Course Description

In-depth study of advanced air quality control science and management practices. Address health effects, environmental impacts, monitoring, modeling, and treatment.

Course Textbook


Course Learning Objectives

Upon completion of this course, students should be able to:

1. Describe methods for monitoring air pollution.
2. Compare and contrast air pollutant modeling equations and software.
3. Assess health effects of air pollution.
4. Compare and contrast causes of indoor and outdoor air pollution.
5. Evaluate health risks of air pollution exposure.
6. Analyze cost of air pollution to human health versus cost of air pollution control.
7. Estimate environmental impacts of air pollution.
8. Compare and contrast air pollution control technologies.

Credits

Upon completion of this course, the students will earn three (3) hours of college credit.

Course Structure

1. **Unit Learning Objectives**: Each unit contains Unit Learning Objectives that specify the measurable skills and knowledge students should gain upon completion of the unit.
2. **Written Lectures**: Each unit contains a Written Lecture, which discusses lesson material.
3. **Reading Assignments**: Each unit contains Reading Assignments from one or more chapters from the textbook. Supplemental Readings are provided in each unit study guide to aid students their course of study.
4. **Learning Activities (Non-Graded)**: These non-graded Learning Activities are provided in the units to aid students in their course of study.
5. **Key Terms**: Key Terms are intended to guide students in their course of study. Students should pay particular attention to Key Terms as they represent important concepts within the unit material and reading.
6. **Discussion Boards**: Discussion Boards are a part of all CSU term courses. Information and specifications regarding these assignments are provided in the Academic Policies listed in the Course Menu bar.
7. **Unit Assessments**: This course contains eight Unit Assessments, one to be completed at the end of each unit. Assessments are composed of matching and written response questions.
8. **Unit Assignments**: Students are required to submit for grading Unit Assignments in Units II-VI. Specific information and instructions regarding these assignments are provided below.
9. **Course Project**: Students are required to submit for grading a Course Project in Unit VIII. Specific information and instructions regarding these assignments are provided below.
10. **Final Exam (Proctored):** Students are to complete a Final Exam in Unit VIII. All Final Exams are proctored—see below for additional information. You are permitted four (4) hours to complete this exam, in the presence of your approved proctor. This is an open book exam. Only course textbooks and a calculator, if necessary, are allowed when taking proctored exams. The Final Exam is composed of essay questions.

11. **Ask the Professor:** This communication forum provides you with an opportunity to ask your professor general or course content related questions.

**Unit Assignments**

**Unit II Assignment**

Unit II begins the Course Project, which will be completed in segments as the course progresses. Your Unit II Assignment is to list five interesting air pollution topics. After you have selected your topics, explain why you chose those particular ones. Why are they of interest to you? What is their significance? How are they important? Submit your list and accompanying explanation through a file upload.

It would be a good idea to look through the entire book when determining your topics, as the material covered so far in the course (Units I and II) addresses a very small number of air pollution topics. Drawing topics from outside references and your life experiences is encouraged.

Ideas for topics include:

- PM$_{10}$ regulations and their history
- Impact of air pollution on the war in Iraq
- The impact of cadmium from air pollution on children
- Description of the Bhopal disaster relative to air pollution

**Unit III Assignment**

Your Unit III Assignment is to continue your research, and list five additional air quality topics that could serve as the basis for a research paper. Why are they of interest to you? What is their significance? How are they important?

Combine your Unit II list of five topics with your new list of five topics and their accompanying explanation, and then submit them through a file upload. Be sure to indicate which topics are new and which are old.

**Unit IV Assignment**

Your Unit IV Assignment is to identify the one topic that you will write your paper about, indicate why you selected that topic, and research to find three-five peer-reviewed and/or otherwise acceptable references for that topic, preferably from the CSU Online Library. Each reference must be three to five pages long. Use correct APA formatting when you present your list of references.

Note: Although information from the textbook can be used in your paper, and the textbook can be listed in your references, the textbook does not count as one of these three-five references. Also, unmonitored informational Web sites such as Wikipedia are not acceptable sources.

**Unit V Assignment**

Your Unit V Assignment is to choose one of the references you included in your Unit IV Assignment, and write an essay with a minimum of two paragraphs, summarizing the information. The reference must be at least five pages long; if none of those you already found has this many pages, find another relevant, acceptable reference that does.

Your essay must be a minimum of 200 words. Since the information in both paragraphs is from the one reference, put an APA-style in-text citation at the end of each paragraph. Also include an APA-style reference after the two paragraphs.

Your Unit V Assignment grade is based on your two-paragraph essay. The grade will be based on:

- Proper number of paragraphs (minimum of two required)
- Proper number of words (minimum of 200 words in the essay)
- Quality of your paraphrasing of the article
Unit VI Assignment

Your Unit VI Assignment is to write two additional 200-word essays, each with a minimum of two paragraphs, summarizing two of your other references.

