courses will each run for four, LIVE, one hour sessions.

Classroom programs that usually require onsite training are effectively learned with online training through easy-to-use interactive webcasts! Review each course for details. An internet connection plus a regular telephone line are the only requirements for these LIVE opportunities!

Each LIVE, Short Course includes curriculum applications for the classroom teacher. National standard alignments will be provided. Thematic and achievement-based assessments that will help prepare students for state tests are included for Signals of Spring I, Signals of Spring II and WDLC.

Click here to download the Academic Year 2006-07 Live, Short Courses brochure.

Delivery sponsored by: National Aeronautics and Space Administration
(NASA Award NNG05GJ75G)

Click here to find out more about U.S. Satellite Laboratory, Inc. and its pipeline of education programs.

NASA Explorer Schools
LIVE, Short Courses

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Academic Year 2006-07 Short Courses

Each Short Course runs two weeks, with four (or six in the case of Signals of Spring) one-hour sessions.

Choose between two time slots: 4:00-5:00pm EDT or 9:00-10:00pm EDT*

Dates	Description	
10/16/06, 10/18/06, 10/23/06, and 10/25/06 ***NEW** additional course is* Tuesdays 2/6/07, 2/13/07, 2/20/07, and 2/28/07 (9PM EST only)	**Astro-Venture** *Searching for Life in the Universe* Target: Grades 5-9, or high school	More Info Visit Website
Monday 11/6/06, Thursday 11/9/06, Monday 11/13/06, Thursday 11/16/06	**WDLC—Weather Data Learning Center** *Use Weather Data to Teach and Learn Math* Target: Grade 4	More Info Visit Website
Monday 11/27/06, Thursday 11/30/06, Monday 12/4/06, Thursday 12/7/06, Monday 12/11/06, Thursday 12/14	**Signals of Spring I: Birds and Land Animals** *Using Earth Imagery to Explain the Movement of Animals* Target: Grade 7-8, or high school	More Info Visit Website
Thursday 1/4/07, Tues 1/9/07, Thursday 1/11/07, Monday 1/16/07	**Signals of Spring II: Marine Animals** *Tracking Marine Animals Using Earth Imagery* Target: Grade 7-8, or high school	More Info Visit Website
Monday 1/22/07, Wednesday 1/24/07, Monday 1/29/07, Wednesday 1/31/07	**Student Observation Network: Tracking a Solar Storm** *Understanding the Physical Effects of the Sun* Target: Grade 7 to high school +	More Info Visit Website
Monday 3/5/07, Wednesday 3/7/07, Monday 3/12/07, and Wednesday 3/14/07	**Lessons from the Ocean** *Use the Ocean to Teach Earth & Life Science* Target: Grade 4-9, or high school	This session is FULL.
Thursdays 3/8/07, 3/15/07, 3/22/07, 3/29/07 (9PM EST only) *Course offered again in May 2007. See below.*	**Mars Detectives with EventScope** *Exploring Mars to Understand Earth* Target: Grade 5-9, or high school	This session is FULL. Please see below for information on the May session.

data from NES teachers

Relevance to Classroom Practice

- **Already Implementing:**
  - 79.6% *using* what they learned (NASA content, classroom activities, strategies) during the *current* school year
- **Planning to implement:**
  - 96.6% of respondents *anticipate* using what they learned during the *current* school year.
- **U.S. Satellite Short Courses solved problems with traditional Professional Development**
  - Irrelevant, ineffective, fractured
  - Not giving teachers what they need to teach students

    (Corcoran, 1995; Wilson & Berne, 1999)

STAGE

Short-courses to Transform and Advance Great Educators

Home | About STAGE | Calendar | Courses | Contact Us | Sign In

...from the comfort of your own home or work.

Graduate Credit Available!

Find out more ▶

New! eFolio ▶

STAGE's new learning experience!

You choose from 4 live, 1-hour sessions (interactive) with specific live dates and times **OR self-paced** interactive archived sessions with rolling start dates to fit your schedule. If course credit interests you, choose from one of our new paths!

✔ Certificate Path

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

Earn a certificate in Applied Science Education with Teachers College, Columbia University, **the nation's #1 rated School of Education**. Take 5 courses. Low cost graduate credit available. For more information, call (800) 707-8519.

✔ Master's Degree Path

University of West Florida

Earn a Masters degree in Curriculum and Instruction (M.A.) from University of West Florida (NCATE accredited) by taking STAGE courses. For more information, call (800) 707-8519.

✔ Graduate Credit Path

Earn (very) low cost graduate credit. 3 credits per course.
[More Info and Pricing]
[Courses and Registration]

✔ Continuing Education Hours Path

Earn 45 continuing education hours per course.
[More Info and Pricing]
[Courses and Registration]

"It is so great to be able to use technology — to have a computer lab actually become a tool for teaching rather than just a glorified typewriter and Game Boy that it often becomes."
— *Teacher from Poplar, MT*

Read what other teachers are saying about STAGE!

