

**University of Florida College of Public Health and Health Professions  
PHC 6711: Measurement in Epidemiology & Outcomes Research  
Spring 2015**

**Primary Instructor:** Xiaohui Xu, Ph.D.  
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Office: CTRB 4219  
Office hours: Monday 2:00PM to 4:00PM and by appointment.

**Class Schedule:** Friday 9:35AM-12:35PM, Class Room G-108, HPNP

**Course Description and Goals**

This course emphasis is on the major designs of epidemiology and health services outcomes research and the principles of measurement for these studies, particularly the use of primary data collection. Special emphases include: formative work, questionnaire design; interviewing methods; reliability and validity studies; and the extension of data quality methods to the use of various record resources (e.g., medical records, administrative data), and physical performance, laboratory, and biomedical specimens. Measurements in outcomes research, for physical activities, substance abuse, diet and nutrients, and physical performance, will be used as primary examples throughout the course. Students will be able to:

- Gain insight and practice with field methods of public health and epidemiological research
- Understand concepts of classification and measurement to produce high-quality data
- Learn to identify measurement error and to interpret the impact of research results
- Learn methods to maximize research participant recruitment and their full participation in research
- Learn to draft data collection plans for research and formulate staffing plans for field research projects
- Understand methods for developing surveys, scales, and questionnaires
- Gain insight into literature review and critical analysis of published literature on research methods and measures
- Learn to select among measures the best “state of the science” for a particular research or public health surveillance application

**Course Materials**

**Recommended Textbook:**

White E, Armstrong BK, Saracci R. Principles of Exposure Measurement in Epidemiology (2<sup>nd</sup> Ed): Collecting, evaluating and improving measures of disease risk factors. Oxford University Press, Oxford, 2008.

**Supplemental Textbooks (Optional):**

Paul Lioy and Clifford Weisel. Exposure Science: Basic Principles and Applications.  
Mark J. Nieuwenhuijsen. Exposure Assessment in Occupational and Environmental  
Epidemiology. Oxford Scholarship online  
Ian McDowell. Measuring Health: A Guide to Rating Scales and Questionnaires (3<sup>rd</sup> Ed).  
Oxford University Press, Oxford, 2006.

### **Canvas**

Canvas is accessible at [lss.at.ufl.edu](https://lss.at.ufl.edu) or through [my.ufl.edu](https://my.ufl.edu). You must have a valid Gatorlink ID and password. For assistance, call the UF Help Desk at 392-HELP.

*Required:* Students will need to log onto Canvas and print all electronic files before each class except the first class. If materials are not posted in Canvas, we will provide the hardcopies in class. Students are responsible for all course material, including reading all required materials prior to each class. Readings will be assigned from historical or current scientific research literature. Readings will be posted when assigned, e.g., the week before they are due (or earlier).

### **Course Requirements**

Students are responsible for all course material, including reading all required materials prior to each class. Failure to compete ANY assignment (homework assignments, in-class presentation, and final paper) will result in a failing grade.

### **Grading**

#### **Grading scale:**

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

**Grading Methods:**

The assessment will include ten homework assignments, an individual course paper (literature summary) and associated class presentation, and class participation. Students also are asked to complete UFL IRB and research HIPAA certifications as part of this course if they have not already done so (See week 6; total of two on-line training programs require about 2.5-3 hours to complete).

Homework assignments = 50% (5% each for 10 homework)

Course project = 40% (20% written, 20% oral presentation)

Class participation = 10%

**Academic Integrity:** Each student is bound by the academic honesty guidelines of the University and the student conduct code printed in the Student Guide and on the University website. The Honor Code states: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” Cheating or plagiarism in any form is unacceptable and inexcusable behavior.

**Policy on Style for Citation and Plagiarism:**

The two key purposes of citation are to 1) give appropriate credit to the authors of information, research findings, and/or ideas (and avoid plagiarism) and 2) facilitate access by your readers to the sources you use in your research.

Quotations: When directly quoting an outside source, the borrowed text, regardless of the amount, must be surrounded by quotation marks or block quoted. Quoted text over two lines in length should be single-spaced and indented beyond the normal margins. Every quote must include a source—the author, title, volume, page numbers, etc.—whether an internal reference, footnote, or endnote is used in conjunction with a bibliography page. For this class, please use citations as in the *AJPH* format, meaning an “endnote” and not footnotes.

Paraphrasing or Citing an Idea: When summarizing an outside source in your own words or citing another person’s ideas, quotation marks are not necessary, but the source must be included. This includes, but is not confined to, personal communications from other students, faculty members, experts in the field, summarized ideas from published or unpublished resource, and primary methods derived from published or unpublished sources. Use the general concept of “when in doubt – cite.”

