



PubH 6389-001

Nutritional Epidemiology

Fall / 2017

Credits:	2
Meeting Days:	Thursday
Meeting Time:	1:25pm-3:20pm
Meeting Place:	Mayo D199
Instructor:	Mark A. Pereira, PhD, Professor
Office Address:	WBOB 326 (West Bank Office Building, 1300 S. 2 nd St. Suite 300
Office Phone:	612-624-4173 (use email)
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Office Hours:	By appointment

I. Course Description

This course provides public health graduate students with an understanding of the theoretical and practical considerations in the conduct of epidemiologic studies related to nutrition. More specifically, the course focuses on the conduct of epidemiologic studies of diet, nutrition, and chronic disease (as opposed to food-borne outbreaks, as an example).

This course may be most appealing to students who foresee themselves involved in epidemiologic research as a focus of activity, rather than those interested in public health applications. Although students are not required to have a strong nutrition background, it would be helpful to have a strong interest in this area.

Acknowledgments

The contents of PubH 6389 has evolved from prior contributions of Dr. Larry Kushi and Dr. Lisa Harnack, the previous instructors, who have been responsible for much of the content. Drs. Kushi and Harnack are acknowledged for their development and contributions to this course.

II. Course Prerequisites

PubH 6330 or PubH 6320 or PubH 6341; Epidemiology MPH or Public Health Nutrition MPH or Epidemiology PhD student (or instructor permission)

III. Course Goals and Objectives

The objective of the course is to provide the student with familiarity with the design, conduct, analysis, and interpretation of epidemiologic studies related to nutrition. At the conclusion of this course students will be able to:

- a.) Select the most appropriate dietary intake assessment method for a given research question, epidemiologic study design, and study population.
- b.) Identify the strengths and limitations of each dietary intake assessment methodology currently available, and understand the implications of the limitations of each method on study results.
- c.) Describe the various methods available for assessing physical activity in epidemiologic studies, and identify the major strengths and limitations of each method.
- d.) Select the most appropriate epidemiologic study designs for various nutrition-related research questions by taking into account the strengths and limitations of various designs in relation to specific nutrition research questions.
- e.) Describe the data analysis and interpretation issues of special importance in nutritional epidemiology studies

IV. Methods of Instruction and Work Expectations

The methods of instruction include lectures with small group discussion incorporated throughout. The course exercises are designed to provide hands on experience with some of the tools and concepts covered in the course.

V. Course Text and Readings

The **required text** for this course is: Walter Willett. Nutritional Epidemiology, Third Edition. Oxford University Press, 2012. It is available at the U of MN Bookstore in **electronic format**.

The **required readings** for this course are:

Date	Readings
9/7	Willett Text, Chapters 1 and 2
9/14	Willett Text, Chapter 3
9/21	Willett Text, Chapter 4 Johnson RK, Soutanakis RP, Matthews DE. Literacy and body fatness are associated with underreporting of energy intake in US low-income women using the multiple-pass 24-hour recall: A doubly labeled water study. Journal of the American Dietetic Association. 1998; 98: 1136-1140.
9/28	Willett Text, Chapters 5 Kristal AR, Peters U, Potter JD. Is it time to abandon the food frequency questionnaire? Cancer Epidemiology Biomarkers and Prevention. 2005;14(12):2826-2828. Thompson FE, Subar AF, Loria CM, Reedy JL, Baranowski T. Need for technological innovation in dietary assessment. Journal of the American Dietetic Association. 2010; 110 (1): 48-51. Illner, AK, Freisling H, Boeing H, Huybrechts I, Crispim SP, Slimani N. Review and evaluation of innovative technologies for measuring diet in nutritional epidemiology. International Journal of Epidemiology. 2012;41:1187-1203.
10/5	Willett Text, Chapter 8 [Read pages 150-176, scan 177-198, read 199-201]
10/12	Willett Text, Chapters 11-13
10/19	Caspi CE, Sorensen G, Subramanian SV, Kawachi I. The local food environment and diet: A systematic review. Health & Place. 2012: 1172-1187. Willett Text, Chapter 10.
10/26	Willett Text, Chapter 15 Simon, JA et al. Relation of serum ascorbic acid to Helicobacter pylori serology in US adults: the Third National Health and Nutrition Examination Survey. Journal of the American College of

