Population Health Sciences/Environmental Studies 502: Air Pollution and Human Health

3 Credits

Canvas

Level: Intermediate/Advances. Breadth Biological Sciences: L&S Credit Type C

Meeting Time and Location: Tuesday and Thursday, 1:00-2:15

Location: 180 Science Hall

How the Course Meets the Credit Hour Policy Standard
The class meets two 75 minute periods each week over the spring semester and carries the expectation that students will work on course activities (reading, writing problem sets, studying, etc) for about 3 hours out of the classroom for every class period.

Course Professor:
Marty S. Kanarek, Ph.D., M.P.H. Professor
Department of Population Health Sciences
Room 687, 610 North Walnut Street (WARF Building)
Phone: 263-1626 FAX: 263-2820
Email: mkanarek@wisc.edu
Also Professor in Gaylord Nelson Institute for Environmental Studies
Room 85 Science Hall

Catalogue Course Description: Toxicologic, controlled, and epidemiologic studies on major air pollutants. Overview of study methods, lung physiology and pathology; air pollution sources, types, meteorology, sampling methods, controls and regulations.

Prerequisites: Junior status and a course in biology.

Learning Outcomes
1. To understand the health science of air pollution’s effect on human health.
2. To understand air pollution and its’ history as a crucial aspect of the history of environmental health.
3. To understand the U.S. and world health status and issues from air pollution.
4. To get a brief introduction to the public health research methodologies and science including epidemiology and toxicology, risk assessment and the lungs.
5. To understand detailed scientific and policy information on indoor and outdoor air pollutants.
6. To understand science and policy solutions for air pollution and human health issues.

TEXTBOOK/READINGS

Textbook
No Textbook
Readings:
- Learn@UW Canvas will be maintained for student access to lecture powerpoints, 6 per page pdf of the powerpoints, and course material including scientific journal articles, newspaper and magazine articles.
- A classlist email will be established for class messages from the Course Professor

EVALUATION
Participants enrolled for credit will be expected to attend class lectures. Grades will be based on two in-class tests and a class paper (5-10 pages).
- 1st Exam (40%)
- 2nd Exam (40%)
- Paper (20%)—due last class

ASSESSMENT AND GRADING

The course grade will be based on two in-class exams and a course paper. The determination of your course grade will be as follows (if the categories below were to change, it would be in your favor):

<table>
<thead>
<tr>
<th>Total Points</th>
<th>Letter Grade</th>
</tr>
</thead>
</table>


90.0 - 100.0  A
85.0-89.9  AB
75.0 - 84.9  B
70.0 – 74.9  BC
60.0 – 69.9  C
50.0 – 59.9  D
<50.0  F

The distribution of points by assessment is as follows:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>40%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>40%</td>
</tr>
<tr>
<td>Course Paper</td>
<td>20%</td>
</tr>
</tbody>
</table>

### Academic Integrity

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison’s community of scholars in which everyone’s academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.

### Accommodation for Students with Disabilities

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. **Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible** after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in
coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.
http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php

### A Safe and Welcoming Classroom

Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. Safe and welcoming classrooms “encourage that continual and fearless sifting and winnowing by which alone the truth can be found” by fostering an environment of free speech consistent with US law and safe from threats or violence.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.

### Mental Health Resources

School is a context where mental health struggles can be exacerbated. If you ever find yourself struggling, please do not hesitate to ask for help. The University and larger Madison community offer mental health resources to support a range of psychological issues in a confidential and safe environment:

Confidential Counseling Services:
- University Health Service (UHS) - For 24/7 confidential consultation: 608-265-5600 (option 9)

### Lecture Schedule

Semester I, Fall 2019 Schedule.

- **Th Sept 5**       Orientation -- format, grading, books: History of air pollution problem -- The Disasters
- **Tu Sept 10**      Risk Assessment (Concepts of Health and Disease: Toxicology)
- **Th Sept 12**      Epidemiology
Tu Sept 17  Lungs--Anatomy, Physiology, Pathology, Defenses + Occupational Air Pollutants (G. DoPico Med)

Th Sept 19  Mercury

Tu Sept 24  Lead (N. Stanton, SLH)

Th Sept 26  Cigarette Smoking: Health Effects Studies

Tu Oct 1   Cigarette Smoking: Indoor Air (P. Remington, PHS)

Th Oct 3   Vaping, Marijuana, Tobacco Free Campus, Survey of Air Pollutants

Tu Oct 8   Particulates (J. Schauer, Env. Chem)

Th Oct 10  Sox + Ambient Death

Tu Oct 15  Ozone Hole(s) + Health Effects of Ground level Ozone

Th Oct 17  Asbestos (H. Anderson, PHS)

Tu Oct 22 EXAM I

Th Oct 24  Ionizing Radiation

Tu Oct 29  EMF + Cellphones

Th Oct 31  Global Climate Change (J Patz, PHS + Nelson)

Tu Nov 5   Movie: “Before the Flood” (Leo DiCaprio)

Th Nov 7   Indoor Air Pollution Overview

Tu Nov 12  Asthma (C. Tomasallo, DHS)

Th Nov 14  Indoor Air Investigations (J Morrison, UW-Health)

Tu Nov 19  Monitoring (J. Treutel, DNR)

Th Nov 21  Control Technology (S. Dunn, Alliant)

Tu Nov 26  3rd World Indoor Air Pollution (V. Limaye, EPA)

Tu Dec 3   Legislation, Courts, Ethics
Th Dec 5  Air Pollution Policy (D. Bizot DNR)

Tu Dec 10  Exam II

Course notes and readings Learn@UW

5 page paper due on Dec. 10