Overview

Despite innovations in medical technology that would have been considered science fiction just 50 years ago and despite allocating about one-fifth of our nation’s annual economic activity to health services and related activities, population health in the United States is far below its potential and lags much of the developed world. This course introduces students to the field of “Population Health Science” – the multidisciplinary study of why populations are healthy (or not), and perhaps more importantly, how we can allocate our limited resources across the multiple determinants of health to best improve population health. Central to the definition of population health is the understanding that measures of “average” health outcomes in a population only tell part of the story. Two populations that are equally healthy “on average” may have very different levels of variation within each. When variation in health within a population is explained by race and socioeconomic status over and above differences in predisposing biological factors (such as genetics or age), such differences are disparities.

This course will begin with a brief introduction to the fundamental concepts and conceptual frameworks of population health science. We will then explore several of the multiple determinants of population health with guidance from expert faculty from across campus. We will not spend much time discussing the etiology of specific diseases. Rather, this course is meant to complement other offerings in Population Health Sciences (e.g., PHS 794: Biological Basis of Population Health and PHS 797: Introduction to Epidemiology) that cover those topics. Instead, we will focus on socioeconomic, behavioral, cultural, community and health care-related determinants of population health across the life course.

For students continuing in the 3-credit PHS 795 (-002) course, we introduce the basic microeconomic concepts of utility, opportunity cost, optimization and learn to use those concepts to achieve a better understanding of individual health-seeking behavior as well as the functioning of the market for health insurance. We conclude with a brief introduction to health care policy – both the principles for how policy is evaluated and the political process under which policy is made. This material aims to introduce students to concepts they can pursue in more depth through future courses (e.g., PHS 796: Introduction to Health Services Research, PHS 703: Quality of Health Care – Evaluation and Assurance, PHS 875: Assessment of Medical Technologies and PHS 709: Translational and Outcomes Research in Health and Health Care).

Course Objectives

By the end of this course, students should be able to:

1. Demonstrate basic understanding and application of principles of Population Health Sciences in characterizing the multiple determinants of health and the optimal allocation of resources across those determinants for the improvement of health and reduction of disparities;
2. Demonstrate basic understanding and application, at a basic level, of the principles of microeconomic theory relating to human and institutional decisions in the allocation of scarce resources for the production of health at individual, system and population levels; (3 credit section only)
3. Demonstrate basic understanding of the role of socioeconomic status, behavior, and community on the production of health at individual and population levels;
4. Demonstrate basic understanding and application of the principles of health measurement and its role in the design of health services, policy, intervention and evaluation;
5. Demonstrate basic understanding of the historical and current financing and provision of health care services in the United States and its shaping by the policy process. (3 credit section only)
Communication

Please direct questions related to class logistics, video lecture access, and the course website to Ryan Rhode, and questions related to course content to Marguerite Burns.

Evaluation of Students

Exams

There will be two written examinations (weighted as follows for 3-credit students):

- 30% Exam 1: (In-class 10/25)*
  - Covers material from 9/6 - 10/23 inclusive
- 30% Exam 2: (Take home available at 5pm 12/12 and due 12/18 before 11:00 pm)**
  - Covers material from 10/30 - 12/11 inclusive

*Counts 60% for one-credit students; **Three-credit students only

The take home exam will be designed to require about 1.5 hours to complete, but there will be no time limit imposed, and students may consult their course materials to complete it. However, students should work independently without consulting their peers. Students may complete the exam anytime between the date and times noted above. The format will include short answer and multiple choice questions. Except in case of emergency, requests for accommodation must be made 24 hours before the exam deadline.

Grade Ranges

- 90-100 A
- 85-89 AB
- 80-84 B
- Below 80 BC
- Missed evaluation F

Homework

- 40% Homework - There will be a total of 2 homework assignments for one-credit students, and 4 homework assignments for three-credit students. Homework assignments will be available at 5 pm CT on the assignment date, and should be completed, on the course website. They will be based on course readings and lectures. Homework will include multiple choice and/or short-answer questions. They are due by 5 pm CT on the due date. The assignment and due dates are as follows:
  - HW1 Assigned 9/21, Due 9/29: Covers material from 9/6 - 9/20 inclusive
  - HW2 Assigned 10/9, Due 10/16: Covers material from 9/25 - 10/4 inclusive
  - HW3 Assigned 11/8, Due 11/15: Covers material from 10/30 - 11/6 inclusive
  - HW4 Assigned 11/27, Due 12/4: Covers material from 11/13 - 11/27 inclusive

Homework received after the deadline will be penalized 10% (up to 8 hours late) plus 20% per day after that.

Logistics

- Lectures will be held on Tuesdays and Thursdays from 11:00 am to 12:15 pm in HSLC 1345.
- Recommended readings from instructors will be available a minimum of 1 week before the lecture. Please consult the syllabus regularly.
- PowerPoint slides will be posted after the lecture on the same day.
- Lecture capture will be available 24 hours after the lecture at http://videos.med.wisc.edu under the LECTURES tab. You will need to add PHS 795 within the LECTURES tab to view the course videos. Lectures are available for all instructors who agree to be video-recorded.
- Office hours by appointment.
- No textbook is required. All readings will be available online, through Ebling Library electronic reserves and the course website.