	<p>Nutrition. 2003;22(4):283-289. [Example of cross sectional etiologic study]</p> <p>Krebs-Smith SM et al. Healthfulness of the U.S. food supply little improvement despite decades of dietary guidance. <i>Am J Prev Med.</i> 2010; 38(5): 472-477. [Example of nutrition surveillance and use of food disappearance data]</p>
11/2	<p>Willett Text, Chapter 7 [Recall of remote diet; relevant to case-control designs]</p> <p>Van Gils CH et al. Consumption of vegetables and fruits and risk of breast cancer. <i>JAMA.</i> 2005; 293(2): 183-193 [Example of cohort study]</p> <p>Riboli E, Norat T. Epidemiologic evidence of the protective effect of fruit and vegetables on cancer risk. <i>Am J Clin Nutr.</i> 2003;78(suppl 3):559S-569S. [Example of a case-control study]</p>
11/9	<p>Appel LJ, Moore TJ, Obarzanek E, et al. A clinical trial of the effects of dietary patterns on blood pressure. DASH Collaborative Research Group. <i>NEJM.</i> 1997; 336(16): 1117-1124. [Example of feeding study]</p> <p>Prentice RL, Caan B, Chlebowski RT, et al. Low-fat dietary pattern and risk of invasive breast cancer: the Women's Health Initiative Randomized Controlled Dietary Modification Trial. <i>Journal of the American Medical Association.</i> 2006; 295(6): 629-642. [Example of community based trial]</p> <p>Morris MC, Tangney CC. A potential design flaw of randomized trials of vitamin supplements. <i>Journal of the American Medical Association.</i> 2011; 305(13): 1248-1249.</p>
11/16	<p>The Healthy Study Group. A school-based intervention for diabetes risk reduction. <i>NEJM.</i> 2010; 363(5): 443-453. [Example of group randomized controlled trial]</p> <p>Marcus MD, Kaufman F, Foster GD, Baranowski T. Lessons learned from the HEALTHY primary prevention trial of risk factors for type 2 diabetes in middle-school youth. <i>Curr Diab Rep.</i> 2013; 13(1): 63-71.</p> <p>Randomized controlled trial of a primary care and home-based intervention for physical activity and nutrition behaviors. PACE+ for Adolescents. <i>Arch Pediatr Adolesc Med.</i> 2006; 160:128-136.</p>
11/23	NO CLASS - UNIVERSITY HOLIDAY
11/30	<p>Mursu J, Robien K, Harnack LJ, Park K, Jacobs DR Jr. Dietary Supplements and Mortality Rate in Older Women: The Iowa Women's Health Study. <i>Arch Intern Med</i> 2011;171(18):1625-1633 [example of observational study involving dietary supplements]</p> <p>Odegaard AO, Koh W-P, Butler LM, Duval S, Gross MD, Yu MC, Yuan J-M, Pereira MA. Dietary Patterns and Incident Type 2 Diabetes in Chinese Men and Women. <i>Diabetes Care</i> 34:880–885, 2011 [example of observational study involving dietary patterns]</p> <p>Odegaard AO, Pereira MA. Dietary Patterns and Type 2 Diabetes. <i>In: Nutrition and Type 2 Diabetes: Etiology and Prevention.</i> Editor: Mark A. Pereira. Publisher: CRC Press. August, 2013. [Book chapter on dietary pattern methodology]</p>
12/7	<p>Willett Text, Chapter 16.</p> <p>Rowe S et al. Funding food science and nutrition research: financial conflicts and scientific integrity. <i>American Journal of Clinical Nutrition</i> 2009; 89(5):1285-1291.</p> <p>Bohan Brown MM, Brown AW, Allison DB. Nutritional epidemiology in practice: learning from data or promulgating beliefs? <i>American Journal of Clinical Nutrition</i> 2013;97:5-6.</p> <p>Schoenfeld JD and Loannidis J. Is everything we eat association with cancer? A systematic cookbook review. <i>American Journal of Clinical Nutrition</i> 2013;97:127-134.</p>

VI. Course Outline/Weekly Schedule

Date	Topics	Assignments
9/7	Overview; General design considerations	
9/14	Variation in diet	Homework assignment 1 due

9/21	Exposure assessment I: Recalls, Records	
9/28	Exposure assessment II: FFQs, novel methods	Diet assessment exercise due
10/5	Exposure assessment III: Biomarkers	Homework assignment 2 due
10/12	Data analysis & interpretation issues	Data analysis exercise due
10/19	Measuring the Food Environment <u>Guest lecture by Caitlyn Caspi</u> Physical activity assessment	Household food environment exercise due Physical activity assessment exercise due
10/26	Cross sectional and ecological studies; nutrition surveillance	Homework assignment 3 due
11/2	Case control and Cohort studies	Surrogate exercise due
11/9	Etiologic experimental trials	
11/16	Controlled trials and behavioral intervention trials	Homework assignment 4 due
11/23	U of MN Holiday	
11/30	Special topics I: Food group and pattern analysis; Dietary supplements	
12/7	Special topics II: Policy applications; Influence of special interests in nutrition research	Final exam distributed
	Final exam must be returned by December 20 to avoid losing ½ letter grade penalty	

VII. Evaluation and Grading

The basis for evaluation is successful completion of homework and exercise assignments, and a final examination. These activities will be weighted as follows:

Homework assignment 1	10%
Homework assignment 2	10%
Homework assignment 3	10%
Homework assignment 4	10%
Exercise 1	5%
Exercise 2	5%
Exercise 3	5%
Exercise 4	5%
Exercise 5	5%
Final exam	35%

Late work penalty: 2% deduction for work turned in after the deadline.

