

SPPH 535: Principles of Occupational and Environmental Hygiene

Instructors: Dr. Karen Bartlett
Room 364,
School of Population and Public Health
2206 East Mall
Karen.bartlett@ubc.ca (phone 604-822-6019)

Office Hours: Students are invited to use office hours to discuss specific course content, competencies and assignments. In addition, you are invited to dialogue about career aspirations, and the role of this course or your degree more generally in advancing your career objectives. Office hours can also be used to consider how the course content may illuminate practicum opportunities that you may wish to pursue.

Teaching Assistant Molly Mastel
Mastel.molly@gmail.com

Office Hours: By appointment.

Course structure: The course meets twice a week, Mondays and Fridays (90 minute blocks) for lectures, class discussion, and demonstrations. Additional, out-of-classroom time will be required to complete homework assignments and the term project. Each lecture will be introduced with a reading assignment accompanied by questions to consider. Students are expected to participate in all class discussions, and will lead the discussion of at least one of the assigned readings. There will be five homework assignments involving problem solving, analysis of reading materials, or design of controls. Solutions to the homework will be discussed in class. The term project will be presented to SPPH 535 class members in the form of a poster presentation plus written report.

Rationale: The purpose of this course is to introduce students from a variety of undergraduate backgrounds to the science of hygiene, a specialized discipline within environmental health. Occupational hygiene is practiced within workplaces, while environmental hygiene is practiced in the community, or general population. The course will survey the broad field of hygiene science.

Objectives:

- The student will be introduced to the classic hygiene science triad of recognition, evaluation, and control.
- The course will challenge students to think creatively about means to prevent hazardous exposures.

- Students will demonstrate their ability to critically evaluate peer reviewed scientific literature and other publications or policies relevant to hygiene practices.
- The student will incorporate vocabulary and content to be able to effectively interact with professional hygienists to help solve occupational and environmental health problems.
- Students who successfully complete this course will be qualified to pursue hygiene studies at a more advanced level.

Required Texts:

Perkins, JL. *Modern Industrial Hygiene, Volume 1. 2nd Edition*. ACGIH Press 2008. ISBN 978-1-882417-75-9 (~ \$110.00 USD) (may also be available in electronic format)

2022 *TLVs and BEIs Threshold Limit Values for Chemical Substances and Physical Agents*. ACGIH, Cincinnati, OH. American Conference of Governmental Industrial Hygienists, 2022. (~ \$55.00 USD) (may also be available in electronic format)

Please purchase these two books directly from ACGIH publications at the following web address:

<https://portal.acgih.org/s/store#/store/browse/cat/a0s4W00000g02f3QAA/tiles>

(or phone 1-513-742-2020)

You will also need to access the on-line version of the WorkSafeBC Occupational Health and Safety Regulation (BC Regulation 296/97 as amended)

<https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-05#EF9C1BDFF1974316838AA37BBE7A32E7>

or the new link to search for specific exposure limits:

<https://elimit.online.worksafebc.com/>

Optional Resource Text:

Johnson, DL. *Statistical Tools for the Comprehensive Practice of Industrial Hygiene and Environmental Health Sciences*. 2017. ISBN 9781119143017 (hardbound) or (9781119351375 epub)

Evaluation:

- Evaluation of student performance will be based on a worksite evaluation (term project) = 45%;
- five written assignments = 50%;
- participating in classroom discussions = 5%.

The grade will reflect the student's understanding of the course material, ability to synthesize and critically evaluate materials from a variety of sources, and ability to develop innovative and effective solutions to hygiene problems.

Arrangements must be made in advance with the instructor for any planned absences.

Criterion standards:

“A” level work (80 – 100%): *Is reserved for exceptional work that greatly exceeds course expectations on every criterion. In addition, the work must show a level of creativity and initiative that goes well beyond what is provided or discussed in class. For example, “A” level work will show accuracy and depth of understanding, as well as initiative, insight, and probing analysis. In addition, the work must show there was careful attention to detail in every regard. (A+ = 90 – 100%; A = 85 – 89%; A- = 80 – 84%)*

“B” level work (68 – 79%): *This category is typified by adequate understanding, analysis, and representation of the concepts, principles, and theoretical perspectives explored during the term. It is distinguished from “A” level work by any one of four things: (1) one or more significant errors in understanding; (2) superficial understanding or representation of course content; (3) lack of initiative; or (4) multiple problems with presentation, e.g. writing that lacks clarity or contains multiple spelling, grammatical, or punctuation errors. For example, the top level (76 – 79%) will be awarded if the work shows adequate and accurate understanding and analysis, and goes beyond what was provided, but is not professional in its presentation. (B+ = 76 – 79%; B = 72 – 75%; B- = 68 – 71%)*

The lowest grade acceptable to maintain graduate student academic standing is 68%. <https://www.grad.ubc.ca/faculty-staff/policies-procedures/academic-progress>

General Notes:**Critical thinking:**

Some notes on Critical Thinking:

Thinking reasonably about problems, as opposed to mindless following rules or memorization. To prepare a rational argument:

- Look for evidence and reasons
- Proportion conviction to the strength of the evidence
- Be aware of tendencies to:
 - Over-generalize evidence
 - Use personal experience and anecdotal evidence
 - Be swayed by personalities or perceived motives

Consider objections and contrary views:

- Once again, proportion this consideration to the strength of evidence
- Search for additional information where evidence is incomplete
- Be prepared to make decision in the face of incomplete evidence, making limitations clear.

