

University of Florida
College of Public Health & Health Professions Syllabus
PHC 6702: Environmental Monitoring and Exposure Assessment (3 credit hours)
Spring 2023 (Jan 9 – Apr 26)
Delivery Format: In-class, Lecture, Mon (3:00 PM – 4:55 PM) & Wed (3:00 PM – 3:50 PM)
Classroom: HPNP Building, **Room G105**

Instructor Names: Benjamin Anderson, MPH, PhD, CPH
Phone Numbers: 352-273-9572
Email Addresses: ander88@ufl.edu
Office hours: Wednesdays 4 PM – 5PM

Preferred Course Communications: The “Inbox” in Canvas will be used for all email correspondence. Instructor will not be responsible for emails sent to “UFL” email address.

Prerequisites:

PHC6313: Environmental Health Concepts in Public Health

PURPOSE AND OUTCOME

Course Overview

Exposure to hazardous chemical, physical and biological agents occurs through inhalation, ingestion, or contact with a variety of environmental media including air, water, food, or soil. Students will acquire and apply the key knowledge needed to perform environmental monitoring for exposure assessment in environmental health research and practice.

Course Description

Methods to measure and estimate exposure to hazardous agents encountered in the environment are explored in this course. Students will learn how to apply exposure measurement and exposure assessment methods through a variety of problem sets and exercises provided throughout this course.

Course Objectives and/or Goals

After completing this course, students should be able to:

1. Understand the role of exposure science in public health practice
2. Develop exposure assessment strategies for health risk assessment
3. Develop exposure assessment strategies for epidemiological studies
4. Critically evaluate the scientific literature on exposure science
5. Select and apply the appropriate techniques to measure or estimate exposure
6. Understand the limitations of exposure data collection techniques
7. Present the results of your exposure estimates effectively, in written and oral form

Relation to Program and Learning Outcomes

Competencies primarily gained in this course

1. Describe to specific communities or general populations the direct and indirect human and ecological effects of major environmental agents.
2. Develop testable hypotheses and models to evaluate biological and chemical environmental exposures.

3. Communicate effectively with constituencies in oral and written forms.

Instructional Methods

1. Lectures: Students are responsible for all the material presented in the course and assigned readings. This will be the main source of content in this course.
2. Readings and Resources. In addition to the required text, supplementary readings and resources will be posted in the course. The reading list may be supplemented during the course.
3. Assessments: The primary assessments will be class participation, written assignments, quizzes, and a mid-term and final examination.

What is expected of you?

You are expected to attend bi-weekly lectures and complete all readings, assignments, and exams. Additionally, you are expected to actively engage in the course throughout the semester. Your participation fosters a rich experience for you and your peers that facilitate overall mastery of the course objectives.

DESCRIPTION OF COURSE CONTENT

This course is taught as a series of modules, each covering one specific aspect of environmental exposure assessment and environmental monitoring. Each module may contain lectures, external links, videos, discussions and required readings as well as assignments. Lectures will be given by a variety of individuals with expertise in specific topical areas (e.g., biological agents in water) related to environmental monitoring and exposure assessment. You are responsible for all course content regardless of the format or lecturer. The topical Outline/Course Schedule below details the dates of content modules and assignments. Assignments and Exams are also listed.

Topical Outline and Course Schedule:

Module No.	Lecture Title (guest lectures indicated in bold)	Date, 2022	Readings, textbook, quizzes
1	Introduction to Exposure Assessment and Environmental Monitoring	Jan. 9	
Fundamentals of Environmental Monitoring and Exposure Assessment			
2	A Survival Guide to Exposure Metrics and Calculations	Jan 11	Chapter 1
3	Holiday (MLK day)	Jan 16	.
-	Variability and Uncertainty	Jan 18	Chapter 10
4	Questionnaires	Jan 23	Chapter 2
Environmental Monitoring and Assessment of Exposure Pathways			
5	Environmental Measurement of Air Contaminants: Particulate Matter and Gasses	Jan 25	Chapter 12 Quiz 1 Due
6	Environmental Measurement of Air Contaminants:	Jan 30	Chapter 11

