ENV H 593 A Wi 19: Current Topics In Risk Assessment

ENV H 593 A: Current Topics in Risk Assessment

Winter Quarter 2019: Novel Techniques for Evaluation of Reproductive and Developmental Toxicity

Credits: 2

Instructor:

Elaine M. Faustman, PhD, DABT

Professor, Department of Environmental and Occupational Health Sciences and Director, Institute for Risk Analysis and Risk Communication (IRARC)

Office: 4225 Roosevelt Way NE, Suite 100
Phone: 206-685-2269
E-mail: faustman@u.washington.edu
Office Hours: By appointment

Course Times and Locations:

Day/Time: Wednesday, 2:30 pm - 4:20 pm
Location: 4225 Roosevelt Way NE in Roosevelt 2228

Course Description:
Reproductive and developmental toxicity assessments are typically expensive and time-consuming. Because of this, there is a huge gap in availability of reproductive and developmental toxicity data for chemicals already on the US Market. In vitro and in silico approaches to model reproductive and developmental toxicity are being developed and beginning to show promise for incorporation in to risk management. In this course, we will review reproductive and developmental toxicity mechanisms, traditional assessment techniques and innovative new methods for alleviating data gaps. We will discuss the implications of these new methods for risk assessment.

Winter 2019 Learning Objectives:

1. Review mechanisms of developmental and reproductive toxicity
2. Understand current standards for reproductive and developmental toxicity assessment (e.g. OECD guidelines)
3. Learn about new in vitro and in silico models of assessment of reproductive and developmental toxicity
4. Identify instances where novel techniques may be able to reduce or replace specific reproductive and developmental toxicity assessments

Additional Generic Learning Objectives:

1. Think critically about risk assessment by completing reading assignments and participating in class discussions.
2. Communicate the concept of integrated risk assessment and risk communication.
3. Explain the risk assessment framework as it relates specifically to the current quarter topic.
4. Analyze assigned readings and interpret their relevance to not only the quarter topic but also their applicability and generalizability to risk assessment topics at large.
5. Summarize key points from assigned journal articles or other required readings.
6. Prepare and deliver an oral presentation(s) discussing the required reading.
7. Critique risk assessment applications as they relate to the current quarter topic.
8. Identify risk assessment strengths and challenges, as well as the role of uncertainty.
9. Develop skills to think critically about the methods and tools used for assessment, management, and communication of risk.

Grading:

- **50% Weekly Discussion Participation and Related Assignments**: Weekly summations and presentation of key points from readings and respectful engagement in substantive in-class discussions.
- **25% FIVE Article Reports** - See the template at the end of the syllabus and limit your responses to 2 pages double spaced. Reports will be graded for completeness and thoughtfulness. Reports should be submitted each week before class starts. You will need to submit five Article Reports throughout the quarter.
• 25% In-Class Presentation and report - Presentation or demonstration of the applications to your own research or interest area. Please use the Research Relevancy Report Template at the end of this syllabus and limit your response to 3 pages double spaced. You will be required to submit ONE research relevancy report for the quarter. In addition to the report, please prepare a brief presentation (about 10 minutes) with 2-3 figures/tables to support your observations.

Academic Integrity Statement:

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity.
The UW School of Public Health (SPH) 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 University of Washington 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. Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington Community Standards and Student Conduct website.

Access and Accommodations:

Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), 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 not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or 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 and/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.