How the Course Meets the Credit-Hour Policy Standard

1-Credit Course. The credit standard for this course is met by an expectation of a total of 45 hours of student engagement with the course learning activities, which include two 75-minute class periods each week for the first 8-weeks of the fall semester, reading, homework, studying and other student work as described in the syllabus.

3-Credit Course. This class meets for two 75-minute class periods each week over the fall semester and carries the expectation that students will work on course learning activities (reading, homework, studying, etc..) for about 3 hours out of classroom for every class period. The syllabus includes more information about meeting times and expectations for student work.
Accommodations

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

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| 9/11 | 2. Population Health Policy and Thought Leaders | Kindig | | From Prof. Kindig: "Visit the following websites and become familiar with what they offer as population health resources."  
[https://iaphs.org](https://iaphs.org)  
[http://nationalacademies.org/HMD/Activities/PublicHealth/PopulationHealthImprovementRT.aspx](http://nationalacademies.org/HMD/Activities/PublicHealth/PopulationHealthImprovementRT.aspx)  
[http://www.improvingpopulationhealth.org/blog/about-this-blog.html](http://www.improvingpopulationhealth.org/blog/about-this-blog.html)  
[https://uwphi.pophealth.wisc.edu](https://uwphi.pophealth.wisc.edu) |

From Prof. Kindig: "There are many issues facing population health practice and research. With slight apology for only assigning my own work, these five short articles highlight what I consider to be the most important. I won't lecture on them but will be prepared to discuss any questions they prompt."

Kindig DA. Population Health Equity. Rate and Burden, Race and Class. JAMA. Published online 1/9/2017.  
Kindig DA. From Health Determinant Benchmarks to Health Investment Benchmarks. Preventing
3. Environmental Determinants of Population Health

Malecki


Environmental Determinants of Disease (web-only). Available at

Healthy People: Determinants of Health (web-only). Available at

4. Applying Population Health - County Health Rankings

Konkle

The Robert Wood Johnson Foundation sponsors a Culture of Health Prize (https://www.rwjf.org/en/library/features/culture-of-health-prize.html). Read and watch the stories of the following 2017 awardees found at the link above: Richmond, VA; Algoma, WI; and Seneca Nation of Indians (NY). As you read and watch consider the following- What stood out in these stories? What themes did you notice? What questions did the stories raise for you?

Read the County Health Rankings Wisconsin State Report.

If you would like to learn more about the state reports from the County Health Rankings, please see http://www.countyhealthrankings.org/learn-from-others/webinars/the-2018-county-health-rankings-state-reports-how-to-use-data-from-these-new-reports-to-improve. (Not required)

5. Measuring Health

Mullahy


6. Population Health Equity

Johnson

Braveman P. What are Health Disparities and Health Equity? We Need to be Clear. Public Health Reports. 2014. Jan-Feb; 129(Suppl 2): 5-8.


7. Determinants of Health Across the Lifecourse

Ehrenthal


10/2 8. Population Health Perspectives on the U.S. Opioid Crisis

Mack KA, Jones CM, Ballesteros MF. Illicit Drug Use Disorders, and Drug Overdose Deaths in Metropolitan and Nonmetropolitan Areas - United States. MMWR Surveillance Summary 207;66(No.SS-19): 1-12. https://www.cdc.gov/mmwr/volumes/66/ss/ss6619a1.htm? s_cid=ss6619a1_w


9. Health Care as a Determinant of Population Health


10/9 10. Socioeconomic Status, Poverty, and Health Disparities


10/11 11. Social Networks and Health


10/16 12. Aging and Cognitive Health: Determinants and Disparities


10/18 13. Determinants of Population Health: Race


10/23 14. Community Health Interventions


10/25 EXAM #1- In Class

10/30 15. Microeconomics for Population Health: Basic Concepts


11/1 16. Choice and Demand for Health


11/6 17. Behavioral Economics and Risky Behaviors


11/8 18. Uncertainty and Insurance


Manski, C.F. 2011. “Policy Analysis with Incredible Certitude.” The Economic Journal 121: F261–F289. (read intro & sections 1,2,3,5,6,8,9; skim sections 4,7)


Andersen RM. National Health Surveys and Behavioral Model of Health Services Use. Medical Care. 2008;46(7):647-653. (“Behavioral Model of Health Services Use” section only)


### 11/15 20. Public Insurance for the Elderly and the Disabled: Medicare


**Burns**  
**HW3 Due**

### 11/20 21. Public Insurance for the Poor: Medicaid


**Friedsam**

### 11/21

### 11/22 Thanksgiving Holiday

### 11/27 22. Insurance Exchanges and the Affordable Care Act


**Burns**  
**HW4 Assigned**

### 11/29 23. Population Health Management in the Era of Accountable Care


**Bartell**

### 12/4 24. Politics and the Health Policy Process

**Oliver**  
**HW4 Due**

Gostin LO. "Big Food" is Making America Sick. The Milbank Quarterly. 2016;94(3):4804

of Medicine. 2017;376(16)
Gawande A. Is Health Care a Right. The New Yorker. Oct 2, 2017
Michigan Civil Rights Commission. The Flint water crisis: Systemic racism through the lens of Flint. February 17, 2017. [skim only]

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<th>Date</th>
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<tbody>
<tr>
<td>12/12</td>
<td>EXAM #2 Available online at 5pm - Take Home</td>
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<tr>
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<td>EXAM #2 Due by 11 pm CT</td>
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