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**University of Florida**  
**College of Public Health & Health Professions Syllabus**  
**PHC 6711: Measurement in Epidemiology and Outcomes Research (3 credit hours)**  
Spring 2017  
Delivery Format: On-Campus (HPNP G-110), F 9:35-12:35  
Canvas Course Website: <https://elearning.ufl.edu/>

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### **Instructor Information**

Hui Hu, PhD  
Department of Epidemiology  
Office: 2004 Mowry Road, Clinical and Translational Research Building (CTRB) #4224  
Phone: (352) 294-5944  
Email: [huihu@ufl.edu](mailto:huihu@ufl.edu)  
Office hours: By appointment  
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 health services 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: causal inference, methods of measurement, validity and reliability, surveys, biomarkers, measurements in the environment, wearable-technology enabled measurement, measurement using social media data, measurement using electronic health records, whole exposome studies, response rates and their maximization.

*Instructional Methods.* We will meet for 14 sessions, each of which will last 3 hours. Prior to each session, 2-3 readings will be assigned from the epidemiologic literature. 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. There are no exams, and grades will be based entirely on attendance (10%) and homework assignments (90%).

## Description of Course Content

### Course Schedule.

Date	Agenda (● = topic, ◇ = reading*)	Assignment Due (% of Final Grade**)
January 6, 2017	<ul style="list-style-type: none"> <li>● Course overview</li> <li>● Study design review (in the context of causal inference)</li> <li>● Causal diagrams (DAGs)</li> <li>◇ Hernán MA, Robins JM (2016). Causal Inference. Boca Raton: Chapman &amp; Hall/CRC, forthcoming. Part I, Chapter 6, pages 69-82</li> </ul>	
January 13, 2017	<ul style="list-style-type: none"> <li>● Confounding, bias, and random variability</li> <li>◇ Hernán MA, Robins JM (2016). Causal Inference. Boca Raton: Chapman &amp; Hall/CRC, forthcoming. Part I, Chapters 7-10, pages 83-130</li> </ul>	Assignment 1 (7.5%)
January 20, 2017	<ul style="list-style-type: none"> <li>● Methods of measurement</li> <li>◇ TBA</li> </ul>	Assignment 2 (7.5%)
January 27, 2017	<ul style="list-style-type: none"> <li>● Validity and reliability</li> <li>◇ TBA</li> </ul>	Assignment 3 (7.5%)
February 3, 2017	<ul style="list-style-type: none"> <li>● Reducing measurement error</li> <li>◇ TBA</li> </ul>	Assignment 4 (7.5%)
February 10, 2017	<ul style="list-style-type: none"> <li>● Prediction accuracy</li> <li>◇ TBA</li> </ul>	Assignment 5 (7.5%)
February 17, 2017	<ul style="list-style-type: none"> <li>● Self-report surveys</li> <li>◇ TBA</li> </ul>	Assignment 6 (7.5%)
February 24, 2017	<ul style="list-style-type: none"> <li>● Biomarkers</li> <li>◇ TBA</li> </ul>	Assignment 7 (7.5%)
March 3, 2017	<ul style="list-style-type: none"> <li>● Measurements in the environment</li> <li>◇ TBA</li> </ul>	Assignment 8 (7.5%)
March 17, 2017	<ul style="list-style-type: none"> <li>● Wearable technology-enabled measurement</li> <li>◇ TBA</li> </ul>	Assignment 9 (7.5%)
March 24, 2017	<ul style="list-style-type: none"> <li>● Measurement using social media data</li> <li>◇ TBA</li> </ul>	Assignment 10 (7.5%)
March 31, 2017	<ul style="list-style-type: none"> <li>● Measurement using electronic health records</li> <li>◇ TBA</li> </ul>	Assignment 11 (7.5%)
April 7, 2017	<ul style="list-style-type: none"> <li>● Whole exposome studies</li> <li>◇ TBA</li> </ul>	Assignment 12 (7.5%)
April 14, 2017	<ul style="list-style-type: none"> <li>● Response rates and their maximization</li> <li>◇ TBA</li> </ul>	Assignment 13 (7.5%)

\* Readings marked as TBA will be assigned at least one week before the class.

\*\* Only the highest 12 grades will count towards the final course grade.

*Course Materials and Technology.* Most readings for the course will be drawn from the articles cited in the above schedule. A few readings are drawn from the following optional textbook, which may also prove useful for understanding key terms or formulas in the articles that were not fully elaborated upon:

- 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.
- Hernán MA, Robins JM (2016). Causal Inference. Boca Raton: Chapman & Hall/CRC, forthcoming. (<https://www.hsph.harvard.edu/miguel-hernan/causal-inference-book/>)

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

## Academic Requirements and Grading

### *Grade Composition.*

- Attendance and class participations: 10%
- Homework assignments: 90%

*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 (each session is about 2 hours of instruction) will result in a failure. Students are responsible for all material presented in class and meeting the scheduled due dates for class assignments.

*Homework assignments.* A total of 13 assignments will be given, and the highest 12 grades will count towards the final grade. You are required to comply with the following assignment rules:

- Your assignment must be turned in no later than 11:59pm 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.

### *Point system.*

Points earned	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	<60
Letter 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	0.0

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>

## 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](mailto: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 information, contact the clinic at 392-0628 or check out the website 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.