

# ENV H 516 A Sp 22: Toxic Agents: Effects And Mechanisms



## **TOXIC AGENTS: EFFECTS AND MECHANISMS (ENVH 516)**

Spring Quarter 2022 MWF 8:30-9:20; South Campus Center (SOCC) 350

Prof. Toby B. Cole Tel. 543 9300; e-mail: [tobycole@uw.edu \(mailto:tobycole@uw.edu\)](mailto:tobycole@uw.edu)

Prof. Lucio G. Costa Tel. 543-2831; e-mail: [lgcosta@uw.edu \(mailto:lgcosta@uw.edu\)](mailto:lgcosta@uw.edu)

For additional assistance please contact: Kethanh Duong ([kethanh@uw.edu \(mailto:kethanh@uw.edu\)](mailto:kethanh@uw.edu))

Zoom Meeting ID: 932 9704 8044

Zoom Meeting Link: <https://washington.zoom.us/j/93297048044>

<https://washington.zoom.us/j/93297048044>

Date	Topic	Instructor	Reading
March 28 M	Introduction/Air <u>pollutants</u>	Cole / <u>Sack</u>	Chapter 29
30 W	<u>Air pollutants</u>	Cole	Chapter 29
April 1 F	<u>Air pollutants</u>	Cole	Chapter 29
4 M	<u>Metals</u>	Lewandowski	Chapter 23
6 W	<u>Metals</u>	Lewandowski	Chapter 23
8 F	<u>Metals</u>	Lewandowski	Chapter 23
11 M	<u>Metals</u>	Lewandowski	Chapter 23
<u>13 W</u>	<u>Metals</u>	Lewandowski	Chapter 23
15 F	<u>PCBs</u>	Kelly	<u>Handout</u>
18 M	<u>Dioxins</u>	Kelly	<u>Handout</u>
20 W	<u>PBDEs</u>	Cui	<u>Handout</u>
22 F	Pesticides	Costa	Chapter 22
25 M	Pesticides	Costa	Chapter 22
27 W	Pesticides	Costa	Chapter 22
29 F	Pesticides	Costa	Chapter 22
May 2 M	<u>Animal/Plant Toxins</u>	Garrick	Chapter 26
4 W	<u>Mid term EXAM</u> (til 4/29)	Cole/Costa	-----
6 F	Nanomaterials	<u>Carosino</u>	Chapter 28
9 M	Nanomaterials	<u>Carosino</u>	Chapter 28
<u>11 W</u>	<u>Ecotoxicology</u>	Gallagher	Chapter 30
<u>13 F</u>	<u>Animal Plant Toxins</u>	Garrick	Chapter 26
16 M	<u>Solvents</u>	Costa	Chapter 24
18 W	<u>Solvents</u>	Costa	Chapter 24
20 F	<u>Solvents</u>	Garrick	Chapter 24
23 M	Radiation	Griffith	Chapter 25
25 W	Food Toxicology	Meschke	Chapter 31
27 F	Food Additives	Costa	Chapter 31
30 M	HOLIDAY	-----	-----
June 1 W	Calories	Averill	Chapter 27
3 F	Occupational Toxicology	Cherry	Chapter 34
7 T	EXAM (from 5/2)	Cole/Costa	-----

Chapters are from Casarett and Doull's Toxicology. 9<sup>th</sup> Edition, 2018.

**Course Objectives:** This course (previously Environmental and Occupational Toxicology III) is the third course of the core toxicology series. The content of the course focuses on the most important classes of toxic chemicals (as well as physical and biological agents), their toxic effects in humans and animals and the underlying mechanisms. The lectures will cover the toxicology of metals, solvents, pesticides, dioxins and other halogenated contaminants, radiation, food-born toxicants, natural toxins, and air pollutants.

After completion of the course students will have acquired a fundamental understanding of the toxic effects of different agents. They will be able to identify major issues related to the toxicity of environmental agents, recognize toxic effects induced by these agents, explain mechanisms of toxicity, identify routes and nature of exposures, evaluate types of toxic effects, have a basic understanding of the main aspects of ecotoxicology, occupational toxicology and clinical toxicology, and their roles within toxicology, public health and environmental and occupational health sciences.

**Guest lecturers** will be an asset to the course and will assist in providing coverage of subject areas within their respective areas of expertise.

**Intended Student Audience:** While the ENVH 514/515/516 course sequence serves as the core of the graduate toxicology program for both Toxicology MS and PhD students in the Department of Environmental and Occupational Health Sciences, ENVH 516 is open to all graduate students from other DEOHS programs, including MPH students, and from other allied biomedical science departments (e.g. pharmacy, pharmacology, fisheries, neurobiology etc.). Prerequisites for this class include undergraduate general biology, organic chemistry, and biochemistry. Previous background in mammalian physiology is recommended.