Each of the new essays must contain a minimum of 200 words. Thus, your two essays will contain a minimum of 400 words total. Please use APA style in-text citations and references.

Your Unit VI Assignment grade is based on your two essays. The grade will be based on:

- Proper number of paragraphs (minimum of two for each reference, total minimum of four)
- Proper number of words (minimum of 400 words in your two essays, minimum of 200 words each)
- Quality of your paraphrasing of the articles
- Grammar and spelling
- Citation and reference format
- Quality of the references (each peer-reviewed, at least five pages long, relevant to your topic)

Course Project

Unit VIII concludes the Course Project.

The final paper uploaded in Unit VIII will contain:

- A 100 word minimum introduction, 3 previous summaries (200 word minimum for each), 2 new summaries (200 word minimum for each), and a 100 minimum conclusion.
- Microsoft Word format.
- APA Style, including APA-style citations and references.
- Cover page.
- Introduction heading, Conclusion heading, References heading, and at least two other headings between the Introduction and Conclusion sections. Abstract is not required.

Copy each of your summaries into your Microsoft Word file, and use transition language between each of the 5 summaries so that the paper flows well. Feel free to edit your previously-submitted summaries per the professor's comments or in other ways.

The Introduction and Conclusion sections must be at least 100 words each.

The Unit VIII paper will be graded according the CSU grading rubric for papers based on:

- APA style
- Proper sections
- Proper number of words (1200 word minimum: 100 in Introduction, 200 in each of the five minimum-two-paragraph summaries, and 100 in the Conclusion)
- Quality of paraphrasing
- Grammar and spelling
- Citation and reference format
- Quality of references (peer-reviewed, at least five pages long, relevant to the topic)

APA Guidelines

CSU requires that students use the APA style for papers and projects. Therefore, the APA rules for formatting, quoting, paraphrasing, citing, and listing of sources are to be followed. A document titled “APA Guidelines Summary” is available for you to download from the APA Guide Link, found in the Learning Resources area of the myCSU
Student Portal. It may also be accessed from the Student Resources link on the Course Menu. This document provides links to several internet sites that provide comprehensive information on APA formatting, including examples and sample papers.

**CSU Grading Rubric for Papers/Projects**

The course papers will be graded based on the CSU Grading Rubric for all types of papers. In addition, all papers will be submitted for electronic evaluation to rule out plagiarism. Course projects will contain project specific grading criteria defined in the project directions. To view the rubric, click the Academic Policies link on the Course Menu, or by accessing the CSU Grading Rubric link, found in the Learning Resources area of the myCSU Student Portal.

**Final Examination Guidelines**

Final Exams are to be administered to students by an approved Proctor. CSU approves two, flexible proctoring options: a standard Proctor, who is chosen by the student and approved by the university, or Remote Proctor Now (RP Now), an on-demand, third-party testing service that proctors examinations for a small fee.

A standard Proctor is an unbiased, qualified individual who is selected by the student and agrees to supervise an examination. You are responsible for selecting a qualified Proctor, and the Proctor must be pre-approved by CSU.

Students choosing RP Now must have an operational webcam/video with audio, a high-speed internet connection, and the appropriate system rights required to download and install software.

To review the complete Examination Proctor Policy, including a list of acceptable Proctors, Proctor responsibilities, Proctor approval procedures, and the Proctor Agreement Form, go to the myCSU Student Portal from the link below.

[http://mycsu.columbiasouthern.edu](http://mycsu.columbiasouthern.edu)

You are permitted four (4) hours to complete this exam, in the presence of your approved Proctor. This is an open book exam. Only course textbooks and a calculator, if necessary, are allowed when taking proctored exams.

**Communication Forums**

These are non-graded discussion forums that allow you to communicate with your professor and other students. Participation in these discussion forums is encouraged, but not required. You can access these forums with the buttons in the Course Menu. Instructions for subscribing/unsubscribing to these forums are provided below.

[Click here for instructions on how to subscribe/unsubscribe and post to the Communication Forums.](#)

**Ask the Professor**

This communication forum provides you with an opportunity to ask your professor general or course content questions. Questions may focus on Blackboard locations of online course components, textbook or course content elaboration, additional guidance on assessment requirements, or general advice from other students.

Questions that are specific in nature, such as inquiries regarding assessment/assignment grades or personal accommodation requests, are NOT to be posted on this forum. If you have questions, comments, or concerns of a non-public nature, please feel free to email your professor. Responses to your post will be addressed or emailed by the professor within 48 hours.

Before posting, please ensure that you have read all relevant course documentation, including the syllabus, assessment/assignment instructions, faculty feedback, and other important information.