	Bio-aerosols		
	Topical Student Presentations: Air Pollution/Bio-aerosol Exposure Assessment Studies	Feb 1	No Assigned Readings Quiz 2 Due
7	Environmental Measurement of Chemical Water Contaminants	Feb 6	Chapter 16
8	Environmental Measurement of Soil Chemical Contaminants	Feb 8	Assigned Reading (see Canvas)
9	Dermal Exposure Assessment	Feb 13	Chapter 9 Quiz 3 Due
10	Personal Exposure Monitoring	Feb 15	Chapter 5
11	Biologic Monitoring	Feb 20	Chapters 6 & 17
	Topical Student Presentations: Environmental Chemical Exposure Assessment Studies	Feb 22	No Assigned Readings Quiz 4 Due
13	Environmental Measurement and Exposure Assessment of Water Contaminants: Biologic Agents	Feb 27	Chapter 11
	MIDTERM EXAM (multiple-choice)	Mar 1	No Assigned Readings
14	Designing Exposure Assessment Studies	Mar 6	Chapter 14
-	Assessment of the Exposome	Mar 8	Chapter 14
15	Spring Break	Mar 11-18	.
Exposure Modeling Approaches in Exposure Science			
16	Personal Exposure Modeling	Mar 20	Chapter 5
17	Physiologically-Based Pharmacokinetic (PBPK) Modeling	Mar 22	Chapter 8 Quiz 5 Due
18	Writing a Term Paper	Mar 27	No Assigned Reading
19	Exposure Assessment using Geographic Information Systems Modeling for Air Pollution Exposure Assessment	Mar 29	Chapters 3, 4 & 13
20	Modeling Chemical Exposure from Food Consumption	Apr 3	Assigned Reading (see Canvas)

	Topical Student Presentations: Exposure Modeling Studies	Apr 5	No Assigned Readings
21	Exposure Assessment for Occupational Health and Safety	Apr 10	Chapter 7
	Student presentations of Study Design for Exposure Assessment	Apr 12	-
	Student presentations of Study Design for Exposure Assessment	Apr 17	Quiz 6 Due
	Review Session for Final Exam, Final Reports Due	Apr 19	-
28	FINAL EXAM (multiple-choice)	Apr 24 (3pm-5pm) Room G101	-

Getting Started Online

1. Visit <http://lss.at.ufl.edu> and login to e-Learning in Canvas using your Gatorlink ID and password.
2. Find our course website. It will be listed as PHC6702-Exposure Measurement and Assessment – Dr. John Lednicky – Spring 2022
3. Complete the “Getting Started” Module under the Modules Tool (left menu). This will prompt you to download and review the syllabus and review the materials on plagiarism.

Course Materials and Technology

Text book (Required):

Exposure Assessment in Environmental Epidemiology, Second Edition

by Mark J. Nieuwenhuijsen. Oxford University Press, Jun 2015, ISBN-13: 9780199378784

e-Learning in Canvas site:

There will be an online site for this course in Canvas, the learning management system supported by the University. Log in at <https://lss.at.ufl.edu/> and go to course site for PHC6702- Exposure Measurement and Assessment – Dr. John Lednicky – Spring 2019

Here, I will post the syllabus, lecture slides, assignments and allow for communication between the students and course instructors where applicable. You will also turn in assignments through this site. Once the course begins, course announcements will often take place through the e-Learning in Canvas site. This includes all emails. This will eliminate any issues with students not getting emails due to connection problems. It will be your responsibility to check the site on a routine basis to keep up with announcements, emails, and course modifications.

For technical support related to course materials and links, please contact me and the online course coordinator.

For technical support for this e-Learning in Canvas, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

ACADEMIC REQUIREMENTS AND GRADING

General information

Assignments are to be turned in as a Word document or PowerPoint file as directed, unless otherwise indicated. They will be returned to you with comments. If you have unexpected issues with Canvas, you may email the assignment to the instructor directly. Assignments are individual projects and shared work may be treated as a form of plagiarism. Assignments may be required to be submitted via Turnitin in this course (this will be done automatically in the Canvas Assignment). This tool will pick up any passages in students' work that come from another source. Be sure to adequately cite your sources/references for these assignments to avoid plagiarism (see format below). Also please confirm that your work is not overtly plagiarized, the Turnitin system will give you a report. Some similarity is expected and unavoidable, however if large portions are copied from other sources, this will be as considered plagiarism.

