

ENV H 593 A Au 18: Current Topics In Risk Assessment

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ENV H 593 A: Current Topics in Risk Assessment

Autumn Quarter 2018: *Applications of the Lifecourse Health Development Framework for Intervention and Risk Assessment*

Credits: 2

Instructor:

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Office Hours: By appointment

Course Times and Locations:

Day/Time: Fridays, 3:30-5:20 pm

Excluding 11/2 and 11/9 (Veteran's Day weekend)

Location: Class will be held in 4225 Roosevelt Way NE in Roosevelt 2228/212

Course Description:

The lifecourse health development (LCHD) model provides a sound approach for assessing wellbeing and disease across the lifespan. During development, infants and children have increased susceptibility to broadly defined environmental exposures. In this course we will discuss how we can use the LCHD model to understand susceptibility to identify key times for public health interventions and for risk assessment. We will explore the biological and physiological factors that make children more susceptible to chemical exposures. We will also discuss how child-specific behaviors and products can lead to differences in the chemicals and routes of exposure. For example, children have increased hand to mouth activity, increasing their exposures to chemicals found in house dust. We will discuss we modify the traditional risk assessment framework to include susceptibility windows of susceptibility and cumulative exposure concerns. Building from the World Health Organization's avoidable exposures framework, we will identify key times for interventions.

Autumn 2018 Learning Objectives:

Upon completion of this journal club, students shall be able to:

1. Understand the Lifecourse Health Development Framework
2. Understand the biological and physiological basis for windows of susceptibility
3. Discuss the need to broadly define environment, wellbeing and disease
4. Work together to modify the traditional risk assessment framework to incorporate exposure concerns across the lifecourse and during windows of susceptibility
5. Understand basic concepts of reliance within the Lifecourse framework
6. Identify when public health interventions need to occur

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% Article Reports** - See the template at the end of the syllabus. Reports will be graded for completeness and thoughtfulness. Reports should be submitted each week before class starts.
- **25% In-Class Presentation** - Presentation or demonstration of the applications of LCHD to your own research or interest area. See Sessions 7-10 for more details.

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 \(mailto:uwdrs@uw.edu\)](mailto:uwdrs@uw.edu) or [disability.uw.edu \(http://disability.uw.edu/\)](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 Session Schedule and Readings:

Sessions 1 and 2: Background on Lifecourse Health Development Models

- Introductions- All
- Overall goals of the course and introduction to the topic- Elaine Faustman
- Presentation of Key Points from Readings- Students (Session 2 only)

Please prepare to read two papers from the list below. For longer reports, please pick a section. Please complete an "article review form" for one of the articles and bring five key points to share with the class for each article. **Please post your article selections to the canvas discussion board by Wednesday at 5pm.**

Sessions 1 and 2 Readings: References [1-24]

Sessions 3 and 4: Methods and Definitions of Health and Environment for Lifecourse Health Development Models

- Introduction- Elaine Faustman
- Presentation of Key Points from Readings- Students

Please prepare to read two papers from the list below. For longer reports, please pick a section. Please complete an "article review form" for one of the articles and bring five key points to share with the class for each article. **Please post your article selections to the canvas discussion board by Wednesday at 5pm.**

Sessions 3 and 4 Readings: References [7, 25-38]

Session 5: What are current Lifecourse Health Development Models Doing Well? What are they Missing?

- Introduction- Elaine Faustman
- Presentation of Key Points from Readings- Students

Please prepare to read two papers from the list below. For longer reports, please pick a section. Please complete an "article review form" for one of the articles and bring five key points to share with the class for each article. **Please post your article selections to the canvas discussion board by Wednesday at 5pm.**

Session 5 Readings: References [39-45]

Sessions 6-7: Case Studies in Lifecourse Health Development

- Introduction- Elaine Faustman
- Presentation of Key Points from Readings- Students

Please prepare to read two papers from the list below. For longer reports, please pick a section. Please complete an “article review form” for one of the articles and bring five key points to share with the class for each article. **Please post your article selections to the canvas discussion board by Wednesday at 5pm.**

Sessions 6 and 7 Readings: References [7, 46-51]

- Introduction- Elaine Faustman
- Presentation of Key Points from Readings- Students

*Please read **one document** or sections of longer reports and **one example article** and be prepared to share the key points*

Sessions 8-9: Applications to your own research or interest area

Please develop a presentation or demonstration of how LCHD applies to your own research (approximately 20 minutes, including discussion). In the past students have done live demonstrations of statistical modeling techniques, tested the utility of relevant tools for their own work or shared a slide show presentation integrating multiple readings from the course. Students are encouraged to look for references outside of those provided.

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Current Topics in Risk Assessment

Literature review form:

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?

References:

1. Ben-Shlomo, Y., R. Cooper, and D. Kuh, *The last two decades of life course epidemiology, and its relevance for research on ageing*. International Journal of Epidemiology, 2016. **45**(4): p. 973-988.
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4. Conti, G. and J.J. Heckman, *The developmental approach to child and adult health*. Pediatrics, 2013. **131 Suppl 2**: p. S133-41.
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6. Forrest, C.B., *A Living Systems Perspective on Health*. Medical hypotheses, 2014. **82**(2): p. 209-214.
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8. Gluckman, P.D. and M.A. Hanson, *Developmental origins of disease paradigm: a mechanistic and evolutionary perspective*. Pediatr Res, 2004. **56**(3): p. 311-7.
9. Gluckman, P.D., et al., *Towards a new developmental synthesis: adaptive developmental plasticity and human disease*. Lancet, 2009. **373**(9675): p. 1654-7.
10. Halfon, N., et al., *Handbook of Life Course Health Development*. 2018.
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12. Kendig, H., et al., *Pathways to Well-Being in Later Life: Socioeconomic and Health Determinants Across the Life Course of Australian Baby Boomers*. Journal of Population Ageing, 2016. **9**(1): p. 49-67.
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19. UCLA CENTER FOR HEALTHIER CHILDREN and F. COMMUNITIES. LCRN. 2018; Available from: <http://www.lcrn.net/tag/webinars/> [\(http://www.lcrn.net/tag/webinars/\)](http://www.lcrn.net/tag/webinars/).
20. EPA, *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*. 2005.
21. EPA, *Proposed Approach to Efficiently Develop Physiologically Based Pharmacokinetic (PBPK) & Physiologically Based Pharmacokinetic-Pharmacodynamic (PBPK-PD) Models for Pesticides*. 2016.

22. EPA, *Age Dependent Adjustment Factor (ADAF) Application*. 2011.
23. EPA, C., *In Utero and Early Life Susceptibility to Carcinogens: The Derivation of Age-at-Exposure Sensitivity Measures* 2009.
24. Moolgavkar, S.H., *A population perspective on multistage carcinogenesis*. Princess Takamatsu Symp, 1991. **22**: p. 381-91.
25. Bircher, J. and S. Kuruvilla, *Defining health by addressing individual, social, and environmental determinants: New opportunities for health care and public health*. Journal of Public Health Policy, 2014. **35**(3): p. 363-386.
26. Brown, T.H., et al., *Using Multiple-hierarchy Stratification and Life Course Approaches to Understand Health Inequalities: The Intersecting Consequences of Race, Gender, SES, and Age*. Journal of Health and Social Behavior, 2016. **57**(2): p. 200-222.
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Course Summary:

Date

Details
