

CE 37200: Environmental Impact Assessment

Catalog Description: Human and environmental impact assessment of engineering projects. Structure of the natural environment: atmosphere, soil, surface and ground water. Environmental pollutants: air, noise, water, solid waste. Effects of pollutants on humans and ecology. Federal regulations. Transport and transformation of pollutants in the environment. 3 hr/wk; 3 cr

Pre-requisites: CE 26400, CE 35000 (min C grade) and Chem 10401 (min C grade)

Textbooks

Required: “Environmental Impact Assessment” by Wittig - distributed in class

“City Environmental Quality Review Technical Manual”, 2012 -
http://www.nyc.gov/html/oec/html/ceqr/technical_manual_2012.shtml

References: “Introduction to Environmental Engineering and Science (3rd Ed.)” by Masters and Ela, Prentice Hall, 2008 - on reserve at library (other environmental engineering textbooks might also be helpful)

Course Learning Outcomes: By the end of this class, the student should be able to:

1. Identify the steps a project will have to undergo to complete an environmental quality review
2. Assess whether the impact of an engineering project is acceptable based on regulations and risk assessment
3. Describe the soil, water and air environments and identify sources of pollution to them
4. Predict the impact of an engineering project on the environment based on general knowledge of a project and an environment it is proposed to occur in
5. Work in a group to estimate and report the impact of a proposed engineering project on the environment using general knowledge of the project and the environment

Topics:

1. Introduction and professionalism (1 class)
2. Environmental quality review (3 classes)
3. Units (1 class)
4. Modeling the environment (1 class)
5. Modeling the environment using material balances (3 classes)
6. Modeling the environment using equilibrium chemistry (3 classes)
7. Public health impact (2 classes)
8. Estimating impact to the air environment (3 classes)
9. Estimating impact to the water environment (4 classes)
10. Estimating impact to the land environment (2 classes)
11. Other (exams, project items, review and end of course survey) (4 classes)

Class/laboratory schedule: 3 hr/wk, in two 1.5-hr lectures

ABET Professional Content: Engineering sciences 3 cr. or 100%

Instructor: Dr. Nir Krakauer, Assistant Professor of Civil Engineering
Office hours Tu 2-4, W 11-12
Shepard Hall 307, 212-650-8003, nkrakauer@ccny.cuny.edu

Teaching Assistant: Mr. Denny Halim, dhalim00@ccny.cuny.edu

Syllabus, etc., will be posted on the course website, <http://www-ce.ccny.cuny.edu/nir/classes/ce372/>; materials may also be posted on Blackboard

Grading:

1.	Homework assignments	15%
2.	Three midterm exams and final	60% (15% x 4)
3.	Project	25%
4.	Extra credit	varies (see below)

Homework - Problem sets will help you practice essential concepts and prepare you for exams.
 - Problem sets will be posted on the course website at least a week before they are due
 - See the course website for when and how to hand in homework
 - Solutions will be posted online.

Exams Exams are cumulative, but material since the last exam will be emphasized more. Exams are closed book but you will be provided necessary equations and data, and you may bring one 8.5x11" sheet of notes in the first midterm (going up with each exam, to 4 sheets in the final). Study guidelines will be posted on the course website.

Project The project will help you relate class concepts to issues in actual engineering projects, and will give you a chance to improve professionalism skills, including writing and presenting engineering reports and working in groups. See the "Term project assignment" document on the course website for the details on what you will need to hand in and how.

Extra credit [1] Attend and review seminars that relate to engineering and the environment. The seminars will be announced in class or via e-mail. Submit a 2 page, single-spaced review that (a) has the seminar title, speaker name and affiliation, date, and name of the seminar series; (b) summarizes what was said, highlighting things that you found particularly interesting; (c) connects the seminar to the subject matter of this class. Your extra credit will be up to 2% per seminar report (maximum of 3). To get credit, your review should be submitted within 2 weeks of the seminar date, and before the date of the final.

[2] Proofread the Wittig textbook. I will maintain an errata list on the course website. If you are the first to e-mail me about an error, I will give you 0.5% extra credit (maximum of 20 errors per person) and add it to the list for the benefit of other students and future editions. Note that a correction to p. 192 is already posted on the website.

Course policies:

Lateness Grades for assignments (homework, project) turned in up to 1 day late will have a 10% deduction. Later assignments will not be graded.

Plagiarism Plagiarized assignments or exams will be given 0%. (See textbook Ch2 on how to cite sources.) You are allowed to work with other students on homework problems provided you state who you worked with and on which problems.

Missed exams Provided you have a good excuse, you may miss one exam. No makeup exams will be given. Instead, your other exams will be weighted more heavily.

Typical problem grading

Word problem: total worth = 5 = 1 (for trying) + 4 (for going through the right steps)

Calculation problem: total worth = 10 = 5 (from above) + 5 (from added items below)

+1 (for getting an answer) +1 (for getting the right answer)

+1 (for showing units) +1 (for stating assumptions - if none were made say "none")

+1 (for explaining if answer makes sense relative to other problems or trends)

Computer problem: total worth = 15 = 10 (from above) + 5 (from added items below)

+3 (for program)

+2 (for full example hand calculation for the first point in your program with results that match the results from your program)

Grading notation / = mistake; *u* = missing units; *a* = missing key assumptions; *e* = missing explanation of how your answer makes sense to you

Schedule:

Class meets Mon & Wed 9:30-10:45am, 73 Shepard Hall
(I will generally be in class at 9:20 to answer questions)

Schedule is approximate. Any changes will be announced in class.

Jan 28 Wittig Chapter 1
Jan 30 Chapter 2
Feb 4 Chapter 3
Feb 6
Feb 11 Chapter 4
Feb 13 Exam 1 on Chapters 1-3
Feb 20 Chapter 5
Feb 25
Feb 27
Mar 4
Mar 6
Mar 11
Mar 13 Chapter 6
Mar 18 Exam 2 on Chapters 1-5
Mar 20
Apr 3 Chapter 7
Apr 8
Apr 10
Apr 15
Apr 17 Chapter 8
Apr 22 Exam 3 on Chapters 1-7
Apr 24 Draft project reports due
Apr 29
May 1
May 6 Chapter 9
May 8
May 13 Team project presentations; project reports due
May 15 Review and course evaluations
May 20, 8 AM: Final on Chapters 1-9

See the course website for homework due dates.

See the "Term project assignment" document on the course website for due dates of project assignments.