

ENVR 636, Industrial Hygiene Control Methods

Course Objectives, Grading, and Policies

Spring 2007

9:00 - 9:50 a.m. MWF

Animal Sciences 112

John Volckens,
Phone: 491-6341

Office: 153 Environmental Health
Email: john.volckens@colostate.edu

Text:

Burgess, Ellenbecker, Treitman. "Ventilation for Control of the Work Environment" Wiley, 2004.
ACGIH, "Industrial Ventilation: A Manual of Recommended Practice" 25th edition.

Course Web Site: <http://webct.colostate.edu/webct/public/home.pl>

Office Hours: Walk in or by appointment. If you have questions of any kind regarding the course or its contents, please raise them in class, send me an e-mail, call, or stop by any time.

Objectives

The objective of the course is to discuss contaminant control in the workplace, community, and natural environment with an emphasis on industrial hygiene. The course requires college-level physics and a minimal knowledge of calculus. Topics cover the physics of air movement and the fundamentals of workplace ventilation, including: airflow measurement, dilution ventilation, local exhaust ventilation, hood design, fan selection, replacement air, aerosol and gas control, personal protective equipment, and control economics. Upon completing this course, students will be able to (1) recognize, evaluate, and control airborne hazards in the workplace through ventilation design [EO6.2.1], (2) employ state-of-the-art techniques for air-flow measurement and ventilation system characterization [EO6.2.1], (3) recommend appropriate control devices based on specific airborne hazards [EO6.2.4], and (4) effectively communicate their knowledge of ventilation design and characterization in concise written and verbal formats [EO6.2.10].

Grading

Grades for the course will be decided as follows:

1 st Exam:	20%
2 nd Exam:	20%
Design Problem:	20%
Final exam:	20%
Laboratory Reports:	15%
Class Participation:	5%

The date for the final exam will be Wednesday, 10 May from 11:20 a.m. until 1:20 p.m., in accordance with the CSU exam schedule for classes that meet MWF at 9:00 a.m.

Reading Assignments

This course requires a considerable amount of reading. You are expected to complete the reading assignments before coming to class each day. To provide you with motivation, pop quizzes will be given approximately once per week at the beginning of each class and will cover the reading material

assigned for that particular day. Each quiz will be worth 1-4 percentage points of **extra credit** towards the next exam. A strong showing on the quizzes can advance each test score by 1 to 2 grade levels. Therefore, it is greatly in your interest to complete the assigned reading *before* each lecture and come to class prepared.

Homework

You should also work homework problems before coming to class each day. The course syllabus indicates the relevant problems from the back of each chapter in the BET book. Additional problems/questions will be available for you on the course website. These problems have been taken directly from ventilation workbooks for practicing professionals. You can work on these problems by yourself, together with your classmates, or with students who took the course in previous years. If you have difficulty with any of these problems, please feel free to come in to discuss them with me. Historically, the amount you learn in this course will relate directly to your ability to work problems of these kinds. If you work the homework problems (*before coming to class*) and understand them, you will be prepared well for the quizzes, exams, and the final exam. Students who work too few homework problems often do poorly in the course.

Laboratories

Ventilation and control is a hands-on practice; you can only learn so much from in-class work. There will be three laboratory sessions as listed on the course schedule. During the week of the lab, we will spend the first class period discussing the laboratory setup and procedure. The following period, you and your lab partner will work together to do the experiment planned. You will then prepare a brief report of your findings (typically 1-3 pages), which will be due one week after completion of the experiment.

Design Problem

The final month of class time will be devoted to the planning, design, and execution of a real-world ventilation control problem. This problem will involve a contaminant exposure hazard in a local workplace, requiring you to 1) identify and study the hazard, 2) evaluate and design a ventilation control system, and 3) summarize your design in a professional report followed by an in-class presentation of results.