UNIVERSITY of HAWAI'I MĀNOA

OFFICE OF PUBLIC HEALTH STUDIES
GRADUATE COURSE SYLLABUS

1. Course Information

- **a. Course Number and Title:** PH669, Epidemiological Study Design Critique
- **b. Credit Hours & Semester Offered**: 2 Credit Hours, Fall 2019
- **c. Meeting Day(s), Times & Room No.:** Monday, 08:30-10:20, Biomedical Sciences Bldg., Rm. D211
- **d. Prerequisite(s):** PH663, Principles of Epidemiology I (or permission of instructor)

2. Instructor Information

- **a. Name:** Al Katz, MD, MPH
- **b. Phone:** 956-5741
- **c. Email:** katz@hawaii.edu
- **d. Office Location:** Biomedical Sciences Bldg., Rm. D104M
- **e. Office Hours:** By Appointment

3. Course Description

Overview:

In this seminar course, students review selected articles from the peer-reviewed, public health or medical literature. Each study is dissected in order to focus on its methodological strengths and limitations. Potential biases are identified, and the impacts of these biases on the study results are discussed. The seminar approach emphasizes the exchange of ideas and the identification of alternative approaches to address each study's stated objectives. A broad mix of published articles are selected which address the major study designs as well as topical and methodologic issues. One article is discussed per session. Each class is an opportunity for students to develop critical analytic skills.

Format:

This seminar course emphasizes the exchange of ideas. Each class session will begin with a short (10 minute) quiz relating to the methods employed in the article to be discussed (including questions addressing: study objectives, study design, target population, selection and information bias, confounding, and strengths and limitations of the study). Preparation for the weekly quiz will help focus the students' thoughts for the seminar discussion to follow. Quizzes will be answered in class to both help clarify or correct misconceptions and to incite discussion.

Each week, a student is assigned to lead the discussion (the "discussion leader"). She/he will briefly introduce the article, focusing on the key methodologic issues, and then facilitate and guide the discussion as it unfolds. All students are expected to have read the article and searched out additional information relating to the study design or topic of discussion. All students are expected to participate in the discussion; the "discussion leader" is empowered to call upon students.

Final Critique:

The student will select an article to critique from the list of articles that were assigned (provided on pages 2 and 3 of this course syllabus). The final critique should not merely summarize or repeat information covered in the classroom discussion, but should reflect further thoughtful perspectives. The critique should focus on issues relating to bias (confounding, information, and/or selection bias), strengths and/or limitations of the article, and should include outside references (not just those taken from the references listed at the end of the original article) to support points being made. The critique should be typed, double-spaced, with length between 4 and

10 pages (not including references). The final critique will be due by 10:30 am on Monday, 16 December 2019. Points will be deducted (10% of possible critique score) for each late day.

4. Learning Objectives for the Course

Given a published article from the public health literature, the student will be able to:

1. Define the study's objectives.
2. List the independent and dependent variables of interest.
3. Identify and describe the study design.
4. Assess and comment on the appropriateness of the selected study design to address the stated study objectives.
5. Interpret the study results.
6. Identify strengths, limitations, and sources of bias.
7. Describe an alternative approach to address the study's stated objectives.

