

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE
ACADEMIC AFFAIRS

Course Number: PHY-107 Class/Lect. Hours: 3 Lab Hours: Credits: 3 Dept.: Physics
Course Title: The Science of Climate Change Semester: F Year: 2019

Course Description, Prerequisite, Corequisite:

This introductory three-credit course presents Earth's climate system and explores how that climate system can change due to both natural and human influences. Course topics include the greenhouse effect, El Niño, atmospheric and oceanic circulation dynamics, the carbon cycle, the scientific evidence behind climate change and how human influences on the environment lead to climate change. Also included will be predicted impacts of climate change on the United States and discussion of possible options at the global level. Written and oral presentation of student work will be an integral part of the course.

Prerequisites: MAT-087 (minimum grade C-) or placement at Algebra II on the math placement test or and placement in DRG-092 and DWT-099.

OBJECTIVES/COMPETENCIES

Course Objectives	Competencies
<ol style="list-style-type: none">1. Students will demonstrate an understanding of climate and how it is influenced by atmospheric and oceanic effects.2. Students will describe factors that can perturb climate patterns.3. Students will describe the carbon cycle and how human activities can affect both the carbon cycle and climate.4. Students will work to develop the ability to integrate and critically analyze information they have learned concerning climate.5. Students will work to develop their ability to present information in written and oral form.	<ol style="list-style-type: none">1. Describe how the Earth's climate system works and differentiate between climate and weather.2. Summarize general atmosphere and ocean circulation patterns.3. Explain climate oscillations such as the El Niño Southern Oscillation.4. Explain the Earth's carbon cycle and quantitatively describe how the addition of carbon-based greenhouse gases (such as carbon dioxide and methane) from the burning of fossil fuels influence the climate.5. Qualitatively analyze and critique policy issues related to climate change and global warming.