If work is not turned in prior to class review of the assignment, no points will be earned.

The University utilizes plus and minus grading on a 4.000 cumulative grade point scale in accordance with the following:

A	4.000 - Represents achievement that is outstanding relative to the level necessary to meet course requirements
A-	3.667
B+	3.333

- B 3.000 - Represents achievement that is significantly above the level necessary to meet course requirements
- B- 2.667
- C+ 2.333
- C 2.000 - Represents achievement that meets the course requirements in every respect
- C- 1.667
- D+ 1.333
- D 1.000 - Represents achievement that is worthy of credit even though it fails to meet fully the course requirements
- S Represents achievement that is satisfactory, which is equivalent to a C- or better.

For additional information, please refer to:

<http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html>.

Course Evaluation

The SPH will collect student course evaluations electronically using a software system called CourseEval: www.sph.umn.edu/courseeval. The system will send email notifications to students when they can access and complete their course evaluations. Students who complete their course evaluations promptly will be able to access their final grades just as soon as the faculty member renders the grade in SPHGrades: www.sph.umn.edu/grades. All students will have access to their final grades through OneStop two weeks after the last day of the semester regardless of whether they completed their course evaluation or not. Student feedback on course content and faculty teaching skills are an important means for improving our work. Please take the time to complete a course evaluation for each of the courses for which you are registered.

Incomplete Contracts

A grade of incomplete "I" shall be assigned at the discretion of the instructor when, due to extraordinary circumstances (e.g., documented illness or hospitalization, death in family, etc.), the student was prevented from completing the work of the course on time. The assignment of an "I" requires that a contract be initiated and completed by the student before the last official day of class, and signed by both the student and instructor. If an incomplete is deemed appropriate by the instructor, the student in consultation with the instructor, will specify the time and manner in which the student will complete course requirements. Extension for completion of the work will not exceed one year (or earlier if designated by the student's college). For more information and to initiate an incomplete contract, students should go to SPHGrades at: www.sph.umn.edu/grades.

University of Minnesota Uniform Grading and Transcript Policy

A link to the policy can be found at onestop.umn.edu.

VIII. Other Course Information and Policies

Grade Option Change (if applicable):

For full-semester courses, students may change their grade option, if applicable, through the second week of the semester. Grade option change deadlines for other terms (i.e. summer and half-semester courses) can be found at onestop.umn.edu.

Course Withdrawal:

Students should refer to the Refund and Drop/Add Deadlines for the particular term at onestop.umn.edu for information and deadlines for withdrawing from a course. As a courtesy, students should notify their instructor and, if applicable, advisor of their intent to withdraw.

Students wishing to withdraw from a course after the noted final deadline for a particular term must contact the School of Public Health Office of Admissions and Student Resources at sph-ssc@umn.edu for further information.

Student Conduct Code:

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see:

http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Use of Personal Electronic Devices in the Classroom:

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference:

<http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty:

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code:

http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see:

<http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Community Standards has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty <https://communitystandards.umn.edu>. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Makeup Work for Legitimate Absences:

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see:

<http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

Appropriate Student Use of Class Notes and Course Materials:

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Sexual Harassment:

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy:

<http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

Equity, Diversity, Equal Opportunity, and Affirmative Action:

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy:

http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations:

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center Student Services is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DRC at 612-626-1333 or drc@umn.edu to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course.

For more information, please see the DS website, <https://diversity.umn.edu/disability/>.

Mental Health and Stress Management:

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

The Office of Student Affairs at the University of Minnesota:

The Office for Student Affairs provides services, programs, and facilities that advance student success, inspire students to make life-long positive contributions to society, promote an inclusive environment, and enrich the University of Minnesota community.

Units within the Office for Student Affairs include, the Aurora Center for Advocacy & Education, Boynton Health Service, Central Career Initiatives (CCE, CDes, CFANS), Leadership Education and Development – Undergraduate Programs (LEAD-UP), the Office for Fraternity and Sorority Life, **the Office for Community Standards**, the Office for Student Engagement, the Parent Program, Recreational Sports, Student and Community Relations, the Student Conflict Resolution Center, the Student Parent HELP Center, Student Unions & Activities, University Counseling & Consulting Services, and University Student Legal Service.

For more information, please see the Office of Student Affairs at <https://osa.umn.edu/>.

Academic Freedom and Responsibility: *for courses that do not involve students in research:*

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

OR:

Academic Freedom and Responsibility, for courses that involve students in research

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom and conduct relevant research. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.* When conducting research, pertinent institutional approvals must be obtained and the research must be consistent with University policies.

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, (Dr Kristin Anderson, SPH Dean of Student Affairs), or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

** Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".*

Student Academic Success Services (SASS): <http://www.sass.umn.edu>:

Students who wish to improve their academic performance may find assistance from Student Academic Support Services. While tutoring and advising are not offered, SASS provides resources such as individual consultations, workshops, and self-help materials.

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