Course Syllabus

Jump to Today

INSTRUCTOR

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Dr. Judit Marsillach is an Assistant Professor in the Department of Environmental & Occupational Health Sciences at the University of Washington School of Public Health.

Dr. Marsillach's research involves proteomics and the identification and characterization of chemical modifications of certain proteins, also known as adducts, that can be used as biomarkers of exposure to certain environmental chemicals or biomarkers of susceptibility to disease development. Toxicants/environmental exposures of interest include pesticides, heavy metals (cadmium and manganese), traffic-related air pollution, volatile organic compounds, and prenatal environmental exposures (mixtures).

COURSE SYLLABUS

Download the Course Syllabus here
(https://canvas.uw.edu/courses/1696498/files/114193180?wrap=1)

Course Description

Welcome to ENV H 515! ENV H 515 is the first course of a two-course sequence (ENV H 515/516). The overall goal of the series is for students to expand the basic concepts and mechanisms of toxicology gained in ENV H 503 to understand how chemicals interact with biological systems to produce adverse effects, i.e., the science of toxicology. Thus, ideal prerequisites for this course include having taken ENV H 503.

ENV H 515 focuses on **organ toxicology and organ systems** and is organized into modules according to target organs and/or organ systems. ENV H 516 focuses on the most important classes of toxic chemicals (as well as physical and biological agents).

Course Learning Objectives

After completing this course, students should be able to:

- Outline the biochemical, cellular, and physiological responses to toxicant-induced injury.
- Summarize the anatomy and function of major organs in the human body.
- Describe the organ-specific toxic effects of common environmental toxicants.
- Identify commonly used biomarkers of exposure and disease in relation to organ toxicity.
- Determine the most appropriate methods to analyze organ/tissue toxicity/injury.
- Evaluate the status of the most current research findings on toxicants.
- Develop increased knowledge of one or various target organ toxicants of interest.
- Demonstrate effective oral and written communication skills, as well as teamwork.

Course Format

Over the course, there will be content posted on Canvas to work on before and/or after each session. The expectation is that students come to class having already reviewed any content and completed any quizzes for each session. Participation (questions and comments) during the class is highly encouraged. All sessions will be recorded and uploaded to Canvas for instructional purposes related to this class. Students are not permitted to copy or share the recording with others. If you have privacy concerns about Zoom recordings in this class, please contact the course instructor.

There will be experts in some of the proposed topics providing guest lectures throughout the course.

The instructor welcomes any feedback you may have to improve their teaching and this course.

Useful Textbooks & Readings

Useful Textbooks:

- Casarett & Doull's Toxicology, The Basic Science of Poisons, 9th Edition, Curtis D. Klaassen & John B Watkins III, McGraw Hill, 2021. (This textbook is available as an eBook through the UW Libraries, or through this **website (https://accesspharmacy.mhmedical.com/book.aspx?bookID=2462)**)

Recommended, optional, or supplementary readings:

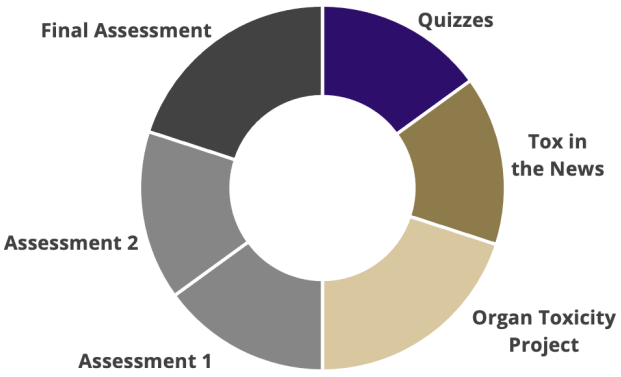
Most required readings will be available as Canvas Pages or Adobe Acrobat files that can be viewed on Canvas or downloaded. In some cases, the readings may be links to websites. Videos will also be available on Canvas Pages.

Grading

Final grades will be determined by:

- Weekly quizzes (15%)
- Assessments 1 & 2 (15% each, 30% total)
- Final assessment (20%)
- Assignment (15%): Toxicology in the News (see below)

- Group Project (20%): Organ Toxicity Project (see below)



Toxicology in the News: You will be randomly assigned a date to post about a current (within the past 3 months) toxicology-related event found in newspapers, the news, or reliable online websites.

The goal of this assignment is to get you used to searching and reading news related to toxicology and to create a critical eye on these types of (commonly) non-scholarly sources. Further details will be provided on Canvas and during the first session.

Organ Toxicity Project: In groups of 1-2, you will pick a specific environmental toxicant that you are interested in (it can be from toxicants that may be relevant to the area you were born to toxicants that you have seen on the news or that you are interested in learning more about them). You will pick this toxicant within the first 3 weeks of the quarter and develop your Project throughout the quarter, with an emphasis on the toxicant's ADME, the organ targeted, and the mechanisms of toxicity. At the end of the quarter, you will prepare a poster and an oral presentation. Further details will be provided on Canvas.

To avoid having more than one group writing a project on the same toxicant and target organ, be sure to have your toxicant approved by the instructor as soon as it is chosen.

