Principles of Population Health Science
Population Health 795
Fall 2013

Dave Vanness, PhD
785 WARF
608-265-6800
dvanness@wisc.edu

Office hours by appointment.

The lecture will be held in HSLC 1345 on Tuesday/Thursday 9:30-10:45am.

OVERVIEW

Despite significant advances in medicine and public health, suboptimal health persists. Understanding health on a population level is an approach that seeks to improve the health of the whole population, unravel variations in health outcomes, and to identify effective strategies for reducing or eliminating inequities both within and between population groups.

The purpose of this course is to provide students with a foundation for understanding: 1) how population health is defined and measured; 2) the biological, behavioral, cultural, social, and environmental determinants of population health; 3) the role of health care and economic decision-making in population health; 4) intervention and policy strategies for improving population health.

This course will be divided into four modules. The first module will explain how population health is defined and measured. The second module will examine biological, behavioral, cultural, social and environmental determinants of population health and their complex inter-relationships. The third module will focus on medical care and economic determinants of population health. The fourth and final module will focus on how research can be effectively translated into practice.
COURSE OBJECTIVES

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

- Discuss various definitions of population health
- Describe methodological approaches for measuring population health
- Identify and explain the multiple determinants of population health and their interrelationships
- Explain various preventive and intervention strategies for improving population health

COURSE ADMINISTRATION

Dr. Vanness will be responsible for all administrative issues and grading. A course website is set up on the LEARN@UW system. This is the electronic course home. A main purpose of this website is that it will be a repository of downloadable copies of the course readings and, where appropriate, copies of lecture slides (not all lectures will have slides made available in this manner, so good note taking will be important). Occasionally, announcements will be posted under the "News" heading on the course homepage. Students should check the course website frequently. Students may audio record lectures for their own personal use (i.e. not for distribution) with permission of the lecturer. Students are encouraged to discuss course material and content with each other. However, unless otherwise indicated, exams, and quizzes should be representative of your own work.

STUDENT EVALUATION

The grading for the course is based on three elements:

1. **Exams** (60% of course grade)
   - Two exams will be given in the course—an in-class midterm and a take home final exam.
2. **Quizzes** (30% of course grade)
3. **Participation** in discussion during lectures (10% of grade)

<table>
<thead>
<tr>
<th>Grading Mechanism</th>
<th>Date</th>
<th>Percent of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz 1</td>
<td>Online quiz (Learn@UW)</td>
<td>15%</td>
</tr>
<tr>
<td>MIDTERM EXAM</td>
<td>11/7/17 in class</td>
<td>25%</td>
</tr>
<tr>
<td>Quiz 2</td>
<td>Online quiz (Learn@UW)</td>
<td>15%</td>
</tr>
<tr>
<td>Take home FINAL EXAM</td>
<td>12/12/13 (due before 9AM CDT 12/17/13 by email to <a href="mailto:dvanness@wisc.edu">dvanness@wisc.edu</a>)</td>
<td>35%</td>
</tr>
<tr>
<td>Class Participation</td>
<td></td>
<td>10%</td>
</tr>
</tbody>
</table>
READINGS

Required and additional readings for each particular lecture or module will be posted on the course webpage at Learn@UW. Most readings will be available for download from the course webpage or will be available electronically from UW-Madison Libraries.

The following book is *required* for the course. It is available for purchase at University Book Store Health Sciences (located inside HSLC) and on course reserve in Ebling Library.


**READINGS (Not Final)**

Please read all required readings prior to the class session. Readings listed as “additional” are not required and their content will not be included on exams or quizzes.

**MODULE 1: Defining and Measuring Population Health**

**Sept. 3  Session 1:** Population Health Terminology and Framework (Lecturer: KINDIG)

**Required:**
- [ImprovingPopulationHealth.org](http://ImprovingPopulationHealth.org) browse any posts of interest for 10-15 mins

**Sept. 5  Session 2:** Population Health: An Overview  (Lecturer: VANNESS)

**Required:**
- Chapter 1: POPULATION HEALTH: CONCEPTS AND METHODS

**Sept. 10  Session 3:** Traditional Measures of Population Health (Mortality and Morbidity)  (Lecturer: SKINNER)

**Required:**
- Chapter 2 POPULATION HEALTH: CONCEPTS AND METHODS

**Additional:**
- Healthy People 2010 web site: [http://www.healthypeople.gov/About/](http://www.healthypeople.gov/About/)
Sept. 12  

**Session 4:** Defining Health in Individuals and Populations (Lecturer: VANNESS)

**Required:**
- CHAPTER 3 POP HEALTH: CONCEPTS AND METHODS
- Chapter 1: ”Measures of Health and Disease in Population”, in Meason, Black and Mills(3rd edition). Global Health: Diseases, Programs, Systems and Finances, Jones and Bertlett Learning.

