

Air Quality 2025: Final Exam

Format: During the examination you will be asked to provide a clear and straight-forward answer to the class for some of the questions given below. You may bring nothing to class to help with your answers; however, you can use blank paper to outline your answer before presenting your answer to the class. You will have a minute to think about how you want to answer the question. Your answer should take approximately 1-3 minute to present at the white board in the front of the room. You may use the white board to illustrate your answer. Be as detailed as possible. After completing your answer, you have one questions from the instructor.

Grading: The list of questions below are broken into two sections. Questions 1-10 are related to the first p of the class. Questions 10-20 are related to second half of the class. There will be three rounds of questions; with round one and two having questions from questions 11-20 and round three having questions from 1-10. Student will take turns picking questions until. For each question, the rubric has 3-4 parts to answer. Student receive full credit if they provide the answers during their presentation. Student receive partial credit if they provide the answer during after being asked a questions.

11. Plot the typical vertical profile of Ozone for over land in the North Hemisphere today? Use Ozone Amount on the x-axis and Altitude in km on the y-axis. Include the complete troposphere in the plot with labels for the “Smog Ozone layer, free tropospheric layers and stratosphere.

12. What are three precursor pollutants for atmospheric Ozone?

13. How does the lifetime of Ozone in the troposphere change with season (Summer → Winter), increasing latitude (higher latitudes), and increasing altitudes? What is a possible reason of such changes.

14. What are three components that are typically measured to access indoor air quality? Explain the importance of each component.

15. What are the methods for reducing particular matter (PM) and total volatile organic compounds (TVOC) to improve indoor air quality? Why are they different?

16. What are the sources and historical trends of atmospheric lead emissions?

17. Describe the atmospheric chemistry of lead emissions?

18. What are the health and environmental impacts of lead exposure?

19. What are the measurement techniques for atmospheric lead?

20. What is the effectiveness of regulatory approaches to lead pollution control?