EVSP309

Course Summary

Course : EVSP309 **Title :** Atmospheric Science
Length of Course : 8 **Faculty :**
Prerequisites : none **Credit Hours :** 3

Description

Course Description:

Atmospheric science is a relatively new, applied discipline that focuses on the structure and evolution of Earth's atmosphere and represents a blend of geosciences, environmental science, physics, chemistry, and fluid dynamics. It is often used as a synonym for meteorology and weather forecasting, but most recently there has been strong emphasis on atmospheric chemistry, greenhouse warming, and climate dynamics.

Course Scope:

This course provides a broad introduction of topics including atmospheric composition, radiation, thermodynamics, natural and anthropogenic aerosol sources, and climate.

Objectives

After successfully completing this course, you will be able to:

CO-1 Describe the composition of the atmosphere, including its constituents and vertical structure.

LO-1.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.

CO-2 Examine the various forces that are responsible for the atmospheric motions near the Earth's surface and upper troposphere.

LO-2.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.

CO-3 Describe basic physical processes that are responsible for weather climate at various spatial and time scales.

LO-3.1: Apply critical thinking skills in assessing and evaluating problems.

CO-4 Describe the major sources and sinks of natural and anthropogenic atmospheric aerosols.

LO-4.1: Evaluate societal and cultural influences on environmental challenges within their historical context and their impacts on ecosystems, public health, productivity, and social and economic justice.

CO-5 Compare how natural and anthropogenic aerosols influence climate change.

LO 5.1: Devise solutions to environmental issues that are science-based, ethical, and sustainable.

CO-6 Analyze the impact of atmospheric aerosols on human health and ecological systems.

LO 6.1: Evaluate societal and cultural influences on environmental challenges within their historical context and their impacts on ecosystems, public health, productivity, and social and economic justice.

Outline

Week 1: Introduction and Overview

Course Objectives

- **CO-1: Describe the composition of the atmosphere, including its constituents and vertical structure.**
    - LO-1.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.
- **CO-2: Examine the various forces that are responsible for the atmospheric motions near the Earth's surface and upper troposphere.**
    - LO-2.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.

Readings

- Course Overview & Introduction
- Week 1 Learning Material

Assignments

- Welcome Discussion

Week 2: Atmospheric Motion and Pressure

Course Objectives

- CO-2 **Examine the various forces that are responsible for the atmospheric motions near the Earth's surface and upper troposphere.**
    - LO-2.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.
- CO-3 **Describe basic physical processes that are responsible for weather climate at various spatial and time scales.**
    - LO-3.1: Apply critical thinking skills in assessing and evaluating problems.

Readings

- Week 2 Learning Material

Assignments

- Discussion 2
- Assignment 1

Week 3: Atmospheric Instability

Course Objectives

- CO-2 **Examine the various forces that are responsible for the atmospheric motions near the Earth's surface and upper troposphere.**
  - LO-2.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.
- CO-3 **Describe basic physical processes that are responsible for weather climate at various spatial and time scales.**
  - LO-3.1: Apply critical thinking skills in assessing and evaluating problems.

Readings

- Week 3 Learning Material

Assignments

- Discussion 3
- Assignment 2

Week 4: Atmospheric Thermodynamics

Course Objectives

- CO-2 **Examine the various forces that are responsible for the atmospheric motions near the Earth's surface and upper troposphere.**
  - LO-2.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.
- CO-3 **Describe basic physical processes that are responsible for weather climate at various spatial and time scales.**
  - LO-3.1: Apply critical thinking skills in assessing and evaluating problems.

Readings

- Week 4 Learning Material

Assignments

- Discussion 4
- Assignment 3

Week 5: Atmospheric Pollution

Course Objectives

- **CO-2 Examine the various forces that are responsible for the atmospheric motions near the Earth's surface and upper troposphere.**

    - LO-2.1: Demonstrate a solid foundation in the theory and application of the environmental sciences.
- **CO-4: Describe the major sources and sinks of natural and anthropogenic atmospheric aerosols.**
    - LO-4.1: Evaluate societal and cultural influences on environmental challenges within their historical context and their impacts on ecosystems, public health, productivity, and social and economic justice.
- **CO-5: Compare how natural and anthropogenic aerosols influence climate change.**
    - LO-5.1: Devise solutions to environmental issues that are science-based, ethical, and sustainable.

Readings

- Week 5 Learning Material

Assignments

- Discussion 5
- Assignment 4

Week 6: A Changing Climate – Part I

Course Objectives

- **CO-5: Compare how natural and anthropogenic aerosols influence climate change.**
    - LO-5.1: Devise solutions to environmental issues that are science-based, ethical, and sustainable.
- **CO-6: Analyze the impact of atmospheric aerosols on human health and ecological systems.**
    - LO-6.1: Evaluate societal and cultural influences on environmental challenges within their historical context and their impacts on ecosystems, public health, productivity, and social and economic justice.

Readings

- Week 6 Learning Material

Assignments

- Discussion 6
- Assignment 5

Week 7: A Changing Climate – Part II

Course Objectives

- **CO-5: Compare how natural and anthropogenic aerosols influence climate change.**
    - LO-5.1: Devise solutions to environmental issues that are science-based, ethical, and sustainable.
- **CO-6: Analyze the impact of atmospheric aerosols on human health and ecological systems.**
    - LO-6.1: Evaluate societal and cultural influences on environmental challenges within their historical context and their impacts on ecosystems, public health, productivity, and social and economic justice.