Multi-cultural Inclusion Commitment from Environmental Health:

The UW School of Public Health seeks to ensure all students are fully included in each course. We strive to create an environment that reflects community and mutual caring. We encourage students with concerns about classroom climate to talk to your instructor, your advisor, a member of the departmental or SPH Diversity Committee and/or the program director. DCinfo@uw.edu is a resource for students with classroom climate concerns.
We have the privilege of learning together and we have a responsibility to engage in dialogue in a way that supports learning for all of us. Many of the issues we will discuss in this course may concern issues of disproportionate risks, sensitivities, and impacts due to age, gender, race, and/or social inequalities. This is what public health hopes to address, however we know that these can be difficult topics to address, hence we thus feel it is even more important to be sensitive to our colleagues’ experiences and ideas. Here are some practices we as learning community members can strive to use in our learning process:

- My own viewpoint is important—share it. It will enrich others.
- My students’ and colleagues’ viewpoints are important—listen to them. Do not judge them.
- Extend the same listening respect to others I would wish them to extend to me. We all have room to grow to become better listeners in non-judgmental ways.
- Recognize that I might miss things others see and see things others might miss.
- Raise my views in such a way that I encourage others to raise theirs.
- Inquire into others’ views while inviting them to inquire into mine.
- Ask questions when I don’t understand something.
- Surface my feelings in such a way that we make it easier for others to surface theirs.
- Test my assumptions about how and why people say or do things.
- Challenge what was said or done, rather than make assumptions about the individual.
- Beware of either-or thinking.
- Be willing to take risks in moving outside my comfort zones.
- Affirm others

Course Schedule:

<table>
<thead>
<tr>
<th>Session #</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>01/09/19</td>
<td>Introduction to the course and reproductive and developmental toxicology</td>
<td></td>
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<tr>
<td>Session 2</td>
<td>01/16/19</td>
<td>Introduction to reprotox assessment and the philosophy behind in vitro and 3D models</td>
<td>[1-25]</td>
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<tr>
<td>Session 3</td>
<td>01/23/19</td>
<td>Models for Developmental Toxicology</td>
<td></td>
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<td></td>
<td></td>
<td>Introduction to male reprotox models (Dude</td>
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Session 4 01/30/19 on a chip) and female reprotox models References
(Video of NIEHA Council) (Dude on a chip) [26-28]

Session 5 02/06/19 High throughput tools: ToxCast for References
endocrine disruption [-]

Session 6 02/13/19 Quantitative In Vitro Risk Assessment References
(Examples for IVIVE and Benchmark Doses) [-]

Session 7 02/20/19 Application to TSCA References
Applications to MOA and AOPs [29, 30]

Session 8 02/27/19 Student Presentations- Research Relevancy

Session 9 03/06/19 Student Presentations- Research Relevancy

Session 10 3/13/19 NO CLASS – Society of Toxicology Annual References
Meeting N/A

ENVH 593 Winter 2019

Current Topics in Risk Assessment

Article Report Form Template:

*PLEASE LIMIT RESPONSES TO 2 PAGES DOUBLE SPACED

Date:

Reviewer Name:
Title of Paper:

What was the purpose of this paper?

What methods did the author use?

What were the key results?

What key issues does the author(s) cite in the discussion?

How does this article contribute to today’s discussion topic?
Date:
Reviewer Name:
Title of Paper:

What was the purpose of this paper?

What were the key results?

Describe your research, briefly

How does the article relate to your research?
Based on your research area expertise, do you have any critiques (positive or negative) of the article?

Will the concepts or results presented in the article change or supplement how you think about your research? Why/how?

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References:


Course Summary:

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<thead>
<tr>
<th>Date</th>
<th>Details</th>
<th>Details</th>
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<tbody>
<tr>
<td>Wed Feb 6, 2019</td>
<td>Article Report 1 (<a href="https://canvas.uw.edu/courses/1255682/assignments/4637091">https://canvas.uw.edu/courses/1255682/assignments/4637091</a>)</td>
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<td>Wed Mar 6, 2019</td>
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<td>In-Class Presentation and Report (<a href="https://canvas.uw.edu/courses/1255682/assignments/4637116">https://canvas.uw.edu/courses/1255682/assignments/4637116</a>)</td>
<td>due by 2:30pm</td>
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<td></td>
<td>Weekly Discussion Participation and Related Assignments (<a href="https://canvas.uw.edu/courses/1255682/assignments/4637117">https://canvas.uw.edu/courses/1255682/assignments/4637117</a>)</td>
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