**Required Readings:** The textbook for ENVH 516 is Casarett and Doull's Toxicology. The Basic Science of Poisons, 2018 Edition. Chapters in this textbook cover most topics taught in the class. Additional reading material, handouts with slides, etc. will be e-mailed to each student ahead of the class and/or distributed at each class by the instructor.

**Exams and Assignments:** There will be a mid-term and a final in-class written exam (essay-type questions) of the duration of 50 min each. Each exam will cover all material presented in the preceding lectures. The final exam will be held during finals week but will not be a cumulative exam.

**Grading:** The final grade is compiled from the average of the two in-class exams.

**Academic Integrity:** Students at the University of Washington are expected to maintain the highest standard of academic conduct, professional honesty, and personal integrity. The UW School of Public Health is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, and other misconduct are serious violations of the UW Student Conduct Code (WAC 478-120). We expect you to know and follow the University's policies on cheating and plagiarism, and the SPH Academic Integrity Policy (<http://sph.washington.edu/students/academicintegrity/> (<http://sph.washington.edu/students/academicintegrity/>)). Any suspected case of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington Community Standard and Student Conduct website.

**Disability Resources:** Your experience in the class is important to me. If you have already established accommodations with Disability Resources for Students (DSR), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent

disability that requires accommodations (conditions include but are not limited to mental health, attention-related, learning, vision, hearing, physical or health impact), you are welcome to contact DRS at 206-543-8924 or [uwdrs@uw.edu \(mailto:uwdrs@uw.edu\)](mailto:uwdrs@uw.edu) or [disability.uw.edu](http://disability.uw.edu). DRS offers resources and coordinates reasonable accommodations for students with disabilities or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

**Religious Accommodation:** Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy \(https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/\)](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/). Accommodations must be requested within the first two weeks of this course using [the Religious Accommodations Request form \(https://registrar.washington.edu/students/religious-accommodations-request/\)](https://registrar.washington.edu/students/religious-accommodations-request/).

## COVID-related expectations

Per UW policy, this class will be conducted in person. Therefore, unless you meet the criteria for an accommodation from Disability Resources for Students (DRS) or a special arrangement approved by the SPH Office of the Dean that allows you to take the course remotely [\[see student communications here\] \(https://sph.washington.edu/sites/default/files/2021-08/UWSPH\\_RTC\\_Student-Email.pdf\)](https://sph.washington.edu/sites/default/files/2021-08/UWSPH_RTC_Student-Email.pdf) you should only register for this class if you can attend in-person.

- Please contact UW Disability Resources for Students (DRS) directly if you feel you may be eligible for an accommodation based on your status as an immunocompromised individual or based on other diagnosed physical or mental health conditions that might prevent you from being able to take classes in-person.
- If you are a student enrolled in a program in SPH, and you are either living with an individual who is immunocompromised, OR you are unable to obtain a visa to travel to the US, you may be eligible for a "special arrangement" that will allow you to take this course remotely. Requests for special arrangements to take the class remotely should have been submitted to and approved by the Students and Academic Services team in the Office of the Dean before the beginning of the quarter. If you have questions about this type of arrangement, please reach out to Student and Academic Services by email at [sphas@uw.edu \(mailto:sphas@uw.edu\)](mailto:sphas@uw.edu).

All UW students are expected to complete their [vaccine attestation \(https://www.washington.edu/coronavirus/vaccination-requirement/\)](https://www.washington.edu/coronavirus/vaccination-requirement/) before arriving on campus and to follow the campus-wide face-covering policy at all times. You are expected to follow state, local, and UW COVID-19 policies and recommendations. If you feel ill or exhibit possible COVID symptoms, you should not come to class. If you need to temporarily quarantine or isolate per CDC guidance and/or [campus policy \(https://www.washington.edu/coronavirus/2021/08/31/autumn-quarter-health-and-safety-measures-](https://www.washington.edu/coronavirus/2021/08/31/autumn-quarter-health-and-safety-measures-policy)

[message-to-uw-personnel/](#)), you are responsible for notifying your instructors as soon as possible by email. **If you receive a positive COVID-19 test result, you must report to campus Environmental Health & Safety (EH&S) by emailing [covidehc@uw.edu](mailto:covidehc@uw.edu) (<mailto:covidehc@uw.edu>) or calling 206-626-3344.**

**No food or drinks are allowed in the classroom.**

**Please check your email daily BEFORE coming to class.** If we need to conduct class remotely because the instructor or a guest speaker is complying with UW policies and unable to attend in person, we will send all registered students an email with a Zoom link for remote instruction. Thank you for your patience and support as we all transition together back to in-person learning!