
University of Florida
College of Public Health & Health Professions Syllabus
PHC 6711: Measurement in Epidemiology and Outcomes Research (3 credit hours)
Fall 2019
Delivery Format: On-Campus (Communicore CG-22), Thursdays 12:50 pm to 3:50 pm
Canvas Course Website: <https://elearning.ufl.edu/>

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Instructor Information

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Preferred course communications: Email, office hours

Prerequisites

PHC 6001 and PHC 6050, or instructor permission.

Purpose and Outcome

Course Overview. This course describes major designs and principles of measurement for epidemiology and outcomes research.

Course Objectives. This course focuses on principles of measurement in epidemiologic/health outcomes research studies. Students will read and review methodological articles from the public health literature, and discuss how the methods presented can be leveraged to improve study design. Special emphases include: exposure dose construction, methods of measurements, measurement errors, including assessment and mitigation, questionnaire design, interview strategies, and use of records and biomarkers. This course also features special topics, for examples, measurement issues in clinical outcomes, substance use and psychiatric outcomes, exposome, gut microbiota, genetics, and bioinformatics.

Instructional Methods. We will meet for 15 sessions, each of which will last 2 to 3 hours. Classes are lecture- and discussion-based, and the goal of each session is to enable each student to understand the merits and limitations of specific methods with respect to primary study design. Grading will be based on three parts – literature review, assignment, and final project presentation. Prior to each session, 1-2 readings will be assigned from the epidemiologic literature. A review form (1-2 pages) will be completed by each student the day before the class. There will be 10 literature reviews, each is worthy 5% of the final grade, and 7 highest scores will be counted toward the final grade (35% total). There will be 6 assignments, each is worthy 10% of the final grade, and 5 highest scores will be counted toward the final grade (50% total). In addition, there are final project presentation (10%) and critique of the presentation (5%). There are no exams.

Course Schedule:

Week / Date / Topic (text reading)	Literature review (submit review form the day before the class)
1. 8/22/2019 Thur - Group formation, Introduction of measurement	None
2. 8/29/2019 Thur – Dose and timing of exposure (Reading: White, Armstrong & Saracci Ch. 1)	<p>Doll et al. Mortality in relation to smoking: 50 years' observations on male British doctors. <i>BMJ</i> 2004.</p> <p>Ambrosone et al. Associations between estrogen receptor-negative breast cancer and timing of reproductive events differ between African American and European American women. <i>CEBP</i> 2014;23:1115-1120.</p>
Assignment 1 due on 9/4/2019	
3. 9/5/2019 Thur - Methods of measurement (Ch. 2)	<p>Bandera et al. The use and interpretation of anthropometric measures in cancer epidemiology: A perspective from the World Cancer Research Fund International Continuous Update Project. <i>IJC</i> 2016;139:2391-2397.</p> <p>Banack et al. Is BMI a valid measure of obesity in postmenopausal women? <i>Menopause</i> 2019, 25:307-313.</p>
4. 9/12/2019 Thur – Measurement error & its effect: Continuous exposures (Ch. 3, skip pg. 83-91)	<p>Block et al. Validation of a food frequency questionnaire for Hispanics. <i>PCD</i> 2006.</p> <p>Patterson et al. Measurement characteristics of the Women's Health Initiative Food Frequency Questionnaire. <i>Ann Epidemiol</i> 1999;9:178-187.</p>
Assignment 2 due on 9/18	
5. 9/19/2019 Thur – Validity and reliability studies; Measurement error & its effect: Categorical exposures (Ch. 4; Ch. 3, Pg. 83-91)	<p>Barnard et al. Inter-pathologist and pathology report agreement for ovarian tumor characteristics in the Nurses' Health Studies. <i>Gynecologic Oncology</i>. 2019</p> <p>Curb et al. Outcomes ascertainment and adjudication methods in the Women's Health Initiative. <i>Ann Epidemiol</i> 2003; 13:S122-S128.</p>

Assignment 3 due on 9/25	
6. 9/26/2019 Thur – Reducing measurement error and its effects (Ch. 5.)	Prentice et al. Biomarker-calibrated energy and protein consumption and increased cancer risk among postmenopausal women. AJE 2009;169:977-989.
Assignment 4 due on 10/2	
7. 10/3/2019 Thur – Questionnaire design and recall strategies (Ch. 6)	Sung et al. Item bank development, calibration and validation for patient-reported outcomes in female urinary incontinence. Qual Life Res 2016;25:1645-1654.
Assignment 5 due on 10/9	
8. 10/10/2019 Thur – Quality control procedures—General and personal interview (Ch. 7)	Andersen and Olsen. Do interviewers' health beliefs and habits modify responses to sensitive questions? A study using data collected from pregnant women by means of computer-assisted telephones interviews. AJE 2002;155:95-100. Edwards et al. Measurement errors stemming from nonresponders present at in-person interviews. Ann Epidemiol 1998;8:272-277.
9. 10/17/2019 Thur – Use of records, diaries, and proxy respondents (Ch. 8)	Filipp SL, et al. Characterization of adult obesity in Florida using the OneFlorida clinical research consortium. Obes Sci Pract. 2018 Jun 15;4(4):308-317. Spratt SE et al. Assessing electronic health record phenotypes against gold-standard diagnostic criteria for diabetes mellitus. J Am Med Inform Assoc. 2017 Apr 1;24(e1):e121-e128.
Assignment 6 due on 10/23	
10. 10/24/2019 Thur – Biomarkers (Ch. 9)	TwoRoger and Hankinson. Use of biomarkers in epidemiologic studies: minimizing the influence of measurement error in the study design and analysis. Cancer Causes Control 2006;17:889-899.
11. 10/31/2019 Thur – Ethical issues (Ch. 12)	Rosenbloom ST et al. Ethical and practical challenges to studying patients who opt out of

