

University of Florida
College of Public Health & Health Professions & College of Medicine

**Epidemiology Method I (PHC6000) Syllabus
Spring 2021**

Delivery format: Online via Zoom
Every Thursday, 10:40am-1:40pm
Course Website: E-Learning in Canvas

Instructor: Xinguang “Jim” Chen, MD, PhD, and Professor of Epidemiology
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Email Address: jimax.chen@ufl.edu
Office Hours via Zoom: by appointment (2004 Mowry Road, Room 4228)
Teaching format: Online
Class TA: Emily M. Klann
Classroom assigned in case needed: HPNP1102

Prerequisites

Knowledge of basic concepts in epidemiology and study designs: PHC 6001 and PHC 6052 or the equivalent. Knowing how to use MS Excel to process data and make charts, figures and tables.

PURPOSE AND OUTCOME

Course Overview

As the next step after PHC 6001 (Principles of Epidemiology), this course is devised to train graduate students with basic research designs and methods to address medical, health and behavior issues with public health significance. This course emphasize basic theories, knowledge and skills in epidemiology, and prepare for future training in conducting research and using statistical software for analysis. Lectures, in-classroom practice and homework focus on the establishment of concepts key to epidemiology, such as different research designs, surveillance, descriptive study with cross-sectional data, random sampling, random grouping, incidence, prevalence, odd and odds ratio, risk and relative risk, data quality, selection and evaluation of screening tools, evaluation of individual and population-based interventions, and guidance for causal inference. After completion of this course, students are expected to become a thinker and planner for epidemiology; it also serves as bridge between PHC 6001 and more advanced methods and statistical software, such as Epi Methods II (PHC 6011) and/or Epi Method III (PHC 7017).

Training Goals

1. Train graduate students in public health and medicine to be a thinker and planner for epidemiological research to address challenge medical, health and behavior issues;
2. Prepare students to take advanced method courses as described in the Course Overview above.

Course Objectives

Upon completion of the course, students should be able to

1. Think of challenging medical, health, or behavioral issues and potential approaches to address them from an epidemiological and methodological perspective.
 2. Frame research questions into categories of descriptive, etiological and interventional/translational studies and think of different methods relevant for different types of studies
 3. Plan research projects considering different designs, including qualitative, cross-sectional, retrospective case-control, prospective cohort, and randomized controlled trial
 4. Use key epidemiological measures in research, such as incidence, prevalence, odds and odds ratio, risk, relative risk and absolute (attribute) risk.
 5. Interpret findings from epidemiological research, including study population and sample, causal inference, internal and external validity.
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DESCRIPTION OF COURSE CONTENT

Topics and Schedule

Detailed schedule for individual sessions as well as the topics in each session are presented in the table below. In-classroom practice (PCT, about one hour) and homework (HW, 11 assignments, multiple choices, writing questions, and simple computing) and due dates are also presented in the table (last column). We have 15 sessions for this course, 12 for teaching, and 3 for mid-term exam, overall review and final exam.