Readings

- Week 7 Learning Material

Assignments

- Discussion 7
- Course Project

Week 8: Indoor Air Quality

Course Objectives

- **CO-5: Compare how natural and anthropogenic aerosols influence climate change.**
  - LO-5.1: Devise solutions to environmental issues that are science-based, ethical, and sustainable.
- **CO-6: Analyze the impact of atmospheric aerosols on human health and ecological systems.**
  - LO-6.1: Evaluate societal and cultural influences on environmental challenges within their historical context and their impacts on ecosystems, public health, productivity, and social and economic justice.

Readings

- Week 8 Learning Material

Assignments

- Discussion 8
- Final Exam

Evaluation

Grading:

Name	Grade %
Weekly Discussions	24.00 %
Discussion 1 (Wk1)	3.00 %
Discussion 2 (Wk2)	3.00 %
Discussion 3 (Wk3)	3.00 %
Discussion 4 (Wk4)	3.00 %
Discussion 5 (Wk5)	3.00 %
Discussion 6 (Wk6)	3.00 %
Discussion 7 (Wk7)	3.00 %
Discussion 8 (Wk8)	3.00 %
Assignments	50.00 %
Assignment 1 (Wk2)	10.00 %
Assignment 2 (Wk3)	10.00 %
Assignment 3 (Wk4)	10.00 %
Assignment 4 (Wk5)	10.00%
Assignment 5 (Wk6)	10.00%
Course Project	13.00 %
Course Project (Wk7)	13.00 %
Final Exam	13.00 %
Final Exam (Wk8)	13.00 %

Materials

e-book via our library: https://ebookcentral.proquest.com/lib/apus/detail.action?docID=1666456

Book Title: Air Quality, 5th Edition - eBook available through the APUS Online Library.

Author: Godish, T, Davis, WT, and Fu, JS

Publication Info: Taylor & Francis

ISBN: 9781466584457

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e-book via our library: **https://www.eoas.ubc.ca/books/Practical_Meteorology/**

Book Title: Practical Meteorology: An Algebra-based Survey of Atmospheric Science

Author: Stull, R.

Publication Info: UBC

ISBN: 9780888652836

Required Readings

- See the Content section of the classroom for additional readings and weekly content

Additional Resources: Please go to the program guides in the APUS Library for additional resources: •

Environmental Science: APUS Online Library

Software Requirements

- Microsoft Office (MS Word, MS Excel, MS PowerPoint) - American Public University System provides Microsoft Office 365 to AMU/APU students and faculty at no cost
- Adobe Acrobat Reader

Course Guidelines

Citation and Reference Style

- Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help.
  Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to follow the General Course Requirements found in the Student Hanbook here: https://www.apu.apus.edu/student-handbook/your-academic-success/before-your-course-begins/general-course-requirements/

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Discussion

- Discussions are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the discussion. The purpose of the discussions is to actively participate in an on-going discussion about the assigned content.
- "Substantive" means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says "I agree" is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

Identity Verification & Live Proctoring

- Faculty may require students to provide proof of identity when submitting assignments or completing assessments in this course. Verification may be in the form of a photograph and/or video of the student's face together with a valid photo ID, depending on the assignment format.
- Faculty may require live proctoring when completing assessments in this course. Proctoring may include identity verification and continuous monitoring of the student by webcam and microphone during testing.

Communications

Student Communication

To reach the instructor, please communicate through the MyClassroom email function accessible from the Classlist of the Course Tools menu, where the instructor and students email addresses are listed, or via the Office 365 tool on the Course homepage.

- In emails to instructors, it's important to note the specific course in which you are enrolled. The name of the course is at the top center of all pages.
- Students and instructors communicate in Discussion posts and other learning activities.
- All interactions should follow APUS guidelines, as noted in the Student Handbook, and maintain a professional, courteous tone.
- Students should review writing for spelling and grammar. •

Tips on Using the Office 365 Email Tool

Instructor Communication

The instructor will post announcements on communications preferences involving email and Instant Messaging and any changes in the class schedule or activities.

- Instructors will periodically post information on the expectations of students and will provide feedback on assignments, Discussion posts, quizzes, and exams.
- Instructors will generally acknowledge student communications within 24 hours and respond within 48 hours, except in unusual circumstances (e.g., illness).
- The APUS standard for grading of all assessments (assignments, Discussions, quizzes, exams) is five days or fewer from the due date.
- Final course grades are submitted by faculty no later than seven days after the end date of the course or the end of the extension period.

University Policies

Consult the Student Handbook for processes and policies at APUS. Notable policies: •

Drop/Withdrawal Policy

- Extension Requests
- Academic Probation •

Appeals

- Academic Dishonesty / Plagiarism

- Disability Accommodations
- Student Deadlines
- Video Conference Policy

Mission

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.

Minimum Technology Requirements

- Please consult the catalog for the minimum hardware and software required for undergraduate and graduate courses.
- Although students are encouraged to use the Pulse mobile app with any course, please note that not all course work can be completed via a mobile device.

Disclaimers

- Please note that course content – and, thus, the syllabus – may change between when a student registers for a course and when the course starts.
- Course content may vary from the syllabus' schedule to meet the needs of a particular group.