

# ENV H 553 A Wi 21: Environmental Exposure Monitoring Methods

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SCHOOL OF PUBLIC HEALTH · UNIVERSITY of WASHINGTON  
Environmental & Occupational Health Sciences

## ENV H 553 A: Occupational and Environmental Exposure Monitoring Methods - Winter 2021

**4 credits, graded, SLN 14508**

### Instructor:

**Christopher D Simpson, Professor**

DEOHS

4225 Roosevelt Way, Room 2336

(206) 543-3222

simpson1@uw.edu

**Time: Asynchronous online lecture format**

**Drop-in office hours:** Fridays 11:30-12:15

<https://washington.zoom.us/j/96899707685> [↗](https://washington.zoom.us/j/96899707685) [\\_\(https://washington.zoom.us/j/96899707685\)\\_](https://washington.zoom.us/j/96899707685)

Meeting ID: 968 9970 7685

**By appointment office hours:** Wednesdays 12:30-1:30

[Click here to reserve an appointment slot](https://calendar.google.com/calendar/u/0/selfsched?sstoken=UUg1WmFuOGlQWUc4fGRlZmF1bHR8YzZiZDcyNDdmNmQ4YmVhNDBjN2YzNWVmNDk2ZGYzNGU_) [↗](https://calendar.google.com/calendar/u/0/selfsched?sstoken=UUg1WmFuOGlQWUc4fGRlZmF1bHR8YzZiZDcyNDdmNmQ4YmVhNDBjN2YzNWVmNDk2ZGYzNGU_) [\\_\(https://calendar.google.com/calendar/u/0/selfsched?sstoken=UUg1WmFuOGlQWUc4fGRlZmF1bHR8YzZiZDcyNDdmNmQ4YmVhNDBjN2YzNWVmNDk2ZGYzNGU\)\\_](https://calendar.google.com/calendar/u/0/selfsched?sstoken=UUg1WmFuOGlQWUc4fGRlZmF1bHR8YzZiZDcyNDdmNmQ4YmVhNDBjN2YzNWVmNDk2ZGYzNGU_)

Meeting ID: 920 4006 7479

### Brief Description:

A key element in maintaining a healthy human environment is Exposure Monitoring for contaminants. In this course students will developing a thorough understanding of the underlying principles, analytical methods and instrumentation used to determine the intensity of exposure to contaminants in various

environmental media including air, soil, surfaces, and water, and for measurement of exposure markers in human specimens.

Course Documents: Link to the [Course Modules page](#). (We recommend that you use this page to navigate the course).

### Course Objectives:

At the end of the course, students should be able:

1. To describe the strategy and rationale for environmental sampling and exposure monitoring, including the selection of appropriate sampling methods.
2. To demonstrate the application of principles and techniques for sampling air and contaminated surfaces, food, drinking water, and human specimens to exposure monitoring.
3. To choose and explain the proper chemical and physical analytical methods to be applied to these samples.
4. To implement standard methods of validation and evaluation to determine the strengths and limitations of each sampling and analytical method, and to decide whether results are sensible within those limitations.
5. To identify and describe the standard published references in environmental sampling and analysis for assessment of human exposure.

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### Course Texts:

Zhang, C. Fundamentals of Environmental Sampling and Analysis. Hoboken, NJ: John Wiley & Sons, 2007.

Electronic access to this text:

<http://washington.ebib.com/patron/FullRecord.aspx?p=287305> ↗

[\(http://washington.ebib.com/patron/FullRecord.aspx?p=287305\)](http://washington.ebib.com/patron/FullRecord.aspx?p=287305)

Ramachandran, G. Occupational Exposure Assessment for Air Contaminants. Boca Raton, FL: Taylor & Francis, 2005.

<http://washington.ebib.com.offcampus.lib.washington.edu/patron/FullRecord.aspx?p=264072> ↗

[\(http://washington.ebib.com.offcampus.lib.washington.edu/patron/FullRecord.aspx?p=264072\)](http://washington.ebib.com.offcampus.lib.washington.edu/patron/FullRecord.aspx?p=264072)

### Course Requirements:

1. Reading assignments: Students should read the assigned readings for each module. Reading assignments will come from the required texts and provided handouts.
2. Homework problems: Problem sets will be assigned, generally weekly, and are to be completed by each student independently except where specific instructions to the contrary are provided. Homework will be graded and returned in a timely fashion.

### Basis for Grading:

The final grade will be determined based on scores from the various assigned homework problems.

### Students with Disabilities:

#### **Access and Accommodation**

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](tel:206-543-8924) or [uwdrs@uw.edu \(mailto:uwdrs@uw.edu\)](mailto:uwdrs@uw.edu) or [disability.uw.edu](http://disability.uw.edu) <sup>↗</sup> (<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.

**Academic Integrity** <http://sph.washington.edu/students/academicintegrity/> <sup>↗</sup>  
(<http://sph.washington.edu/students/academicintegrity/>)

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.

## Religious Accommodations Policy

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/).<sup>↗</sup> [\(https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/\)](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/).<sup>↗</sup> [\(https://registrar.washington.edu/students/religious-accommodations-request/\)](https://registrar.washington.edu/students/religious-accommodations-request/).

## Course Summary:

Date	Details	Due
Mon Jan 11, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/5694358">Assignment #1</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/5694358"> (https://canvas.uw.edu/courses/1434467/assignments/5694358)</a>	due by 11:59pm
Mon Jan 18, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6024968">Assignment #2</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6024968"> (https://canvas.uw.edu/courses/1434467/assignments/6024968)</a>	due by 11:59pm
Mon Jan 25, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6042157">Assignment #3</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6042157"> (https://canvas.uw.edu/courses/1434467/assignments/6042157)</a>	due by 11:59pm
Mon Feb 1, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6051993">Assignment #4</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6051993"> (https://canvas.uw.edu/courses/1434467/assignments/6051993)</a>	due by 11:59pm
Mon Feb 8, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6066071">Assignment #5</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6066071"> (https://canvas.uw.edu/courses/1434467/assignments/6066071)</a>	due by 11:59pm
Tue Feb 16, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6066085">Assignment #6</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6066085"> (https://canvas.uw.edu/courses/1434467/assignments/6066085)</a>	due by 11:59pm
Mon Feb 22, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6085096">Assignment #7</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6085096"> (https://canvas.uw.edu/courses/1434467/assignments/6085096)</a>	due by 11:59pm
Mon Mar 1, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6094982">Assignment #8</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6094982"> (https://canvas.uw.edu/courses/1434467/assignments/6094982)</a>	due by 11:59pm

<b>Date</b>	<b>Details</b>	<b>Due</b>
Mon Mar 8, 2021	 <a href="https://canvas.uw.edu/courses/1434467/assignments/6112768">Assignment #9</a> <a href="https://canvas.uw.edu/courses/1434467/assignments/6112768"> (https://canvas.uw.edu/courses/1434467/assignments/6112768)</a>	due by 11:59pm