5. Course Schedule & Assignments

Date:	**Article:**
26 August	Orientation; introduction to course
2 September	Holiday: Labor Day
9 September	Zhao G, Okoro CA, Li J, Town M. Health insurance status and clinical cancer screening. Am J Prev Med 2018;54:e11-9.
16 September	Oliver SE, Unger ER, Lewis R, et al. Prevalence of human papillomavirus among females after vaccine introduction—National Health and Nutrition Examination Survey, United States, 2003-2014. J Infect Dis 2017;216:594-603.
23 September	Song M, Giovannucci E. Preventable incidence and mortality of carcinoma associated with lifestyle factors among White adults in the United States. JAMA Oncol 2016;2:1154-61.
30 September	Orlich MJ, Singh PN, Sabaté J, et al. Vegetarian dietary patterns and mortality in Adventist Health Study 2. JAMA Intern Med 2013;173:1230-8.
7 October	Mihrshahi S, Ding D, Gale J, Allman-Farinelli M, Banks E, Bauman AE. Vegetarian diet and all-cause mortality: evidence from a large population-based Australian cohort—The 45 and Up Study. Prev Med 2017;97:1-7.
14 October	Archibugi L, Piciucci M, Stigliano S, et al. Exclusive and combined use of statins and aspirin and the risk of pancreatic cancer: a case-control study. Sci Rep 2017;7:13024. doi: 10.1038/s41598-017-13430-z
21 October	Lehman EJ, Hein MJ, Baron SL, Gersic CM. Neurodegenerative causes of death among retired National Football League players. Neurology 2012;79:1970-4.
28 October	Cardo DM, Culver DH, Ciesielski CA, et al. A case-control study of HIV seroconversion in health care workers after percutaneous exposure. N Engl J Med 1997;337:1485-90.

4 November	Li DK, Willinger M, Petitti DB, Odouli R, Liu L, Hoffman HJ. Use of a dummy (pacifier) during sleep and risk of sudden infant death syndrome (SIDS): population based case-control study. BMJ 2006;332:18-22.
11 November	Holiday: Veterans Day
18 November	Skovlund CW, Mørch LS, Kessing LV, Lange T, Lidegaard Ø. Association of hormonal contraception with suicide attempts and suicides. Am J Psychiatry 2018;175:336-42.
25 November	Bleyer A, Welch HG. Effect of three decades of screening mammography on breast-cancer incidence. N Engl J Med 2012;367:1998-2005.
2 December	Sankatsing VD, van Ravesteyn NT, Heijnsdijk EA, et al. The effect of population-based mammography screening in Dutch municipalities on breast cancer mortality: 20 years of follow-up. Int J Cancer 2017;141:671-7.
9 December	Estruch R, Ros E, Salas-Salvadó J, et al. Primary prevention of cardiovascular disease with a Mediterranean diet supplemented with extra-virgin olive oil or nuts. N Engl J Med 2018. Jun 21;378(25):e34. doi: 10.1056/NEJMoa1800389.
16 December	**Critiques are due by 10:30 am.** Submit electronically to katz@hawaii.edu; use “request receipt” option.

6. Grade Distribution

	Assignment	Points	Percentage
1.	Class attendance/participation	30	30
2.	Quiz Scores	50	50
3.	Final Critique	20	20
	TOTAL:	**100**	**100%**

7. Grading Scale

Grade	%age	This course will not use the +/– grading system
A	90-100	Excellent, distinctive work. Demonstrates sophisticated understanding: Nuanced and insightful account, powerful and effective application of concepts, frameworks and theories discussed in class and articulated in written work.
B	80-89	Above average work. Demonstrates accomplished understanding: Thorough, well-documented account; adequate and apt application of concepts, frameworks and theories discussed in class and articulated in written work.
C	70-79	Average work, sufficient, but not distinctive. Acceptable view with some misconceptions or oversight; not fully supported; acceptable but limited application of concepts, frameworks and theories discussed in class.
D	60-69	Poor, insufficient work. Naïve or inadequate understanding: simplistic account and use of concepts, frameworks and theories discussed in class. Unable to articulate thoughts and ideas in written work.
F	<60	Unacceptable work

8. Course Policies

Students are expected to attend all class sessions and to be on time so that quizzes may be taken and answered at the onset. Unexcused absences and tardiness will be reflected in the course grading. If class is missed due to illness, a note from an allopathic or osteopathic physician licensed to practice medicine in Hawaii (or in the case of a dental emergency, a dentist licensed to practice dentistry in Hawaii attesting to the nature of the emergency) must be submitted within one week of return in order for the absence to be considered "excused." Other absences must be cleared in advance with the course instructor. Students who miss a class must submit a written critique of the missed article **within one week of their return**.

- Students should familiarize themselves with the university of Hawai'i Student Conduct Code. Cheating, plagiarism, or other academic dishonesty is unacceptable and may result in a failing grade.
- Final grades are based on completed assignments, class attendance, and participation.

