

Course Title: Indoor Air [and Environmental] Quality
Course Number: ENOH0644-J-030
Course Location: School of Public Health building, Piscataway (New Brunswick)
Course Date & Time: Monday, 2:30-5:30 PM
Course Instructor: Derek G. Shendell, D.Env, MPH, Associate Professor, Rutgers SPH/ENOH, (732) 235-5409 w/voice mail (checked at offices/in field) shendedg@sph.rutgers.edu

Office Hours: By appointment only on Mondays prior to class in afternoon

Course Assistant: N/A

Required Course Text: N/A. We use peer-reviewed journal papers.

Additional/Supplemental Readings/Resources: There is no perfect textbook available for this course. Please take good notes and organize any handouts/supplemental readings reviewed from peer-reviewed journals. These books are recommended, however, for reference:
(1) Godish, T. Indoor Environmental Quality. 2001, Lewis Publishers, CRC Press LLC, Boca Raton, FL.
(2) Spengler JD, Samet JM, McCarthy JF (editors). Indoor Air Quality Handbook. 2001, McGraw-Hill Companies, Inc., New York, NY.

Course Description: This course addresses indoor air and environmental quality (IAQ) problems and mitigation approaches. The course examines major sources, commonly identified pollutants (exposure agents or risk factors for acute and chronic adverse health effects), and factors determining pollutant concentrations in indoor environments. The course also examines health risks associated with various IAQ problems in contrast to other relevant types of health risks (from outdoor air, ergonomics, etc). Risk management options and recommendations, including regulatory and technical approaches, will be reviewed and discussed.

Selected Department Competencies Addressed: Each Department identifies competencies for each degree offered. The competencies addressed in this course for the MPH and doctoral degrees (as an elective course) in Environmental and Occupational Health include:

- Describe the major environmental health problems to the general public as well as specific communities;
- Develop a testable model of environmental exposures (one or more agents) and adverse health outcomes (causing injury, disability, or other measure of morbidity or mortality);
- Specify current environmental risk assessment approaches and methods for a particular hazard or risk.

Please visit the Department webpages on the School of Public Health's website at <http://sph.rutgers.edu/> for additional competencies addressed by this course for other degrees and departments.

Course Objectives: By the completion of this course, students will be able to:

- Identify major IAQ problems in developed (industrialized) and less developed countries.
- Understand magnitude of IAQ related health risks.
- Quantitatively describe factors determining (perceived or measured) levels of indoor air pollutants.
- Characterize commonly identified indoor air pollutants (i.e., describe sources, removal mechanisms, exposures and potential adverse acute and chronic health effects).
- Explain principles of technical approaches used to help improve IAQ, e.g., ventilation, particle and gases filtration.
- Describe existing policy instruments for reducing exposures to indoor air pollutants.
- Make recommendations to the public on how to reduce IAQ related health risks.

Course Requirements and Grading: In addition to standard class lecturing, several other means will be used to enhance the teaching/learning effectiveness. Homework problems or mini-projects (group or individual) will be assigned. Students are expected to learn concentration, exposure and ventilation calculations through the homework assignments. Exams may be a “mini consulting project” related to an IAQ case study reviewed. Depending on the number of students enrolled, projects can be done on an individual or a group basis.

Weekly Preparation, Attendance, Participation & Discussion = 20% (200 total points)
Preparation, Attendance & Participation for weeks students choose readings = 20% (4*50 pts)
Oral Presentation on Paper #1 (10/24/12) and on Paper #2 (12/5/12) = 5% and 5% = 10%
Mid-Term Exam or Paper #1 and Final Exam or Paper #2 = 25% and 25% = 50%

Course Schedule: Please see supplemental course materials, e.g., list of dates/topics.

School of Public Health Honor Code: The School of Public Health Honor Code is found in the student bulletin (sph.rutgers.edu/academics/catalog/index.html). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another's work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the school community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

Policy Concerning Use of Recording Devices and Other Electronic Communications Systems:

When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.

FALL 2014: ENOH0644 INDOOR AIR & ENVIRONMENTAL QUALITY
 Rutgers School of Public Health, Monday 2:30-5:30 PM, Piscataway (New Brunswick campus)

Week #	Class / Discussion #	Article Choices / Disc. Prep. Led by Students?	Monday Date	Primary Indoor Air and Environmental Quality (IAQ) Topic of Class
1	1	.	9/8/14	Introduction, Course Overview and Review of Related Core Course Concepts
2	2	N / Y (1/2 of class)	9/15/14	biological agents of exposure, including due to moisture damage (leaks, flood, humidity) and mold
3	3	N / Y (1/2 of class)	9/22/14	chemical agents of exposure, particularly volatile and semi-volatile organic compounds
4	4 and 5	Y	9/29/14	heavy metals (inorganic chemicals), and persistent organic chemical pollutants (phthalates, PBDEs, PAHs, PCBs, etc) particulate matter of various size fractions, pollen and fibers (asbestos, etc)
5	6	N	10/6/14	ventilation/air exchange rates, operation and maintenance of building systems, and radon gas (focus on homes)
6	7	N	10/13/14	<i>SPECIAL GUEST</i> : Dr. Koshy Koshy, to cover intersection of IAQ/IEQ in non-occupational and occupational indoor microenvironments with fire and electric codes, etc.
7	8	Y (Paper #1 topic)	10/20/14	INDIVIDUAL ORAL PRESENTATIONS & DISCUSSIONS OF PAPERS #1 (up to 15-20 minutes per person)
8	9	N	10/27/14	noise, light (fluorescent, natural daylight), and thermal comfort parameters (temperature, relative humidity)
9	10	Y	11/3/14	IEQ issues in Homes (single-family or apartment/multi-family buildings), lead, mercury & pesticides
10	11	N / Y (1/2 of class)	11/10/14	IEQ issues in Schools and Institutions