Login

Upcoming Short-courses

All sessions are EDT.

- **Physical Science in Motion: Classroom Applications** NEW!
  Session Starting 05/06/08, 4 PM
  Session Starting 05/06/08, 9 PM
- **Reading and Writing in the Science Classroom**
  Session Starting 06/23/08, 4 PM
  Session Starting 06/23/08, 9 PM
- **Lessons from the Ocean: Science on the Water Planet**
  Session Starting 07/14/08, 10 AM
  Session Starting 07/14/08, 3 PM
- **NASA's Astro-Venture: Is There Life Out There?**
  Session Starting 07/22/08, 4 PM
  Session Starting 07/22/08, 9 PM
- **Humans in Space: Preparing for Moon, Mars and Beyond**
  Session Starting 09/15/08, 4 PM
  Session Starting 09/15/08, 9 PM
- **NASA's Astro-Venture: Is There Life Out There?**
  Summer 2008 Self-paced Session
- **NASA's Tracking a Solar Storm: The Science of the Sun**
  Summer 2008 Self-paced Session
- **Exploring Mars: A New Twist on Earth Science**
  Summer 2008 Self-paced Session

Endeavor
Science Teaching Certificate Project

Summary Points

- 5 Cohorts

  Cohort 1 (40 Endeavor Fellows)
  Applications Due: December 5, 2008
  Start January 2009

  Cohort 2 (40 Endeavor Fellows)
  Applications due: March 15, 2009
  Start September 2009

- Fellows selected from 50 states (+)

- Majority serving underrepresented student populations

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Science Teaching Certificate Project

Related Programmatic Objectives

- Over 2000 applications
- Certificate consists of 5+ courses (15+ graduate credits)
- Award 200+ Endeavor Fellowships
- Candidates from 50 states +
- 15-20% *pre-service* teachers
- Matching awards by state or district

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Science Teaching Certificate Project

Related Education Objectives

-**Lead online/onsite workshops for college science teacher educators**, to learn to infuse NASA content into methods and practicum courses, and attract pre-service Fellows

- **Support teachers** in the field (mentors, collaboration tool)

- Online community of practice

- Award Special ***Leadership Distinction* Certificates**

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Science Teaching Certificate Project

Related Education Objectives

- **Improve teacher Pedagogical Content Knowledge** in STEM disciplines by demonstrating *change in practice*

- ***Apply* science concepts** with NASA content

- Infuse **content from all Mission Directorates** into pre-service and in-service/alternative certification areas

- **Assist teachers** in earning/maintaining STEM credentials in cooperation with NASA's Office of Education

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Science Teaching Certificate Project

Partners?

Aerospace Education Services Project (AESP)

Teachers College, Columbia University

State Departments of Education

FOCUS States (Year I – FL, ME, VA, NYC, TX)

Earth System Science Education Alliance (ESSEA)

Stanford University School of Education

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Other Details

- **NSTA or resource stipend**
- **Alumni Status (mentor, select opportunities)**
- **Sabbatical or Full-time educators**
- **Selection Committee (5)**
- **Evaluation [Performance Measures, Benchmarks]**

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Endeavor
Science Teaching Certificate Project

What about the Courses?

- 4-6 LIVE Sessions with Expert Instructors
  Cutting-edge content Classroom applications
- Guest Scientists/Content Developers
- Create cross-cutting communities – various educators
- Teacher Presentations
- Self-paced rigorous activities / eFolio

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As additional NASA assets are integrated over the coming months, additional courses will be scheduled.

Action Research in the Science Classroom

Prerequisite: Research Methods in Applied Science Education

Target Grade(s): K-12

All Endeavor Fellows are required to take this course.

In this course, participants conduct research in their educational setting to examine some aspect of teaching and learning. Design and enact action research by reviewing background literature, formulating research questions, designing a study, collecting data, completing a thorough analysis and reporting findings. Participants are encouraged and prepared to present research at an appropriate education conference and optionally initiate a project at the district or county level to earn a Leadership Distinction with their Certificate.

Methods of Applied Science Education

Target Grade(s): K-12

All Endeavor Fellows are required to take this course.

This course includes elements of theory and practice for teaching, learning and assessing science. Participants study the history of science education reforms and engage in a variety of activities to

Life and Marine Science: Tracking Live Marine Animals

Target Grade(s): 7-8, or high school

Tracking Marine Animals Using Earth Imagery

Development sponsored by:
National Aeronautics and Space Administration
(NASA Award: NCC5433)

Follow marine animals in real-time (including polar bears!) and apply life and Earth science topics to the ocean. Learn how students become bathymetry, phytoplankton and sea surface experts as topics such as global climate change come alive. Image interpretation of the ocean makes the connection to marine animal movement and related conservation issues.

More Info and Mini Syllabus: Click here

Website: http://www.signalsofspring.net/aces/

Life with Earth Science: Real-time Animal Migration

Target Grade(s): 7-high school

Below are the initial sessions available to the first cohort of Endeavor Fellows. Click on a course to find out more.