9. University Policies

- **Equal Opportunity and Affirmative Action Policy**
  The University of Hawai'i is an equal opportunity/affirmative action institution and is committed to a policy of nondiscrimination on the basis of race, sex, gender identity and expression, age, religion, color, national origin, ancestry, citizenship, disability, genetic information, marital status, breastfeeding, income assignment for child support, arrest and court record (except as permissible under State law), sexual orientation, national guard absence, status as a covered veteran, pregnancy, and domestic or sexual violence victim status. This policy covers admission and access to and participation, treatment, and employment in the University's programs and activities. For more information on equal opportunity and affirmative action policies and complaint procedures for the UHM Campus, contact:

  a) Students: Lori Ideta, Interim Vice Chancellor for Students, EEO/AA & ADA Coordinator
     Ph. - 956-3290 (V/T); Email - vcs@hawaii.edu
  b) Students with Disabilities: Ann Ito, KOKUA Program Director
     Ph. - 956-7511 (V/T); Email - kokua@hawaii.edu
  c) Students & Employees: Dee Uwono, Office of Title IX Director & Coordinator
     Ph. - 956-2299 (V/T); Email – t9uhm@hawaii.edu
  d) Employees: Mark Au, EEO/AA Director, Deputy Title IX & ADA Coordinator
     Ph. - 956-7077; Email - eeo@hawaii.edu

- **Disability Access**
  A student who may need an accommodation based on the impact of a disability is invited to contact me privately within the first weeks of the course. I would be happy to work with you and the KOKUA Program (Office for Students with Disabilities) to ensure reasonable accommodations in my course. KOKUA is responsible for facilitating accommodations for students with documented disabilities and can be reached at 956-7511 (voice/text) or in QLC 013.

- **Counseling Services and Mental Health**
  From time to time, we all need help managing stress and life problems. Occasionally, school can seem overwhelming, especially when balancing other responsibilities such as family and work. The University's Counseling & Student Development Center (CSDC) offers support to all UHM students to assist with personal, academic and career concerns. All services are confidential. Individual, couples and group counseling services are free of charge. To schedule an appointment, visit the CSDC website at http://manoa.hawaii.edu/counseling/ or call (808) 956-7927.

- **University of Hawai'i Student Conduct Code and Academic Dishonesty**
  The University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to respect the rights, privileges, and property of others; and to observe national, state, and local laws and University regulations.

  Academic dishonesty such a plagiarism, cheating and other forms of dishonesty will result in a failing ("F") grade for the assignment. More than one incident of academic dishonesty will result in failing ("F") grade for the course. Equally, more than one incident will also result in reporting the academic dishonesty to the UH Office of Judicial Affairs.

  Student should familiarize themselves with the University of Hawai'i Student Conduct Code: http://studentaffairs.manoa.hawaii.edu/policies/conduct_code/.

10. Required Text or Readings

Assigned readings will be available on the course Laulima website.

11. Foundational & Specialization Competencies Addressed

MPH FOUNDATIONAL COMPETENCIES [and how they are assessed]	
MPH1.	Apply epidemiological methods to the breadth of settings and situations in public health practice. [Each week, 1-2 students are assigned to share an article for discussion. The focus of the discussion is on methodological issues. In addition, one article is assigned for all students to review. Articles assigned cover a broad range of public health related issues from cancer, to infectious diseases, to heat-related deaths, to healthy lifestyles. Discussions (and weekly quizzes) include questions on how other epidemiologic methods could be applied to address the study question(s) posed in the article.]
MPH2.	Select quantitative and qualitative data collection methods appropriate for a given public health context. [As part of the weekly article discussion, students will assess different approaches to quantitative and qualitative data collection methods such as that used in national surveys (e.g., BRFSS, NHANES). First two sessions will cover NHANES and BRFSS.]
MPH4.	Interpret results of data analysis for public health research, policy or practice. [This will be done weekly. A key part of the weekly article discussion includes interpreting the data provided in a variety of published peer-reviewed public health articles.]