**Student Break Room**

This communication forum allows for casual conversation with your classmates. Communication on this forum should always maintain a standard of appropriateness and respect for your fellow classmates. This forum should NOT be used to share assessment answers.
Grading

Discussion Board (8 @ 2%) = 16%
Unit Assessments (8 @ 5.25%) = 42%
Unit Assignments (5 @ 4%) = 20%
Course Project = 9%
Final Exam = 13%
Total = 100%

Course Schedule/Checklist (PLEASE PRINT)

The following pages contain a printable Course Schedule to assist you through this course. By following this schedule, you will be assured that you will complete the course within the time allotted.
By following this schedule, you will be assured that you will complete the course within the time allotted. Please keep this schedule for reference as you progress through your course.

<table>
<thead>
<tr>
<th>Unit I</th>
<th>Introduction</th>
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</table>
| Review: | □ Unit Study Guide  
□ **Learning Activity (Non-Graded):** See Study Guide |
| Read: | □ **Chapter 1:** Air Pollution: Health and Environmental Concerns  
□ **Chapter 17:** Regional and Global Environmental Issues of Air Pollution  
□ **Supplemental Reading:** See Study Guide |
| Discuss: | □ **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time) |
| Submit: | □ **Assessment** by Tuesday, Midnight (Central Time) |
| Notes/Goals: | |

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<th>Unit II</th>
<th>Types of Air Pollutants</th>
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| Review: | □ Unit Study Guide  
□ **Learning Activity (Non-Graded):** See Study Guide |
| Read: | □ **Chapter 11:** Estimation of Health Impacts due to PM$_{10}$ in Major Indian Cities  
□ **Chapter 12:** Health Risk Assessment and Management for Air Toxics in Indian Environment  
□ **Supplemental Reading:** See Study Guide |
| Discuss: | □ **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
□ **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| Submit: | □ **Assessment** by Tuesday, Midnight (Central Time)  
□ **Assignment** by Tuesday, Midnight (Central Time)  
□ **Proctor Approval Form** |
| Notes/Goals: | |
# MEE 6501, Advanced Air Quality Control

## Course Schedule

### Unit III: Types of Air Pollutants (continued)

**Review:**
- Unit Study Guide
- **Learning Activity (Non-Graded):** See Study Guide

**Read:**
- Chapter 6: Health Effects of Urban Air Pollution in India
- Chapter 10: Emission of Airborne Particulate Matter in Indoor Environments: Exposure and Risk Assessment
- Supplemental Reading: See Study Guide

**Discuss:**
- Discussion Board Response: Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- Assessment by Tuesday, Midnight (Central Time)
- Assignment by Tuesday, Midnight (Central Time)

**Notes/Goals:**

### Unit IV: Indoor Air Quality

**Review:**
- Unit Study Guide
- **Learning Activity (Non-Graded):** See Study Guide

**Read:**
- Chapter 4: Indoor Air Pollution and Health Effects
- Chapter 5: Effects of Indoor Air Pollution from Biomass Fuel Use on Women's Health in India
- Supplemental Reading: See Study Guide

**Discuss:**
- Discussion Board Response: Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- Assessment by Tuesday, Midnight (Central Time)
- Assignment by Tuesday, Midnight (Central Time)

**Notes/Goals:**
## Course Schedule

### Unit V: Health Effects

**Review:**
- Unit Study Guide
- **Learning Activity (Non-Graded):** See Study Guide

**Read:**
- Chapter 8: Polycyclic Aromatic Hydrocarbons: Sources, Distribution, and Health Implications
- Chapter 9: Cellular Mechanisms behind Particulate Matter Air Pollution-Related Health Effects
- **Supplemental Reading:** See Study Guide

**Discuss:**
- **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- **Assessment** by Tuesday, Midnight (Central Time)
- **Assignment** by Tuesday, Midnight (Central Time)

### Unit VI: Monitoring

**Review:**
- Unit Study Guide
- **Learning Activities (Non-Graded):** See Study Guide

**Read:**
- Chapter 2: Air Pollution Monitoring and Source Characterization
- **Supplemental Reading:** See Study Guide

**Discuss:**
- **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- **Assessment** by Tuesday, Midnight (Central Time)
- **Assignment** by Tuesday, Midnight (Central Time)

### Notes/Goals:

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**MEE 6501, Advanced Air Quality Control**
## Course Schedule

### Unit VII: Modeling

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<td>- <strong>Chapter 3:</strong> Air Pollution Modeling: Theory and Application</td>
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<td>- <strong>Request to take Final Exam</strong></td>
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### Notes/Goals:

### Unit VIII: Air Pollution Control and Economics

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<td>- <strong>Chapter 13:</strong> The Economics of Air Pollution: Theories, Valuation Methods, and Policy Aspects</td>
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