SCIE1015: Earth's Changing Climate
Course Syllabus

"Awareness of environmental problems and identifying the choices we have in developing solutions for these problems is critical to the health and future of our planet."

Course Details

This course is part of the PBS TeacherLine suite of self-paced courses.

Course Description

Many forms of atmospheric pollution affect human health and the environment, both locally and globally. Earth's climate is a sensitive system, which is also greatly impacted by this atmospheric pollution. Today, human activities are altering the climate system by increasing concentrations of heat-trapping greenhouse gases in the atmosphere, which raises global temperatures. Solutions to these problems do exist and are critical to the health of our planet. Through Annenberg Learner videos, interactive labs, and data analysis, learners will examine the critical connection between our Earth's atmosphere and its climate.

Course Goals

This course will help learners understand the relationship between atmospheric pollution and global climate change, and enable them to implement digital media in the classroom to convey these concepts to high school students. During this course, learners will build their understanding of the following concepts:

- How air pollution and global climate change are interconnected with potential impacts on ecosystems and human societies.
- The melting of tropical glaciers signals that human activities are warming the planet. Will natural ecosystems be able to absorb enough additional carbon dioxide to help mitigate the impact of human-induced greenhouse gas emissions?
- The importance of people becoming more aware of environmental problems and how developing solutions to these problems is critical to the health of our Earth.

Course Design

This 3 hour professional learning opportunity is a self-paced experience. Learners can explore the course content, watch videos, complete interactive labs, and take self-assessments at their own pace.

Target Audience

This course is intended for pre-service and in-service teachers of grades 9-12 and science coaches and specialists.

Standards

This course addresses the following standards:

- A Framework for K-12 Science Education
- Common Core State Standards: Mathematical Practices

Schedule This course is estimated to take approximately 3 hours to complete. However, it is a self-paced experience and learners may work at their own pace and according to their individual schedules. Learners will have access to the course for 1 year after the purchase date.

Certificate Learners will receive a printable certificate upon completion of all coursework, activities, and "Check for Understanding" multiple-choice quizzes, which will be tracked and graded by our automated system. All learners must score 100% on quizzes (with multiple attempts permitted) in order to receive the completion certificate.

Course Content and Assignments

During this self-paced course, learners will explore the key topics of atmospheric pollution and global climate change. Throughout the course, learners are asked to analyze and interpret on-screen subject matter and graphics; reflect on their ideas and experiences; watch videos; explore interactive labs; and complete self-assessments. In order to receive a course certificate, learners must complete all course activities, with scores of 100% on multiple-choice quizzes (multiple attempts permitted).

Topic	Learning Objective	Coursework/Activities
Atmospheric Pollution	Analyze how knowledge of air pollution transport can better control its impact on the Earth's atmosphere.	• Interpret on-screen content and figures • Reflect on ideas and experiences • Watch the "Atmospheric Pollution" video • Answer Check for Understanding quiz
Climate Change	Analyze the effect of rising temperatures on ecosystems and its connection to human activities.	• Interpret on-screen content and figures • Watch the "Earth's Changing Climate" video • Reflect on ideas and experiences • Answer Check for Understanding quiz
Looking Forward	Analyze whether it is possible to keep atmospheric carbon dioxide levels below 550 ppm by the year 2100.	• Interpret on-screen content and figures • Complete the Carbon Lab "Curb Emissions" • Answer Check for Understanding quiz