SPECIALIZATION COMPETENCIES [and how they are assessed]	
EPIDEMIOLOGY	
EPI4.	Apply epidemiologic-specific theoretical constructs, research design, research methodology, and analytic strategies. [This will be accomplished weekly as part of the assigned article discussion.]

PHD (CBTR) COMPETENCIES [and how they are assessed]	
CBTR2.	Select appropriate research designs and methods to address public health questions of importance to diverse communities. [Each week, 1-2 students are assigned to share an article for discussion. The focus of the discussion is on methodological issues. In addition, one article is assigned for all students to review. Articles assigned cover a broad range of public health related issues from cancer, to infectious diseases, to heat-related deaths, to healthy lifestyles. Discussions (and weekly quizzes) include questions on how other epidemiologic methods could be applied to address the study question(s) posed in the article. Diverse communities are addressed in the articles selected for discussion.]
CBTR3.	Critique research appropriateness, including the ethical aspects of research designs, subject recruitment, and data collection that involve communities. [This is the key focus of the course and will be done every session as part of the discussion.]

PHD (EPI) COMPETENCIES [and how they are assessed]	
PHDE1.	Apply appropriate epidemiologic techniques and data sources to quantitatively assess patterns and changes in disease occurrence. [This is a key focus of the course and will done every session as part of the discussion.]

PHDE2.	Discuss how emerging technology in molecular biology and genomics are applied in the study of diseases and conditions. [Several articles will include molecular methods and genomics. For example, in discussing NHANES methods for assessing HPV prevalence, PCR will be covered as well as how researchers assess adequate specimen collection (by assaying beta-globin in the sample). Also, the article on the Mediterranean Diet uses serum and urine bioassays to assess dietary compliance (by measuring levels of olive oil and nut metabolites). These will be incorporated into the relevant article discussion.]
PHDE4.	Apply the principles of screening and of surveillance systems, the concepts of validity and reliability of screening tests, and identify the types of surveillance systems and approaches used in disease surveillance. [Surveillance is explicitly covered by discussing articles derived from NHANES and BRFSS. Screening tests are covered with readings from the Lancet on the use and abuse of screening tests (see Laulima website). An article covering screening in the context of mammography for breast cancer screening will be discussed.]
PHDE6.	Effectively (a) search, review, critically evaluate, and synthesize the scientific literature, (b) identify meaningful gaps in knowledge, and (c) formulate original and key hypotheses or research questions that may lead to new discoveries in epidemiology. [This is the assignment for students prior to each session. They are to review the literature, critically evaluate the methodologies used, and formulate new hypotheses to address the study/research question.]
PHDE7.	Select and apply epidemiology study designs that are appropriate to address specific research questions or hypotheses. [This is a key focus of the course and will be done every session as part of the assigned article discussion.]
PHDE8.	Explain how consideration of causal inference, sources of bias, and of sampling, statistical, and other methods can improve the validity of epidemiologic studies. [This is a key focus of the course and will be done every session as part of the assigned article discussion. Questions related to causation will intermittently appear on the weekly quiz.]
PHDE10.	Develop and constructively critique epidemiologic research proposals and papers. [This is a key focus of the course and will be done every session as part of the assigned article discussion and the shared article discussion.]
PHDE14.	Interpret epidemiologic study results, make appropriate inferences based on results, and recognize the implications of the research results. [This is a key focus of the course and will be done every session as part of the assigned article discussion and the shared article discussion.]
PHDE15.	Communicate clearly and effectively in writing and orally ideas, epidemiologic concepts, methods, results, and implications to scientists, students, policy makers, and the public, including diverse audiences at professional meetings, readers of research journals, grant reviewers, and laypersons. [Each week 1-2 students will be assigned to share an article with the class, and each week one student will be designated the assigned article discussion leader. These students will need to communicate clearly and effectively orally the article's epidemiologic concepts, methods, results, and implications.]

PH669, Fall 2019
Tentative Course Schedule

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