All sessions are EASTERN time.

- **Project 3D-VIEW**
  Session Starting 01/20/09, 4 PM
  Session Starting 01/20/09, 9 PM
- **Methods of Applied Science Education** *
  Session Starting 02/03/09, 4 PM
  Session Starting 02/03/09, 9 PM
- **Physical Science in Motion: Classroom Applications**
  Session Starting 03/02/09, 4 PM
  Session Starting 03/02/09, 9 PM
- **SPRINTT**
  Session Starting 03/17/09, 4 PM
  Session Starting 03/17/09, 9 PM
- **Exploring Mars: A New Twist on Earth Science**
  Session Starting 04/22/09, 4 PM
  Session Starting 04/22/09, 9 PM

* All Endeavor Fellows are required to take this course.

Endeavor
Science Teaching Certificate Project

What are the Courses?

I. Life with Earth Science: *Real Time Animal Migration*
SMD-Earth/Life

II. Life with Marine Science: *Real Time Marine Animal Tracking*
SMD-Earth/Life

III. Exploring Mars: *A New Twist on Earth Science*
ESMD SMD-Earth/Space

IV. Physical Science in Motion: *Classroom Applications*
ARMD

V. Reading and Writing in the Science Classroom
ALL

VI. Lessons from the Ocean: *Science on the Water Planet*
SMD Earth/Phys/Life

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What are the Courses?

VII. NASA's Astro-Venture: *Is There Life Out There?* *ESMD SMD*

VIII. Humans in Space: *Preparing for Moon, Mars, and Beyond* *SOMD ESMD*

IX. NASA's Tracking a Solar Storm: *Science of the Sun* *SMD-Space/Physical*

X. Weather Data Learning Center *SMD*

XI. Physics for True Beginners: Earth, Moon & Space *SOMD SMD-Space ESMD*

XII. SPRINTT Student Polar Research-IPY Nat'l Teacher Training *SMD Earth/Space*

XIII. Project 3D-VIEW *SMD Earth/Space*

XIV. Math Connections to NASA Science *SOMD ESMD SMD-Earth/Space*

XV. Methods of Applied Science Education *ALL*

XVI. Action Research in the Science Classroom *ALL*

XVII. The 'E' in STEM: Meaningful Connections to Engineering *ALL*

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Website

11/1-11/30 Registration
12/ 5 Selection Committee
12/12 Year II Marketing to Print
12/19 Selections Completed
12/29 1st Class Announced

Endeavor
Science Teacher Certificate Program

DRAFT

NASA Endeavor Science Teacher Certificate Program

Our Nation requires a strong cadre of educators who are well-prepared to teach science and mathematics content to elementary, middle, and secondary students in order to launch our students into STEM-based careers. The NASA Endeavor Science Teacher Certificate Program (ESTCP) is an opportunity for teachers to enhance their content knowledge and understanding of pedagogical strategies for teaching cutting-edge STEM content.

What is the Endeavor Program?

The NASA Endeavor Science Teacher Certificate Program awards over 40, one-year fellowships that support participation in a 15 + graduate credit certificate program, collaboratively administered by NASA, U.S. Satellite Laboratory, Inc., and Teachers College, Columbia University. Current and prospective teachers of science will take five or more courses in an innovative, LIVE and online format from the comfort of their home or school. Teachers will learn to apply research-based pedagogical strategies and cutting-edge content immediately to their classroom contexts as they become a part of a special network of like-minded educators from across the country. Whether the Endeavor Fellows need additional science content, strategies for working with diverse learners, or new ways to engage students in science, in-service and pre-service teachers will excel as a selected Endeavor Fellow.

The blended synchronous and asynchronous model for the online courses, which integrates content from each of NASA's Mission Directorates, gives participants the best of both worlds—working through challenging science and education content with expert instructors and scientists in the lab and in the field, and studying independently with coursework tailored to individual needs. Each course includes take-away materials proven for the classroom. Endeavor Fellows may also earn a Certificate of Distinction for scaling up their practice to their district or state.

Who Should Apply?

The Endeavor Fellowship is appropriate for a wide audience of formal educators, including elementary generalists, middle or high school content experts, pre-service science educators, special educators or those seeking alternative teaching certification in science and interested in improving their science pedagogy, content knowledge and awareness of research in scientific fields.

Fellows learn to engage students of varying grade, ability levels and English proficiency levels through diverse teaching and learning styles. Each course blends content and pedagogy, and the available classroom activities meet stringent state and national standards. Incorporating real data and using technology as a tool for learning provide a springboard for cultivating problem solving skills and inspiring student research projects.

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What about NASA?

Working the first few states together

Feedback/leadership from HQ

-Center Management Ideas

Support Endeavor Fellows

Special Webcast(s)

"Graduations"

Center Projects across U.S. – *one course*

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