Class	Topic	Readings	Practice/ homework
Week 1 01/014	Student self-introduction, course overview, major tasks of epidemiology (descriptive, etiological, translational, and methodological), tasks determine methods	Chapter 1, Gordis Epidemiology, pp2-29 CDC's definition of epidemiology	PCT 1 & HW 1
Week 2 01/21	Descriptive study 1: Disease occurrence and descriptive methods for surveillance in real time – count, incidence, prevalence, case fatality, and death rate; draw line and bar charts, interpretation, use COVID-19 as example	Chapter 2, pp.20-40, review; chapter 3.pp41-64, intensive reading	PCT 2 & HW 2 HW 1 due
Week 3 01/28	Descriptive study 2: Population, sample, sampling methods, descriptive analysis of cross-sectional data to reveal distributions along with whom, when and where	Chapter 4, pp.65-93; chapter 7. Pp.149-177, up to Fig 7.5	PCT 3 & HW 3 HW 2 due
Week 4 02/4	<i>Etiological study 1</i> : Risk assessment using cross-sectional and case-control designs for categorical X, odds, odds ratio (OR), chi-sq test	Chapter 7 (pp.149-55): obs. Study designs Chapter 12 (pp.246-48): OR	PCT 4 & HW 4 HW 3 due
Week 5 02/11	<i>Etiological study 2</i> : Risk assessment using cross-sectional and case-control designs for continuous X, mean SD, student t-test	Chapter 7, pp.149-177 Chapter 12 (pp240-245): RR and comparison with OR	PCT 5 & HW 5 HW 4 due
Week 6 02/18	<i>Etiological study 3</i> : Risk assessment using longitudinal and cohort design, relative risk (RR), and absolute risk (AR), mean difference	Chapter 8, pp.178-192 Related contents in in the book by Szkelo & Nieto	PCT 6 & HW 6 HW 5 due
Week 7 02/25	<i>Etiological study 4</i> : Comparison of case-control and cohort design, risk assessment to address heterogeneity using stratified analysis approach	Chapter 15 (pp.294-306), section on confounding	PCT 7 & HW 7 HW 6 due
Week 8 03/04	Midterm exam, in-class. Bring computer with MS excel	No readings assigned	Submit online by 12:35
Week 9 03/18	Intervention research and analysis 1 – randomization and fidelity	Chapters 10&11, pp197-239	PCT 8 & HW 8 HW 7 due
Week 10 03/25	Intervention research and analysis 2. Evaluation of behavioral intervention trials	Chen, et al. (2008). A cluster randomized controlled trial of an adolescent HIV ... <i>AIDS & Behavior</i> 13(3): 499-508	PCT 9, HW 9 HW 8 due
Week 11 04/01	Intervention research and analysis 3 Evaluation of public health policies and regulations	Chapter 19, 377-394; Carpenter et al. (2011). The minimum legal drinking... <i>J Econ Perspect</i> , 25(2): 133-56	PCT 10, HW 10 HW 9 due
Week 12 03/11	Data quality and measurement reliability and validity	Chapter 5, pp.94-122	PCT 11 & HW11 HW 10 due
Week 13 04/8	Causal inference for etiological and intervention research, bias, confounding and Bradford Hill criteria for causal inference	Chapter 15, pp.289-306 Cox Jr. LA. Modernizing the Bradford Hill criteria... <i>Critical reviews in toxicology</i> , 48 (8): 682-712	PCT 12, no HW HW 11 due

Class	Topic	Readings	Practice/ homework
Week 14 04/015	Overall review, Q/A	No reading	No practice, no homework
Week 15 04/22	Final exam, in-class, bring computer with MS excel	No readings	Submit online by 12:35

Textbooks

Required: Gordis, Leon. Epidemiology, Sixth Edition. Elsevier Saunders, Philadelphia, PA, 2004.

Recommended: Szklo, Moyses and Nieto, F. Javier. *Epidemiology: Beyond the Basics, Third Edition*, Jones and Bartlett, Boston, MA, 2004.

Other Materials

In addition to the two textbooks, other materials are also used for this course. The required materials can be found in the [Topics and Schedule](#) above. Students are responsible to gather these materials. If experience difficulties obtaining any of the materials, please email either my TAs or me for assistance.

All students are encouraged to find materials by themselves to meet their needs in learning and completing the assignments for this challenge course.

Canvas

Canvas is used to delivery lecture. In-class practice and homework assignments will be uploaded to canvas at due course for students. Students are asked to complete homework assignments and exams using ms word doc and upload them to canvas. Template is provided for all assignments. Scores for individual assignments and exams will also be released via canvas.

TA will help manage the canvas for this course with instructor's guidance and supervision.

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

Zoom login: Please test your zoom link before class to make sure everything works, including remote connection, microphone, and earphone/speaker.