Week #	Class / Discussion #	Article Choices / Disc. Prep. Led by Students?	Monday Date	Primary Indoor Air and Environmental Quality (IAQ) Topic of Class
11	.	.	11/17/14	NO CLASS: AT APHA 2014, N.O., LA. INSTEAD, PAPER #2 COMMENTS RETURNED BY 11/16/14, FOR YOU TO WORK ON ORAL PRESENTATION SLIDES
12	12	N / Y (1/2 of class)	11/24/14	IEQ issues in Commercial Office Buildings (Bldg) & Small Business, Bldg-Related Illness & Sick Bldg Syndrome Sx
13	13	Y	12/1/14	IEQ issues with School Buses (various fuels used), Public Transportation and for Diesel Truckers/Haulers
14	14	Y	12/8/2014	IEQ special topics, e.g., impacts of global climate change, Proceedings of INDOOR AIR 2014, etc. Possible guest speakers too! [Also, make-up week if weather cancels any prior class...]
15	15	Y (Paper #2 topic)	12/15/14	ORAL PRESENTATIONS & DISCUSSION OF PAPERS #2 (up to 15-20 minutes per person or 20+ per pair)
PAPER #1 DUE		.	10/13/2014 by 10 PM ET	<i>Please submit to Dr. Shendell via Moodle drop box! Graded papers returned <u>≤5-10 calendar days...by 10/20 class</u></i>
PAPER #2 DUE		.	11/30/2014 by 10 PM ET	<i>Please submit to Dr. Shendell via Moodle drop box! Graded papers returned <u>≤5-10 calendar days...by 12/8 class</u></i>

ENOH 0644J (3 credits)
Fall Semester 2014:
SUPPLEMENTAL NOTES FOR ENROLLEES

Due dates for assigned readings/materials, quizzes, and the assignment:

Assignments help evaluate mastery of important concepts and science-based facts, and the ability to integrate concepts through critical reading and thinking as well as a certain level of creativity / open mindedness. Please refer to syllabus. Documents cover presentations at in-person meetings.

If a student has a serious conflict for documented personal/family or full-time work related reasons, he or she must notify the instructor at the start of the course or as soon as possible, and certainly before the start of the week of a particular portion of the course an assignment is due in.

Policy on late assignments:

Three points will be deducted from any assignment's grade for each day the assignment is late.

Exception to policy: If a student has a serious conflict for documented personal/family or full-time work related reasons, he or she must notify the instructor at the start of the course or as soon as possible, and certainly before the start of the final week of the particular portion of the course an exam is for. We will agree on an alternative due date that is fair to the student and to the class.

Attendance policy:

The nature of the course makes attendance relevant—and thus somewhat critical—throughout the semester, given the discussion and use of extra supplemental materials in class (photos, short articles not available on-line, diagrams, examples of data from professor's past and ongoing research, etc). Students may choose to progress at the recommended pace, or at a faster pace. Please note in ENOH0644 fall 2014 readings must be done prior to each class.

The goal is the professor will grade papers/projects and return scores and any comments to students within one calendar week ($\leq 5-10$ days). Grades (raw scores, before any deductions for tardiness) will be posted online in the grade book function soon afterwards.

Any guest lectures are meant to enrich your experience in graduate courses. We may videotape them and make both their PowerPoint and video/audio available afterward.

Academic Honesty and Related Ethics:

This policy represents a core value and each member of the University community is responsible for abiding by its tenets. Lack of knowledge of this policy is not an acceptable defense to any charge of academic dishonesty. Each member of the academic community, including students, faculty, and staff, are expected to report violations of these standards of academic conduct to the appropriate authorities. The procedures for such reporting are on file. In an effort to foster an environment of academic integrity and to prevent academic dishonesty, students are expected to discuss with faculty expectations and any questions regarding standards of conduct. Students are encouraged to discuss freely with faculty, academic advisors, and other members of the University community questions pertaining to this policy's provisions.

Plagiarism is presenting another person's work as one's own. Plagiarism includes paraphrasing or summarizing the works of another person without any acknowledgement and submitting another student's work as one's own. Also, any work, in whole or in part, taken from the Internet or other computer-based source without proper reference (e.g., "Authors or Agency, Title of Article or Report, Internet, URL, date accessed.") will be considered plagiarism. For journal articles, books and other printed media, the style required for Rutgers SPH Fieldwork reports or APA for providing proper citations is acceptable/kindly requested. If you have any questions about reference citation format, please ask by e-mail.

Students with disabilities:

If you have a condition such as a medical, physical, psychiatric / emotional or learning disability which would make it difficult for you to complete the work described in this syllabus, please notify Rutgers SPH and the instructor at the start of the course so alternative arrangements can be made. Any information and documentation of the disability provided will be confidential.