Plagiarism is a serious violation of the academic honesty policy of the College. If a student plagiarizes others’ material or ideas, he or she may receive an “E” in the course. The faculty member may also recommend further sanctions to the Dean, per College disciplinary action policy. Generally speaking, the three keys of acceptable citation practice are: 1) thoroughness, 2) accuracy, and 3) consistency. In other words, be sure to fully cite all sources used (thoroughness), be accurate in the citation information provided, and be consistent in the citation style you adopt. All references should include the following elements: 1) last names along with first and middle initials; 2) full title of reference; 3) name of journal or book; 4) publication city, publisher, volume, and date; and 5) page numbers referenced. When citing information from the

Internet, include the WWW address at the end, with the “access date” (i.e., when you obtained the information), just as you would list the document number and date for all public documents. When citing ideas or words from an individual that are not published, you can write “personal communication” along with the person’s name and date of communication. Typical formats for citing references and books can be found in the *American Journal of Public Health*.

**Class Attendance:** Class attendance is mandatory for students. Excused absences follow the criteria of the UFL 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. UFL rules require attendance during the first two course sessions, and students also must attend the final two course sessions of student presentations for this class. Missing three scheduled sessions will result in a failure. Regardless of attendance, students are responsible for all material presented in class and meeting scheduled due dates for class assignments. Finally, students should read the assigned readings prior to the class meetings, and be prepared to discuss the material except for the first class session.

**Policy on Make-Up Work:** Students are allowed to make up work ONLY as the result of illness or other unanticipated circumstances warranting a medical excuse and resulting in the student missing a homework or project deadline, consistent with College policy. Documentation from a health care provider is required. Work missed for any other reason will receive a grade of zero.

**Accommodations for Students with Disabilities:** Students requiring accommodations must first register with the Dean of Students' Office. The Dean of Students' Office will provide documentation to the student who must then provide this documentation to the faculty member when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

**Course Outline:** Paper copies of required readings (or electronic versions) will be distributed or posted prior to each session.

**Week 1:** Course overview, and expectations. Introduction to exposure measurement.

*January 09<sup>th</sup>*

Problem set 1 handed out

**Reading:**

Textbook: White E chap 1;

Supplemental materials: relevant articles being assigned

**Week 2:** Review of methods of exposure measurement

*January 16<sup>th</sup>*

Problem set 1 due

**Reading:**

Textbook: White E chap 2;

Supplemental materials: relevant articles being assigned

**Week 3:** Measurement error and its effects on Epidemiologic studies

*January 23<sup>th</sup>*

Problem Set 2 due

**Reading:**

Textbook: White E chap 3;  
Supplemental materials: relevant articles being assigned

**Week 4:** Validity and Reliability study

*January 30<sup>th</sup>*

*Problem set 3 due*

**Reading:**

Textbook: White E chap 4 & 5;  
Supplemental materials: relevant articles being assigned

**Week 5:** Design of questionnaires and strategies of increasing response rate

*February 6<sup>th</sup>*

*Problem set 4 due*

**Guest Lecture: UF Survey Center** (Scott M Richards; Colleen K Porter)

**Reading:**

Textbook: White E Chap 6 & 11;  
Supplemental materials: relevant articles being assigned

**Week 6:** Validity and Reliability study (2)

*February 13<sup>th</sup>*

*Problem set 5 due*

**Reading:**

Supplemental materials: relevant articles being assigned

**Week 7:** Design of reliability study and reducing measurement error;

*February 20<sup>th</sup>*

*Problem Set 6 due*

**Reading:**

Supplemental materials: relevant articles being assigned

**Week 8:** Introduction of ROC analysis

*February 27<sup>th</sup>*

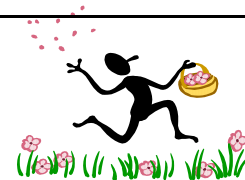
*Problem set 7 due*

**Reading:**

Supplemental materials: relevant articles being assigned



**Spring Break : February 28 - March 7**



**Week 10:** Measurement of alcohol consumption

*March 13<sup>th</sup>*

*Problem set 8 due*

**Guest Lecture: Bob. Cook**

**Reading:**

Supplemental materials: relevant articles being assigned

**Week 11:** Psychiatric measures

*March 20th*

Problem set 9 due

***Guest lecture: Linda Cottler***

**Reading:**

Supplemental materials: relevant articles being assigned

**Week 12:** Measurement of chemicals exposure

*March 27<sup>th</sup>*

Problem set 10 due.

***Guest lecture: Stephen M. Roberts***

**Reading:**

Supplemental materials: relevant articles being assigned

**Week 13:** Introduction of dermal exposure measurement

*April 3<sup>rd</sup>*

**Reading:**

Supplemental materials: relevant articles being assigned

**Week 14:** Human Subjects Issues and IRB

***Guest lecture: Catherine Striley***

*April 10<sup>th</sup>*

**Reading:**

Supplemental materials: relevant articles being assigned

**Week 15:** Student Presentations

*April 17<sup>th</sup>*

**Written Critique due Friday, April 24<sup>th</sup> 2015 by 4:00PM by electronic submission to [xhxu@phhp.ufl.edu](mailto:xhxu@phhp.ufl.edu)**

**You must receive a confirmation of receipt to assume this has been registered by me as accepted for the final grade. You are responsible for this submission and if the file is not received in a readable format. So attempt the file submission early**