

**University of Florida**  
**College of Public Health & Health Professions Syllabus**  
**PHC 6702: Environmental Monitoring and Exposure Assessment (3 credit hours)**

Spring 2020

Delivery Format: In-class, Lecture, Mon (1-hour, 1:55 – 2:45 PM) & Wed (2-hours, 1:55 – 3:50 PM)

Classroom: HPNP Building, Room 4170

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Instructor Names: John Lednicky, PhD  
Phone Numbers: 352-273-9204  
Email Addresses: [jlednicky@php.ufl.edu](mailto:jlednicky@php.ufl.edu)  
Office hours: M 11 AM – 12 PM

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.

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**Prerequisites:**

PHC6313: Environmental Health Concepts in Public Health

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**PURPOSE AND OUTCOME**

**Course Overview**

Exposure to chemical, physical and biological agents occurs through inhalation, ingestion, or contact with a variety of environmental media. Methods to measure and estimate exposure to hazardous agents in the context of environmental and public health practice are explored in this course. Understanding the field of exposure science requires the ability to apply key knowledge and concepts; hence this course will involve the use and application of the course material through problems and exercises. Classes PHC 6313 is a prerequisites for 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.

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### **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. You are responsible for all course content regardless of the format. The topical Outline/Course Schedule below details the dates of content modules and assignments. Debates and Exams are also listed.

### **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 Lednický – Spring 2019
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 (Recommended):

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 PHC 6702: Environmental Monitoring and Exposure Assessment – Dr. John Lednický – Spring 2020

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

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## **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 the use of written homework and exams.

### **Course Requirements/Evaluation/Grading**

Students will be evaluated by their class participation (20%), homework (10%), quizzes (10%), midterm examination (20%), final examination (20%), and a 6-10 page term paper and presentation on a topic related to the course and approved by the instructor (20%). To earn a B for class participation, students should fully participate and attend every session. To earn an A in classroom participation, students must attend each session and demonstrate that they prepared for lectures beforehand (through reading assigned text and interacting with the lecturers).

### **Term Paper and Presentation**

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

**There will be two in class exams: a midterm and a final.** The format for both exams will be **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.

### Grading

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

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

Passing grades and Grade Points: Credit Earned

<b>Passing Grade</b>	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
<b>Grade Points</b>	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 greater 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>

### Late Assignments and Make Up Work

Assignments turned in up to 24 hours late 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: Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. 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**

All faculty are bound by the UF policy for excused absences. For information regarding the UF Attendance Policy see the Registrar website for additional details:

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

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### **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/>.

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## **SUPPORT SERVICES**

### **Accommodations for Students with Disabilities**

If you require classroom accommodation because of a disability, you must register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class. The Dean of Students Office will provide documentation of accommodations to you, which you then give to me as the instructor of the course to receive accommodations. Please make sure you provide this letter to me by the end of the second week of the course. 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>

### Topical Outline and Course Schedule:

Class No.	Lecture Title	Day 2020	Readings, textbook
1	Introduction Part 1	Jan. 6	
Fundamentals of Environmental Monitoring and Exposure Assessment			
2	Introduction Part 2	Jan 8	
3	A Survival Guide to Exposure Metrics, and Computation Variability and Uncertainty in exposure assessment and environmental monitoring	Jan 13	Chapters 1 and 10
4	Questionnaires	Jan 15	Chapter 2
-	Holiday (MLK day)	Jan. 20	
5	Toxic Metals and Elements	Jan. 22	
Pathways of Exposure			
6	Exposure Measurement and Assessment for Air Contaminants –	Jan 27	Chapter 12

	Particulate Matter and Gasses		
7	Environmental Measurement and Exposure Assessment for Air Contaminants – Bioaerosols	Jan 29	
8	Environmental Measurement and Exposure Assessment of Water Contaminants – Chemicals	Feb 3	Chapter 16
9	Environmental Measurement and Exposure Assessment of Water Contaminants – Biologic Agents	Feb 5	Chapter 11
10	Exposure Assessment of Soil Contamination – Chemicals	Feb 10	
<b>Special Topics in Environmental Measurement and Exposure Assessment</b>			
11	Ionizing and Nonionizing Radiation	Feb 12	Chapter 18
12	Dermal Exposure Assessment	Feb 17	Chapter 9
13	Biologic Monitoring	Feb 19	Chapter 6
14	Personal Exposure Monitoring	Feb 24	Chapter 5
15	<b>Midterm Exam</b>	<b>Feb 26</b>	
<b>SPRING BREAK</b>		29 Feb. – 7 Mar.	
16	Exposure to Physical Agents	Mar 9	
17	The Exposome	Mar 11	Chapter 14
18	Design of Exposure Studies	Mar 16	(Review of cumulative concepts)
<b>Modeling Approaches in Exposure Science</b>			
19	Pharmacokinetic Modeling	Mar 18	Chapter 8
20	Personal Exposure Modeling	Mar 23	Chapter 5
21	Exposure Assessment using Geographic Information Systems	Mar 25	Chapter 3
22	Land Use Regression Models for Outdoor Air Pollution	Mar 30	Chapter 13
23	Modeling Chemical Exposure from Food Consumption	Apr 1	
24	Exposure Controls and Measurement	Apr 6	
25	Exposure Assessment for Occupational Health and Safety	Apr 8	
26	Student presentations of Study Design for Exposure Assessment	Apr 13	



27	Student presentations of Study Design for Exposure Assessment	Apr 15	
28	Review Session for Final Exam, Final Reports Due	Apr 20	
29	<b>FINAL EXAM (multiple-choice)</b>	<b>Apr 27</b>	