The Canvas assignment tool will notify you confirming the submission of your assignment. PLEASE check your UFL email at <http://webmail.ufl.edu> on a regular basis for these and other email notices from the course site. If you do not receive an email confirmation within 2 hours of submission, please return to the site and resubmit your assignment. It is a student's responsibility to verify that they turn in assignments on time and that they turn in the CORRECT assignment attachment. Please take a few moments to open your submitted attachment and verify that you have submitted to correct file.

You will be graded in the course through assigned work such as a written assignment, presentations and exams.

Course Requirements/Evaluation/Grading

Students will be evaluated by their Topical Student Presentations (15%), quizzes (15%), midterm examination (25%), final examination (25%), and a 6-10 page term paper and presentation on a topic related to the course and approved by the instructor (20%).

Topical Student Presentations (150 points)

Each student will give three presentations periodically throughout the semester (see course schedule for presentation timeline). Each presentation is worth 50 points for a total of 150 points. Detailed instructions and a grading rubric are provided on Canvas. For this assignment, each presentation will be for 15 minutes and allow for 5 minutes of discussion/Q&A after the presentation. The student will identify a study from the peer-reviewed literature related to the topic noted in the course schedule and will provide a detailed summary of the exposure assessment methods and results of the study. The student will be expected to provide some background for each study and to explain their rationale as to why they chose the particular study to present on.

Quizzes (150 points)

Students are expected to complete 6 quizzes that are taken periodically throughout the semester (see course schedule for timeline of quizzes). Quizzes are worth 15% (150 points) of your overall grade. Each quiz is worth 25 points. Each quiz will be online using Canvas and will last no more than 20 minutes. Quizzes will assess your knowledge of course content throughout the semester and serves to prepare you for the midterm and final exams. The number of questions on each quiz will vary based on the content covered for each particular quiz.

Term Paper and Presentation (200 points)

A 6-10 page paper (double-spaced) on a specific exposure assessment question of interest to the student is due at the end of the course. The paper must include a description of the environmental exposure problem (1-page minimum), a formal review of scientific literature (3-pages minimum) related to the

exposure scenario and exposure measurement and assessment methods, and a description of the exposure assessment design including methods used and justification for the study design (2-pages minimum). Students are strongly advised to select a topic whose knowledge is of use to their academic or professional goals (e.g. internship). The topic title is due at least one month in advance of the due date and a list of references and an outline are due approximately two weeks later (see due dates below). The paper must be submitted through Turnitin®. In addition to the written report, students are expected to produce a 5-minute presentation given in front of the class along with a two-minute question and answer session. The presentation should clearly and succinctly summarize their review of the literature and should demonstrate that the student has a working knowledge of the topic. The term paper will account for 75% and the presentation will account for 25% of the final grade for this particular assignment. Earlier requests for feedback from the instructor are encouraged.

Exams (500 points)

There will be two in class exams: a midterm and a final. The format for both exams will be **in-class** and **CLOSED BOOK**. The midterm exam will test your knowledge of the first series of modules; including material covered in lectures and assigned readings. The final exam will focus on material covered in modules from the midterm onward; however, as this material builds on concepts presented during the first half of the course, it will be imperative to have a good comprehension of material covered during the first part of the course. Each exam is worth 250 points each, for 500 points total (50% of your overall grade in the class).

Grading

Requirement	Points	Percentage of Total Points	Due date
Topical Student Presentations	150	15%	See Course Schedule (variable)
Quizzes	150	15%	See Course Schedule (variable)
Term Paper and Presentation	200	20%	See Course Schedule (variable)
Midterm Exam	250	25%	February 28, 2022
Final Exam	250	25%	April 20

Point system used (i.e., how do course points translate into letter grades).

