

**PubH 3106/6106
Making Sense of Health Studies
Fall 2018**

Credits:	2
Meeting Days:	Th
Meeting Time:	12:20 to 2:00
Meeting Place:	Molecular Cellular Biol 2-120
Instructor:	George Maldonado
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E-mail:	GMPHD@umn.edu
Office Hours:	Th immediately after lecture in the lecture room until 2:15; Th 2:30 to 3:30 in Mayo 1114; or by appointment
Teaching Assistant:	Rowan Weiss, weiss247@umn.edu

I. Course Description

We spend large sums of money on health research. Results of that research reach the public primarily in the form of brief reports via television news, television commercials, newspapers, magazines, books and internet websites. These brief reports should not be read uncritically. This course will teach you how to critically evaluate health news—and the health research reports on which they are based—to make good, well-informed decisions about health and well-being.

This is a self-contained class with no prerequisites. No previous background in math or statistics is needed.

This class is taught by scientists who contribute to the health-research literature and who are experts in the design, analysis and interpretation of health research.

PubH 3106 is for undergraduates. PubH 6106 is for master's students. Both meet in the same classroom at the same time. 6106 students must complete a final project in addition to the 3106 requirements.

II. Course Prerequisites

None

III. Course Goals and Objectives

This course will teach students:

- Why the brief summary of health research results that is typically presented in television news, newspapers, magazines, books and internet websites is inadequate for making informed health decisions

- What information is needed to make informed decisions about health research results
- What a “perfect” health research study would look like
- Why a “perfect” health research study rarely, if ever, occurs
- What imperfections to look for in a health research study
- How to make sense of health research results from an imperfect study

IV. Methods of Instruction and Work Expectations

The primary method of instruction will be lectures and demonstrations, using as a framework a few specific health research topics. The course will begin with a discussion of the fundamental concepts of health research. We will present selected examples of health research reports from television, newspapers, magazines and internet websites. Students will be given weekly homework assignments (usually based on the previous lecture) to be completed by the next class session.

This course will employ the teaching method of “flipped” lectures. The lecture notes that are posted on the Moodle site are very complete; students will be expected to study the lecture notes prior to our class session. Most of the class session will be devoted to highlighting the key points from the lecture notes, filling in gaps in the lecture notes, answering questions from students, and posing discussion questions to the class.

V. Course Text and Readings

Textbook: Epidemiology: An Introduction, 2nd ed. Kenneth J.Rothman. Oxford University Press. 2012 (available in the bookstore).

Maldonado G, Cox TA. Causal reasoning in epidemiology: fundamental principles. (Manuscript in preparation, posted on the Moodle site)

Maldonado G. Toward a clearer understanding of causal concepts in epidemiology. *Ann Epidemiol.* 2013;23(12):743-9 (posted on Moodle site)

Detailed lecture slides (which are a rough draft of a book on this topic that Dr. Maldonado is writing).

Selected television news reports, newspaper reports, magazine articles, internet reports and their associated journal articles.

VI. Tentative Course Outline/Weekly Schedule

Week	Topic
1	Introduction to the course. What is a health study? Association versus causation. Examples of health studies. Examples of important issues in interpreting health-study results. About this course: Exams, grading, office hours.
2	Example of the week Introduction to making sense of health studies. Why do we need to “make sense” of health studies? When do we need a “study”? Introduction to causal interpretation of peer-reviewed human-health journal articles.
3	Example of the week Fundamental concepts of health studies: Basic Concepts. Simple, non-health tool for understanding causal reasoning. Sufficient-component cause model. Target population. Target time interval. Introduction to 2 x 2 tables for analyzing health data. Introduction to causal measures of effect.
4	Example of the week Fundamental concepts of health studies: Counterfactual reasoning and Confounding. Interpretation of study results: what goes wrong in a study, and how are the study problems dealt with. Counterfactual reasoning. The first of several study problems: confounding.
5	Example of the week Fundamental concepts of health studies: Counterfactual reasoning and Confounding (continued). Interpretation of study results: what goes wrong in a study, and how are the study problems dealt with. Counterfactual reasoning. The first of several study problems: confounding.
6	Example of the week Fundamental concepts of health studies: Subject-selection errors. Another of several study problems: subject-selection error.
7	Midterm examination
8	Example of the week Fundamental concepts of health studies: Measurement error. Another of several study problems: measurement error.
9, 10	Example of the week The randomized clinical trial. (Dr. Tim Church)
11	Example of the week The N-of-1 Study. What is an N-of-1 study. How to do an N-of-1 study.
12	THANKSGIVING HOLIDAY. NO CLASS ON NOVEMBER 22.
13	Example of the week Making sense of peer-reviewed journal articles.
14	Final exam, December 6, 2018. 12:20-2:15, MCB-2-120

VII. Evaluation and Grading

A/F or S/N (S = C- or better grade)

PubH 3106 grade is based on the midterm exam, final exam and weekly homework assignments:

- Midterm (week 7): 100 points.
- Final exam (last lecture period): 100 points.
- Weekly homework assignments: 95 points.

A	240 or more
A-	230-239
B+	220-229
B	210-219
B-	200-209
C+	190-199
C	180-189
C-	170-179
D+	160-169
D	150-159
D-	140-149
F	148 or less

In addition to the PubH 3106 requirements, **PubH 6106** students must complete a final project: 100 points

A	350 or more
A-	340-349
B+	330-339
B	320-329
B-	310-319
C+	300-309
C	290-299
C-	280-289
D+	270-279
D	260-269
D-	250-259
F	249 or less

Course Evaluation

Beginning in fall 2008, the SPH will collect student course evaluations electronically using a software system called CoursEval: www.sph.umn.edu/courseval. 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 Student Services Center at sph-ssc@umn.edu for further information.

Student Conduct, Scholastic Dishonesty and Sexual Harassment Policies

Students are responsible for knowing the University of Minnesota, Board of Regents' policy on Student Conduct and Sexual Harassment found at www.umn.edu/regents/polindex.html.

Students are responsible for maintaining scholastic honesty in their work at all times. Students engaged in scholastic dishonesty will be penalized, and offenses will be reported to the SPH Associate Dean for Academic Affairs who may file a report with the University's Academic Integrity Officer.

The University's Student Conduct Code defines scholastic dishonesty as "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; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis."

Plagiarism is an important element of this policy. It is defined as the presentation of another's writing or ideas as your own. Serious, intentional plagiarism will result in a grade of "F" or "N" for the entire course. For more information on this policy and for a helpful discussion of preventing plagiarism, please consult University policies and procedures regarding academic integrity: <http://writing.umn.edu/tww/plagiarism/>.

Students are urged to be careful that they properly attribute and cite others' work in their own writing. For guidelines for correctly citing sources, go to <http://tutorial.lib.umn.edu/> and click on "Citing Sources".

In addition, original work is expected in this course. Unless the instructor has specified otherwise, all assignments, papers, reports, etc. should be the work of the individual student. It is unacceptable to hand in assignments for this course for which you receive credit in another course unless by prior agreement with the instructor. Building on a line of work begun in another course or leading to a thesis, dissertation, or final project is acceptable.

Disability Statement

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have a documented disability (e.g., physical, learning, psychiatric, vision, hearing, or systemic) that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities are encouraged to contact Disability Services to have a confidential discussion of their individual needs for accommodations. Disability Services is located in Suite 180 McNamara Alumni Center, 200 Oak Street. Staff can be reached by calling 612/626-1333 (voice or TTY).