	<p>large-scale biorepository research. J Am Med Inform Assoc. 2013 Dec;20(e2):e221-5.</p> <p>Spector-Bagdady K, et al. Biospecimens, Research Consent, and Distinguishing Cell Line Research. JAMA Oncol 2019;5:406-10.</p>
12. 11/ 7/2019 Thur - Special lecture: Dr. Deepthi Varma. Qualitative research and mixed methods research	None. (Student presentation)
13. 11/14/2019 Thur- Special lecture: Dr. Hui Hu – Measurements in environmental epidemiology/exposome	None. (Student presentation)
14. 11/21/2019 Thur- Special lecture: Dr. Yan Wang. Real-time assessment for mental health and substance use	None. (Student presentation)
15. 11/28/2019 Thur- No class (Thanksgiving holidays)	
16. 12/ 5/2019 Thur - Special lecture: Dr. Yonghui Wu. Natural language processing and machine learning	None. (Student presentation)

Course Materials and Technology. Readings for the course will be drawn from the articles cited in the above schedule. The required textbook is:

White, E., Armstrong, B. K., & Saracci, R. (2008). Principles of exposure measurement in epidemiology: collecting, evaluating and improving measures of disease risk factors. OUP Oxford.

For technical support for this class, please contact the UF Help Desk at: Learning-support@ufl.edu, (352) 392-HELP – select option 2, or <https://lss.at.ufl.edu/help.shtml>.

Academic Requirements and Grading

Grade Composition.

- Literature review: 35%
- Homework assignments: 50%
- Final project presentation and critique: 15%

Attendance. Class attendance is mandatory. Excused absences follow the criteria of the UF Graduate Catalogue (e.g. illness, serious family emergency, military obligations, religious holidays), and should be communicated to the instructor prior to the missed class day when

possible. UF rules require attendance during the first two course sessions. Each unexcused absence results in a 3% point deduction from the final grade. Missing more than three scheduled sessions without excuse will result in a failure. Students are responsible for all material presented in class and meeting the scheduled due dates for class assignments.

Literature review. Prior to each session, 1 - 2 readings will be assigned from the epidemiologic literature, and a review form with questions will be completed by each student. Limit your answer to 2 pages. Your review must be turned in no later than 11:59 pm on the day it is due.

Homework assignments. A total of 6 assignments will be given. You are required to compliant with the following assignment rules:

- Your assignment must be turned in no later than 11:59 pm on the day it is due.
- Late homework assignments will NOT be accepted, unless you have a formal proof of the exception (e.g., a written doctor note, a police ticket, etc.).
- No handwritten assignment. All assignments need to be submitted electronically either by email or the online system (will be clarified at the beginning of the course).
- DO NOT COPY OTHERS' HOMEWORK. There is zero-tolerance. The one who copy the homework will receive 0 point; and the one who is copied will get only 50% of the points that he/she should have received.

Final project presentation and critique. See instruction on Canvas

Final grades will follow the scale in this table:

Percent of Course Points (out of 100%)	Letter Grade	Grade Point Equivalent
93% - 100%	A	4.00
90% - 92.9%	A-	3.67
87% - 89.9%	B+	3.33
83% - 86.9%	B	3.00
80% - 82.9%	B-	2.67
77% - 79.9%	C+	2.33
73% - 76.9%	C	2.00
70% - 72.9%	C-	1.67
67% - 69.9%	D+	1.33
63% - 66.9%	D	1.00
60% - 62.9%	D-	0.67
Below 60%	E	0.00

Student Expectations, Roles, and Opportunities for Input

Expectations Regarding Course Behavior. Please come to class on time and be prepared to stay until the time scheduled as the end of class. We think your investment in the degree is worth maximizing your in-class experience, and we expect to provide materials that utilize the full, scheduled class times. The use of cell phones is not permitted. Please turn them off or, if you expect urgent calls, set them to “vibrate.” Please do not engage in “side conversations” while the instructor or a presenter is leading the class. If the material is unclear, other students are likely to have a similar question; you are strongly encouraged to ask in-class questions so that all students may benefit from the discussion.

Communication Guidelines. Assistance with course material is available during scheduled office hours or by appointment. Emailed questions are also welcome, and we aim to address all such inquiries within 24 hours of receipt (or on Monday if the email was sent on Friday). Please do not re-send the same question until the appropriate time frame has elapsed (24 hours or end of day Monday for emails sent on Friday). Student success and understanding is of the utmost importance, so each email receives careful consideration.

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.

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://evaluation.ufl.edu>. Students will be given specific times when the evaluations can be made. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

It is very important to me that you are able to develop a set of epidemiologic tools in this course that you will find useful in your career. Naturally, the presentation of some tools may be stronger than others. Your feedback on this issue is extremely valuable to me; please feel free to comment on what strategies worked and which might be improved, as I will modify future versions of this course to leverage such knowledge of strengths and weaknesses. As an additional consideration, these evaluations are also useful at the University level, as they are examined in the context of faculty tenure and promotion procedures.

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 must 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>. Online and in person assistance is available.

- You Matter We Care website: <http://www.umatter.ufl.edu/>. Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at (352) 392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

- 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