For technical support of zoom access zoom to attend class, 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

Course Requirements

1. Read assigned textbook sections and additional reading before attending lectures;
2. Attending all class sessions;
3. Complete all 12 practice assignments in class;
4. Complete all 11 homework assignments and submit by due date;
5. Take midterm and final exams during the designated date and time and submit online.

Attendance and participation

Attendance and participation in discussions are essential for this course. Students are expected to login to zoom 5 min before the lecture starts at 9:35 in the morning, test equipment to make sure it works. This is a big class, you'll be responsible to make sure all technologies function adequately for attending the class, asking questions, and present answers.

Practice in class will include multiple choice questions as well as require written answers with some calculations needed. About one hour is scheduled for in-class practice. Please do not turn in the work you did in classroom practice, but keep them for review to prepare midterm and final exams.

TAs will be available to answer your questions during the time when you practice in class.

Homework. Homework assignments will be given at the end of each session. Students have a week to complete the homework. Please complete the homework following the template I provided. To save time, **please submit your homework by directly uploading it in Word files to Canvas. Grade will be deducted for not following the homework template, delay in submission, and/or using file format other than MS Word file (.doc).**

This is not an English class, and errors in grammar or spelling will not affect your grades. But please try your best to describe your answer to a question so that I can follow. Please answer questions based on the contents covered in class. You are also encouraged to add new contents if you want to. TAs will grade all homework assignments, and the instructor will check, make corrections if needed and then release.

Grading

Grading will be based on attendance, class participation, homework assignments, and exams. Throughout the course, you will also have an opportunity to earn extra points by correctly answering warm up questions at the start of the class.

Assignment	Due date	Points	%
Homework 1	1/14	100	6
Homework 2	1/21	100	6
Homework 3	2/18	100	6
Homework 4	2/4	100	6
Homework 5	2/11	100	6
Homework 6	2/18	100	6
Homework 7	2/25	100	6
Mid-term exam	3/4	100	15
Homework 8	3/18	100	6
Homework 9	3/25	100	6
Homework 10	4/1	100	6
Homework 11	4/8	100	6
Final exam	4/16	100	15
Attendance and participation	n/a	100	5
Total	n/a	1400	101*

* The highest percentage score will be 100 for students with a full mark, the 1 point extra is reserved for students who may need to bring up their final grade a bit (say from B+ to A-) for further training and/or career purpose.

Letter scores will be assigned based the percentage scores using the following scheme (as detailed on the website: <http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907&hl=grades&returnto=search#grades>)

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

You may finding more details on the meaning of letter grades and university policies related to them from 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

Make-up work will be allowed by the course instructor on an individual basis after an excused absence (see above). Students should consult with the professor for new deadlines for assignments. Please consult the university guidelines for more information on makeup policies:

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

Policy Related to Required Class Attendance

This is an interactive class and students are expected to be present and to participate in all class sessions. Students who know they will need to miss a class session should discuss this with the instructor prior to the date of the class, or on the day of the absence for illness or emergency. According to the UF Catalog (link below) "In general, acceptable reasons for absences from class include illness, serious family emergencies, special curricular requirements, military obligation, severe weather conditions, religious holidays, and participation in official University activities. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) must be excused. Other reasons also may be approved."

Please note 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>

STUDENT EXPECTATIONS

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.

Citations 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.

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, UF Policies on Honesty and honor code violations, noted above, will be followed.

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.

Use of unauthorized assistance resources

As graduate students at the UF, you are expected to present your own work for grading. Unauthorized sources of help, including commercially available software and services are not allowed. Even though the students will not be graded on their grammar, it is expected that as graduate students you will have sufficient English language skills to convey your thoughts in organized and understandable manner. If the assignment is unreadable, it will not be graded and will be assigned zero points. Use of unauthorized assistance sources will result in zero points on the written assignment and a report to the Dean of Student's Office. If you need assistance with English language and/or writing, you may visit the UF Writing Program Website to learn about available help.

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://gatorevals.aa.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://gatorevals.aa.ufl.edu/>

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>. 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.

U Matter, We Care

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.