Religious Holidays

Board of Governors Policy #SC7 (formerly Policy #3) regarding prevention of discrimination on the grounds prohibited by the BC Human Rights Code, including religion, remains in place for all members of the UBC community. Moreover, the University is obligated to comply with the BC Human Rights Code in accommodating student observances of sincerely held religious beliefs. If you would like to request an academic concession because of a conflict with a religious observance, please see your academic advisor. To learn more

visit: https://senate.ubc.ca/sites/senate.ubc.ca/files/downloads/J-136_Religious-Cultural-Observances_20200415.pdf

**Student
misconduct**

<http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,54,0,0>

Plagiarism is a form of academic misconduct in which an individual submits or presents the work of another person as his or her own. Scholarship can properly rest upon examining and referring to the thoughts and writings of others, however, when excerpts are used in paragraphs or essays, the author must be acknowledged through footnote or other accepted practices. Substantial plagiarism exists when there is no recognition given to the author for phrases, sentences, and ideas of the author incorporated in an essay. Complete plagiarism exists when an entire essay is copied from an author and represented as original work. Students in doubt as to what constitutes a case of plagiarism should consult their instructor. **NOTE:** Plagiarism includes submitting the same essay, presentation, or assignment more than once whether the earlier submission was at this or another institution, unless prior approval has been obtained.

Disrupting instructional activities, including making it difficult to proceed with scheduled lectures, seminars, etc. and with examination and tests. **NOTE:** This includes disruption caused by electronic means of communication.

Injuring a person or damaging property in any way which demonstrates or results from hate, prejudice, or bias against an individual or group based on race, national, or ethnic origin, language, colour, religion, sex, age, mental, or physical disability, sexual orientation or any other similar factor.

SPPH 535 Class Schedule Fall 2022

Mondays 10:00 – 11:30 and Fridays 2:00 – 3:30 pm

SPPH building room 424

Date		Overview	Topic	Pre-class reading
Fri	Sep 9	Introduction	Definition of OH; resources	
Mon	Sep 12	Recognition	Disease agents, hazard communication	Perkins Ch. 4
Fri	Sep 16	Recognition	Routes of exposure, hazard surveillance	Perkins Ch. 6
Mon	Sep 19		Discuss Assignment 1: Hazard Recognition	Perkins Ch. 5
Fri	Sep 23	Recognition	Exposure standards, definitions, setting limits	Perkins Ch. 10; WSBC Part 5; TLVs; <i>article</i>
Mon	Sep 26	Recognition	Exposure standards, mixtures	Perkins Ch 10; WSBC Part 5; TLVs
Fri	Sep 30	Truth & Reconciliation Day	No class	
Mon	Oct 3	Recognition	Exposure standards, overtime, toxicokinetics	Perkins Ch. 10; WSBC Part 5; TLVs; <i>article</i>
Fri	Oct 7		Discuss Assignment 2: Exposure Standards	
Mon	Oct 10	Thanksgiving	No class	
Fri	Oct 14	Evaluation	Measurement of gases and vapours	Perkins Ch. 21 - 23
Mon	Oct 17	Evaluation	Measurement of aerosols and particulate matter	Perkins Ch. 24, 28

Fri	Oct 21	Evaluation	Measurement of bioaerosols, dermal exposure	Perkins Ch. 7; TLVs, WSBC; <i>articles</i>
Mon	Oct 24		Discuss Assignment 3: Exposure Measurement	
Fri	Oct 28	Evaluation	Data distributions	Perkins Ch. 7; <i>articles</i>
Mon	Oct 31	Evaluation	Sampling strategies and compliance	Perkins Ch. 14; <i>articles</i>
Fri	Nov 4	Evaluation	Recognizing bioaerosols	<i>Articles</i>
Mon	Nov 7	Evaluation	Evaluating bioaerosols, IAQ & risk assessment	<i>Articles</i>
Fri	Nov 11	Reading Break	No class	
Mon	Nov 14		Discuss Assignment 4: Exposure Data Evaluation	
Fri	Nov 18	Control	Engineering and administrative controls	<i>Articles</i>
Mon	Nov 21	Control	Personal protective equipment, confined spaces	<i>Articles</i>
Fri	Nov 25		Discuss Assignment 5: Assessing a Community Environment	
Mon	Nov 28	Physical Hazard	Illumination	WSBC; <i>Articles</i>
Fri	Dec 2	Physical Hazard	Temperature extremes	WSBC part 7 & 24; TLVs, <i>articles</i>
Mon	Dec 5	Physical Hazard	Pressure Extremes (Sherri Ferguson)	<i>Articles</i>
Mon	Dec 12		Present term projects, written report due	