**Additional:**

Sept. 17  

**Session 5:** Health and Healthcare Disparities (Lecturer: JACOBS/KELLER)

**Required:**

Sept. 19  

**Session 6:** Modeling Determinants of Population Health (Lecturer: CHATTERJEE)

**Required:**
- CHAPTER 4 POP HEALTH: CONCEPTS AND METHODS
MODULE 2: Determinants of Population Health—From Cell to Society

Sept. 24  Session 7: Molecular/Genetic Determinants (Lecturer: SKINNER)

Required:

Additional:
- Healthy People 2010 web site: http://www.healthypeople.gov/About/

Sept. 26  Session 8: Biopsychosocial Determinants (Lecturer: CRESWELL)

Required:

Additional:

Oct. 1  Session 9: Environmental Determinants (II)—Global (Lecturer: MALECKI)

Required:
- Drayna P. et. al, Association between Rainfall and Pediatric Emergency Department Visits for Acute Gastrointestinal Illness, Children’s Health, 2010
- Roberts Dana, Thinking globally, acting locally -- institutionalizing climate change at the local government level in Durban, South Africa, IIED, 2008
• English p. et. al, Environmental Health Indicators of Climate Change for the United States: Findings from the State Environmental Health Indicator Collaborative, Environmental Health Perspectives, 2009

• Koplan et. al, Towards a common definition of global health, Lancet 2009; 373: 1993–95

Oct. 3  
**Session 10:** Social Determinants (I)—Gender, Race, & Socioeconomic determinants (Lecturer: NOBLES)

**Required:**
• Lantz, PM. Socioeconomic Factors, Health Behaviors, and Mortality JAMA; Jun 1998; 279(21): 1703-8

**Additional:**
• Global Health: Chapter 3.

Oct. 8  
**Session 11:** Social Determinants (II)—Neighborhood/Community Context (Lecturer: CHOWKWANYUN)

**Required:**
• Kawachi I, Berkman LF(2003). Neighborhoods and health. 2003; Chapter 6

Oct. 10  
**Session 12:** Environmental Determinants (I)—US (Lecturer: KANAREK)

**Required:**
• TBD
Oct. 15  **Session 13:** Behavioral and Cultural Determinants (Lecturer: MARTINEZ-DONATE)

**Required:**
- Chapter 3: Culture and Health Behaviour.

**Additional:**
- Chapter 2 "Culture, behavior and Health" in Meason, Black and Mills(3rd edition). Global Health: Diseases, Programs, Systems and Finances, Jones and Bertlett Learning.

Oct. 17  **Session 14:** Health and Place: The SHoW (Lecturer: MALECKI)

**Required:**
- TBD

**MODULE 3:** Health Care and Economic Determinants of Population Health

Oct. 22  **Session 15:** Medical Care as a Determinant (Lecturer: BURNS)

**Required:**
Oct. 24  **Session 16:** Economics of Health(I) (Lecturer: MULLAHY)

**Required:**

**Required:**


**Additional:**


Oct. 29  **Session 17:** Economics of Health (II) (Lecturer: MULLAHY)

**Required:**

- No additional readings required

Oct. 31  **Session 18:** Economics of Health Behaviors: Peer Effects, Obesity and Soda Taxes (Lecturer: FLETCHER)

**Required:**

• KD. Brownell, T.R. Frieden Ounces of prevention — the public policy case for taxes on sugared beverages New England Journal of Medicine, 360 (2009), p. 18
• "The Effects of Soft Drink Taxation on Soft Drink Consumption and Weight for Children and Adolescents." (with David Frisvold and Nathan Tefft) Journal of Public Economics 2010, 94 (11-12): 967-974

Additional:

• “Soda Taxes and Substitution Effects: Will Obesity be Affected?” Choices

Nov. 5  Session 19: Economics of Child Health, Poverty and Disability
(Lecturer: WOLFE)

Required:

• TBD

Nov. 7  Session 20: MIDTERM
MODULE 4: Translating Evidence to Population Health Improvement: From Bedside to Community to Policy

Nov. 12  Session 21: Community Intervention Trials (Lecturer: REMINGTON)

Required:

- CHAPTER 7 POP HEALTH: CONCEPTS AND METHODS

Additional:


Nov. 14  Session 22: Type 2 Translational Research (Lecturer: SMITH)

Required:


Nov. 19  Session 23: Cost-Effectiveness and Comparative Effectiveness Research (Lecturer: VANNESS)

Required:

- CHAPTER 8 POP HEALTH: CONCEPTS AND METHODS

Nov. 21  Session 24: Determinants of Health at the US County Level (Lecturer: CATLIN)

Required:

- TBD
Nov. 26  Session 25: Levels of analyses for population health studies (Lecturer: GANGNON)

Required:


Nov. 28  THANKSGIVING RECESS

Dec. 3  Session 26: Health Policy (Lecturer: OLIVER)

Required:

- TBD

Dec. 5  Session 27: Perspective on Population health: Improvement and Intervention (Lecture: TIMBERLAKE)

Required:

- TBD

Dec. 10.  Session 28: Translating Evidence Into Practice (Lecturer: FEDER)

Required:

- TBD

Dec. 12  Session 29: Review / Question and Answer Session (Lecturer: VANNESS)

Dec. 13- Dec 18: Take Home Final Exam (DUE 9AM, 12/18/2013)