Points earned	93-100%	90-92%	87-89%	83-86%	80-82%	77-79%	73-76%	70-72%	67-69%	63-66%	60-62%	Below 62%
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Passing grades and Grade Points: Credit Earned

Passing Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0

Please be aware that letter grades of C-, D+, D, D- or E are not considered passing at the graduate level, although the grade points associated with these letter grades are included in grade point average calculations. In addition, a grade of C counts toward a graduate degree only if an equal number of credits in courses numbered 5000 or higher have been earned with an A.

For more detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at:

<http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Policy Related to Make up Exams or Other Work

Assignments turned in up to 24 hours late (from 11:59PM of the day the assignment was due) will be discounted **10%** of the grade that they would otherwise receive. Assignments turned in more than 24 hours late will **not** be graded and will contribute zero points toward your final grade, unless arrangements have been made in advance with the instructor. Missed assignments will contribute zero points toward your final grade.

Special Circumstances. In the event of exceptional situations that may interfere with your ability to perform an assignment or meet a deadline, contact the instructor as soon in advance of the deadline as possible. Such special cases will be dealt on an individual basis, provided that you have sufficient documentation.

Please note: Please note: Any requests for make-ups due to technical issues **MUST** be accompanied by the UF Computing help desk (<http://helpdesk.ufl.edu/>) correspondence. You **MUST** e-mail me within 24 hours of the technical difficulty if you wish to request a make-up.

Policy Related to Required Class Attendance

Please note all faculty are bound by the UF policy for excused absences. Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation. Additional information can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

Expectations Regarding Course Behavior

You are expected to maintain a civil tone and respect the opinions of other persons. While commenting on others' posts is encouraged, aggressive or patronizing tone and language are unacceptable and may result in the loss of your posting and discussion privileges.

Communication Guidelines

You are required to contact the professor by email using the "Inbox" in Canvas for clarification and assistance with the course material and the assignments, and for special issues that may arise. Weekday

daytime (US Eastern Time) emails have the best chances of being answered quickly. Please only use the Canvas "Inbox" to communicate with the course instructor and/or TA. While the instructors and TAs will check their UFL email regularly, they will not be held responsible for email sent directly to their UFL addresses.

Academic Integrity

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>
<http://gradschool.ufl.edu/students/introduction.html>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior. Plagiarism is especially damaging in an online learning environment and will be dealt with in an official way, according to University of Florida regulations. Incidents will be reported directly to the Office of Student Judicial Affairs and a formal procedure will be started in each and every case. There will be no informal incident resolution between student and instructor. Should you have any doubts on whether something constitutes plagiarism, please consult the many available resources on the topic, e.g. starting with <http://web.uflib.ufl.edu/msl/subjects/Physics/StudentPlagiarism.html>, or contact the instructor in advance. There is also a reference posted in the course site, in the Course Help link. As you submit assignments, you will have the opportunity to check it for unintentional plagiarism using Turnitin®, the same software that instructors will use to check your work. You are encouraged to take advantage of this option. If you turn in assignments that are plagiarized, you will receive zero points for that assignment.

You are expected to turn in original work in this course. This means that when answering assignment questions, writing papers, posting discussions, etc you will be expected to write your responses in your own words. You **MAY NOT** copy answers word for word from any course materials or outside sources. On occasion it may be useful to provide a quote from course materials or outside sources in which case you must properly cite the source and place the quote in quotation marks. That being said we urge you to avoid excessive quotation as it does little to demonstrate your understanding of course material.

Online Faculty Course Evaluation Process

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Policy Related to Guests Attending Class

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy: <http://facstaff.php.ufl.edu/services/resourceguide/getstarted.htm>

SUPPORT SERVICES

Accommodations for Students with Disabilities

If you require classroom accommodation because of a disability, it is strongly recommended you register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class or as soon as you believe you might be eligible for accommodations. The Dean of Students Office will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.

You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>

Crisis intervention is always available 24/7 from:

Alachua County Crisis Center:

(352) 264-6789

<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

Inclusive Learning Environment

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: www.multicultural.ufl.edu
