Course Revision: SAFE 461 Air Pollution

Part II. Description of the Curriculum Change

1. New Syllabus of Record.

   The new syllabus of record for this revised course is attached in Appendix A.

2. A summary of the proposed revisions:

   a. The course number and name is being changed from SAFE 461 Air Pollution to SAFE **361** Air **and Water Pollution**.

   b. The credits were changed from 3 credits to 2 credits.

   c. Course description was changed to reflect an emphasis on both air and water pollution.

   New Course Description (changes in **bold**)

   Focuses on major aspects of air **and water** pollution problems. Includes sources and **analysis of** air **and water pollution**, evaluation **and control** of **air and water** pollutants, and atmospheric **and water** chemistry. Particular emphasis on information that is practical for the safety management, industrial health, or environmental health

(l) air pollution fundamentals and control technologies;
(m) water pollution fundamentals and control technologies;
(n) environmental sampling and measurement methodologies

b. Based on the proposed program revision to the Safety Sciences Curriculum, this course is now being targeted for Junior year standing students rather than Senior

year standing students. Thus the course number was changed from SAFE 461 to

Appendix A: New Syllabus of Record

CATALOG DESCRIPTION

SAFE 361: Air and Water Pollution

2 class hours
0 lab hours
2 credits
(2c-0l-2cr)

Prerequisite: SAFE 220

Focuses on major aspects of industrial air and water pollution management. Includes sources and

F. Wastewater pollution: treatment and controls (3.5 hours)
(e.g., on-site disposal systems, municipal wastewater treatment systems, pretreatment, primary treatment, secondary treatment, disinfection, advanced treatment methods, land treatment, sludge treatment, sludge disposal)

G. Midterm (1 hour)

H. Industrial solid waste management (3 hours)
(e.g., utilization and disposal, including incineration)

J. Air pollution: meteorology, dispersion and fate (1 hour)

K. Air pollution: sampling and measurement (3 hours)

L. Air pollution: controls for stationary and mobile sources (1.5 hours)
(e.g., primary particles, volatile organic compounds, sulfur oxides, nitrogen oxides, mercury)

A: 90 - 100%
B: 80 - 89%
C: 70 - 79%
D: 60 - 69%
F: less than 60%

VI. UNDERGRADUATE COURSE ATTENDANCE POLICY

The undergraduate course attendance policy will be consistent with the university undergraduate attendance policy.

VII. REQUIRED TEXTBOOKS, SUPPLEMENTAL BOOKS AND READINGS

Spellman, F.R. & Whiting, N.E. (2006). *Environmental Science and Technology – Concepts and Applications, 2th Edition*. Government Institutes – The Scarecrow Press, Inc.: Lanhan, Maryland.

VIII. SPECIAL RESOURCE REQUIREMENTS

No special resource requirements are assigned for this course.

IX. BIBLOGRAPHY

Davis, M. L. & Masters, S.J. (2008). *Principles of Environmental Engineering*. McGraw Hill: New York, New York.

de Nevers, N. (2010). *Air Pollution Control Engineering, 2nd Edition*. Waveland Press, Inc.: Long Grove, Illinois.

Appendix B: Old Syllabus of Record

SYLLABUS OF RECORD

SA 461 - AIR POLLUTION

I. COURSE DESCRIPTION

SA 461 Air Pollution
Prerequisite: SA 301 or consent **3c-01-3sh**

Focuses on major aspects of the air pollution problem

Includes sources of pollution, evaluation and engineering of pollutants, government regulations, atmospheric chemistry and dispersion, and human and nonhuman effects. Particular emphasis on information that is practical for the safety

management, industrial health, or environmental health professional.

II. COURSE OBJECTIVES

A. Students should be familiar with the history of the air pollution problem along with the economic and philosophic aspects of this problem.

B. Students should be able to associate specific pollutants with specific pollutants with industries **or** operations.

They must know the industrial sources and they should be familiar with natural sources of specific pollutants.

C. The general principles of air pollution toxicology and environmental epidemiology should be understood and the

E. Atmospheric Chemistry (4 hours)

F. Evaluation of Pollutants (4 hours)

G. Standards (4 hours)

H. Dispersion of Pollutants (4 hours)

I. Engineering Pollution Control Measures (4 hours)

J. Case Studies (4 hours)

K. The Future of Air Pollution (4 hours)

IV. EVALUATION METHODS

[redacted]

four (4) of the following evaluation methods within the range of weights shown as determined by the individual faculty member and which must total 100%.

0-60% Exams	There will be a minimum of two written exams consisting of combinations of multiple choice, true/false, matching,

[redacted]

member.

0-25% Presentation	Each student will participate in an oral presentation topic approved by the individual faculty member.
0-20% Participation	Each student will provide active engagement in the classroom [redacted] activities requiring a collaborative effort with other students.

Extra credit can be assigned to any one of the above evaluation methods at the discretion of the instructor.

The grading scale will be based on the following:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	< 600

or, at the discretion of the faculty member a grading curve that results in a normal distribution or grades.

V. REQUIRED TEXTBOOKS, SUPPLEMENTAL BOOKS AND READINGS

[redacted]

Plog, Barbara, editor. Fundamentals of Industrial Hygiene, 4th Edition. National Safety Council. Chicago, IL 1989.

Shleien, Bernard and Michael Terpilak, editors. The Health Physics and Radiological Health Handbook. Nucleon Lectern Associates. Olney, MD 1984.

U S Department of Health and Human Services The Industrial

Environment Its Evaluation and Control NIOSH U S

Superintendent of Documents Government Printing Office

Appendix C: ABET Accreditation Criteria

ACCREDITATION CRITERIA 2011/12
Criteria for Accrediting Applied Science Programs

PROGRAM CRITERIA FOR
ENVIRONMENTAL, HEALTH, AND SAFETY
AND SIMILARLY NAMED APPLIED SCIENCE PROGRAMS

Lead Societies: American Industrial Hygiene Association or American Society of Safety Engineers
Those program criteria apply to applied science programs having environmental, health, and safety

these curricular content areas are considered to be minimum requirements. Other areas may be

program. Additionally, the extent to which each content area is developed and emphasized in a

Appendix D: Proposed Revised Catalog Description

SAFE 361 Air and Water Pollution **2c-0l-2cr**
Prerequisite: SAFE 220

Focuses on major aspects of industrial air and water pollution management. Includes sources and analysis of industrial air and water pollution, evaluation and control of air and water pollutants, and atmospheric and water chemistry. Particular emphasis is placed on information that is practical for the safety management, industrial health, or environmental health professional.