Grading Criteria

A 4.0 scale will be calculated using the following conversion:

4.0 Scale	Percentage	4.0 Scale	Percentage	4.0 Scale	Percentage
4.0	100%	3.1	86%	1.7	72%
4.0	99%	3.0	85%	1.6	71%
3.9	98%	2.9	84%	1.5	70%
3.9	97%	2.8	83%	1.4	69%
3.8	96%	2.7	82%	1.3	68%
3.8	95%	2.6	81%	1.2	67%
3.7	94%	2.5	80%	1.1	66%
3.7	93%	2.4	79%	1.0	65%
3.6	92%	2.3	78%	0.9	64%
3.6	91%	2.2	77%	0.8	63%
3.5	90%	2.1	76%	0.7	62%
3.4	89%	2.0	75%	0.7	61%
3.3	88%	1.9	74%	0.7	60%
3.2	87%	1.8	73%		

Late assignment policy

All quizzes, assignments, and individual projects must be submitted through Canvas by the due date. Please, reach out to us if you cannot submit an assignment on time. The instructor understands that in some instances, certain personal situations may make it impossible to submit specific material on time. For this reason, there is no penalty for the submission of late assignments, but the instructor reserves the right to institute a penalty of 10% if students do not submit materials within the required timeframe on multiple occasions.

Course Tentative Schedule

Below is a tentative lecture schedule. Any changes will be announced in class and posted on Canvas Announcements.

Date	Topic	Guest Instructor
1/3	Introduction & ADME	
1/5	Mechanisms and fate of chemical interaction with biological systems	
1/8	Cell & Tissue Response to Injury	
1/10	Techniques: from Histopathology to Omics	
1/12	Neurotoxicology I	
1/15	Martin Luther King Jr. Day – **no class**	
1/17	Behavioral Toxicology	Dr. Toby Cole
1/19	Neurotoxicology II	
1/22	Toxicology of the Liver	Dr. Julia Cui
1/24	Blood Toxicity	

1/26	Toxicology of the GI system	Dr. Julia Cui
1/29	Toxicology of the Kidney I	Dr. Edward Kelly
1/31	Toxicology of the Kidney II	Dr. Edward Kelly
2/2	**Exam 1** (covers 1/3 - 1/26)	
2/5	Developmental/Repro Toxicology I	Dr. Elaine Faustman
2/7	Developmental/Repro Toxicology II	Dr. Elaine Faustman
2/9	Immunotoxicology I	
2/12	Immunotoxicology II	
2/14	Cardiovascular Toxicology I	
2/16	Cardiovascular Toxicology II	
2/19	Presidents' Day – **no class**	
2/21	Endocrine System Toxicology	
2/23	**Exam 2** (covers 1/29 – 2/16)	
2/26	Respiratory System Toxicology I	Dr. Terrance Kavanagh
2/28	Respiratory System Toxicology II	Dr. Terrance Kavanagh
3/1	Toxicology of the Skin	Dr. Cecile Krejsa
3/4	Toxicology of the Sensory Systems	Dr. Cecile Krejsa

3/6	Student Presentation I	
3/8	Student Presentation II, Review Session & Farewell	
3/13	**Final Assessment** (covers all sessions)	

The course policies & resources can be found on the **full syllabus document (https://canvas.uw.edu/courses/1696498/files/114193180?wrap=1)** .

Course Summary:

Date	Details	Due
Fri Jan 12, 2024	**January 8: Oxidative Stress activity** (https://canvas.uw.edu/courses/1696498/assignments/8898402)	due by 11:59pm
Tue Jan 16, 2024	**Quiz #1: Sessions 1-4** (https://canvas.uw.edu/courses/1696498/assignments/8898396)	due by 11:59pm
Wed Jan 17, 2024	**Toxicology in the News** (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Wed Jan 24, 2024	**Toxicology in the News** (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Thu Jan 25, 2024	**Quiz #2: Sessions 5-7** (https://canvas.uw.edu/courses/1696498/assignments/8898399)	due by 11:59pm
Wed Jan 31, 2024	**Toxicology in the News** (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Thu Feb 1, 2024	**Assessment 1** (https://canvas.uw.edu/courses/1696498/assignments/8898392) (1 student)	due by 12pm

Date	Details	Due
	Quiz #3: Sessions 8-10 (https://canvas.uw.edu/courses/1696498/assignments/8898398)	due by 11:59pm
Fri Feb 2, 2024	Assessment 1 (https://canvas.uw.edu/courses/1696498/assignments/8898392)	due by 12:30pm
Thu Feb 8, 2024	Quiz #4: Sessions 11-12 (https://canvas.uw.edu/courses/1696498/assignments/8898400)	due by 11:59pm
Fri Feb 9, 2024	Toxicology in the News (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Wed Feb 14, 2024	Toxicology in the News (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Fri Feb 16, 2024	Toxicology in the News (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Wed Feb 21, 2024	Toxicology in the News (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Wed Feb 28, 2024	Toxicology in the News (https://canvas.uw.edu/courses/1696498/assignments/8898406) (1 student)	due by 11:59pm
Fri Mar 1, 2024	Organ Toxicity Project (https://canvas.uw.edu/courses/1696498/assignments/8898405)	due by 11:59pm
	Articles already picked for Toxicology in the News (https://canvas.uw.edu/courses/1696498/assignments/8898403)	
	Assessment 2 (https://canvas.uw.edu/courses/1696498/assignments/8898397)	
	Final Assessment (https://canvas.uw.edu/courses/1696498/assignments/8898401)	

Date	Details	Due
	March 6th: In-class group activity – Midterm Assessments (https://canvas.uw.edu/courses/1696498/assignments/8898393)	
	Organ Systems and Toxicants picked (https://canvas.uw.edu/courses/1696498/assignments/8898404)	
	Quiz #5: Sessions 13-16 (https://canvas.uw.edu/courses/1696498/assignments/8898394)	
	Quiz #6: Sessions 17-18 (https://canvas.uw.edu/courses/1696498/assignments/8898395)	
	Quiz #7: Sessions 19-21 (https://canvas.uw.edu/courses/1696498/assignments/8898391)	
	Quiz #8: Sessions 22-23 (Last one!) (https://canvas.uw.edu/courses/1696498/assignments/8898390)	