SPPH 535: Principles of Occupational and Environmental Hygiene

Instructor: Dr. Karen Bartlett
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Office Hours: By appointment.

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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 slide presentation (PowerPoint, or similar) 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 demonstrative 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)

2020 *TLVs and BEIs Threshold Limit Values for Chemical Substances and Physical Agents.* ACGIH, Cincinnati, OH. American Conference of Governmental Industrial Hygienists, 2020. (~ $55.00 USD)

Please purchase these two books directly from ACGIH publications at the following web address:
https://www.acgih.org/forms/store/CommercePlusFormPublic/search?action=Feature
(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

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) = 20%;
- five written assignments = 75%;
- 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://students.ubc.ca/enrolment/academic-learning-resources/academic-concessions

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 quit properly rests 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 2020

On-line: synchronous sessions

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

Date		Overview	Topic	Pre-class reading
Fri	Sep 11	Introduction	Definition of OH; resources	
Mon	Sep 14	Recognition	Disease agents, hazard communication	Perkins Ch. 4
Fri	Sep 18	Recognition	Routes of exposure, hazard surveillance	Perkins Ch. 6
Mon	Sep 21		Discuss Assignment 1: Hazard Recognition	Perkins Ch. 5
Fri	Sep 25	Recognition	Exposure standards, definitions, setting limits	Perkins Ch. 10; WSBC Part 5; TLVs; *article*
Mon	Sep 28	Recognition	Exposure standards, mixtures	Perkins Ch 10; WSBC Part 5; TLVs
Fri	Oct 2	Recognition	Exposure standards, overtime, toxicokinetics	Perkins Ch. 10; WSBC Part 5; TLVs; *article*
Mon	Oct 5		Discuss Assignment 2: Exposure Standards	
Fri	Oct 9	Evaluation	Measurement of gases and vapours	Perkins Ch. 21 – 23
Mon	Oct 12	Thanksgiving	No class	
Fri	Oct 16	Evaluation	Measurement of aerosols and particulate matter	Perkins Ch. 24, 28
Mon	Oct 19	Evaluation	Measurement of bioaerosols, dermal exposure	Perkins Ch. 7; TLVs, WSBC; *articles*

Fri	Oct 23		Discuss Assignment 3: Exposure Measurement	
Mon	Oct 26	Evaluation	Data distributions	Perkins Ch. 7; *articles*
Fri	Oct 30	Evaluation	Sampling strategies and compliance	Perkins Ch. 14; *articles*
Mon	Nov 2	Evaluation	Recognizing bioaerosols	*Articles*
Fri	Nov 6	Evaluation	Evaluating bioaerosols, IAQ & risk assessment	*Articles*
Mon	Nov 9		Discuss Assignment 4: Exposure Data Evaluation	
Fri	Nov 13	Control	Engineering and administrative controls	*Articles*
Mon	Nov 16	Control	Personal protective equipment, confined spaces	*Articles*
Fri	Nov 20		Discuss Assignment 5: Exposure Controls	
Mon	Nov 23	Physical Hazard	Pressure Extremes (Sherri Ferguson)	*Articles*
Fri	Nov 27	Physical Hazard	Illumination	WSBC; *articles*
Mon	Nov 30	Physical Hazard	Temperature extremes	WSBC part 7 & 24; TLVs, *articles*
Mon	**Dec 7**		**Present term projects, written report due**	