



# POPULATION COURSE SYLLABUS HEALTH

## **Principles of Population Health Science Population Health 795 Fall 2013**

Dave Vanness, PhD  
785 WARF  
608-265-6800  
[dvanness@wisc.edu](mailto: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)

<b>Grading Mechanism</b>	<b>Date</b>	<b>Percent of Grade</b>
Quiz 1	Online quiz (Learn@UW)	15%
MIDTERM EXAM	11/7/17 in class	25%
Quiz 2	Online quiz (Learn@UW)	15%
Take home FINAL EXAM	12/12/13 (due before 9AM CDT 12/17/13 by email to dvanness@wisc.edu)	35%
Class Participation		10%

## 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.

**Young, T. K. (2005). Population Health: Concepts and Methods. New York, Oxford University Press.**

### 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:

- Kindig D. Understanding population health terminology. *Milbank Q.* 2007;85(1):139-161.
- [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:

- Kindig D, Stoddart G. What is population health? *Am J Public Health.* 2003;93(3):380-383.
- Evans, R. (1994). Introduction. Why are Some People Healthy and Others Not? The Determinants of Health of Populations. R. Evans, M. Barer and T. Marmor. New York, Aldine De Gruyter: 3-26.
- 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:

- Etches V, Frank J, Di Ruggiero E, Manuel D. Measuring population health: a review of indicators. *Annu Rev Public Health.* 2006;27:29-55.
- Healthy People 2010 web site: <http://www.healthypeople.gov/About/>

**Sept. 12**      *Session 4:* Defining Health in Individuals and Populations (Lecturer: VANNESS)

Required:

- McDowell I, Spasoff RA, Kristjansson B. On the classification of population health measurements. Am J Public Health. 2004;94(3):388-393.
- CHAPTER 3 POP HEALTH: CONCEPTS AND METHODS
- Kindig, D.A. A Population Health Framework for Setting National and State Health Goals. JAMA May 7 2008 pp 2081-2083
- Chapter 1: "Measures of Health and Disease in Population", in Meason, Black and Mills (3<sup>rd</sup> edition). Global Health: Diseases, Programs, Systems and Finances, Jones and Bertlett Learning.

Additional:

- Patrick DL, Erickson P. (1993). Concepts of Health-Related Quality of Life. Health Status and Health Policy: Quality of Life in Health Care Evaluation and Resource Allocation. New York, Oxford University Press: 76-112.
- Gold MR, Stevenson D, Fryback DG. HALYS AND QALYS AND DALYS, OH MY: Similarities and Differences in Summary Measures of Population Health. Annu. Rev. Public Health 2002. 23:115–34.

**Sept. 17**      *Session 5:* Health and Healthcare Disparities (Lecturer: JACOBS/KELLER)

Required:

- Booske BC, Robert SA, Rohan AM. Awareness of Racial and Socioeconomic Health Disparities in the United States: The National Opinion Survey on Health and Health Disparities, 2008-2009. Preventing Chronic Disease 2011;8(4):A73.
- Booske BC, Robert SA, Rohan AM. Awareness of Racial and Socioeconomic Health Disparities in the United States: The National Opinion Survey on Health and Health Disparities, 2008-2009. Preventing Chronic Disease 2011;8(4):A73.
- Baicker K, Chandra A, Skinner J. Geographic variation in health care and the problem of measuring racial disparities. Perspect Biol Med 2005;48(1):42-S53.
- Kempf AM, Peppard PE, Booske BC, Kindig DA, Remington PL. Using measures of disparities as indicators of the health of Wisconsin. Brief Report 2006;1.
- (After Lecture) Grubbs V. Good for harvest, bad for planting. Health Aff 2007;26(1):232-237.

**Sept. 19**      *Session 6:* Modeling Determinants of Population Health (Lecturer: CHATTERJEE)

Required:

- CHAPTER 4 POP HEALTH: CONCEPTS AND METHODS
- Carpiano RM, Daley DM. A guide and glossary on post-positivist theory building for population health. J Epidemiol Community Health 2006;60(7):564-570.

- Diez Roux, A. “Integrating Social and Biologic Factors in Health Research: A Systems View” from The American College of Epidemiology Annual Meeting 2006. *Annals of Epidemiology* 2007;17(7):569-574.
- Chapter 7: “Managing Boundaries”, in Kindig, D. A. (1997). *Purchasing Population Health: Paying for the Results*. University of Michigan Press.

## **MODULE 2: Determinants of Population Health—From Cell to Society**

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

#### Required:

- Burchard EG, Ziv E, Coyle N, Gomez SL, Tang H, Karter AJ, et al. The importance of race and ethnic background in biomedical research and clinical practice. *N Engl J Med* 2003;348(12):1170-1175.
- Williams SM, Templeton AR, Swallen K, Cooper R, Kaufman J. Race and genomics. *N Engl J Med* 2003;348(25):2581-2582.

#### Additional:

- Etches V, Frank J, Di Ruggiero E, Manuel D. Measuring population health: a review of indicators. *Annu Rev Public Health*. 2006;27:29-55.
- Healthy People 2010 web site: <http://www.healthypeople.gov/About/>

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

#### Required:

- Sapolsky, R. Sick of poverty. *Sci Am*. 2005;293(6): 92-9.
- Miller G, Chen E, Cole S. Health psychology: Developing biologically plausible models linking the social world and physical health. *Annual review of psychology*. 2009;60:501-524.

#### Additional:

- Sterling P. Principles of allostasis: Optimal design, predictive regulation, pathophysiology, and rational therapeutics. 2004. In Allostasis, Homeostasis, and the Costs of Physiological Adaptation. J. Schulkin, Cambridge University Press: 17-64.
- Committee on Health and Behavior: Research, Practice and Policy (2001). *Biobehavioral Factors in Health and Disease*. “Health and Behavior: The Interplay of Biological, Behavioral, and Societal Influences.” Washington, DC, National Academy Press: 39-86.

### **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:

- Adler, N. E. and J. Stewart. 2010. “Health Disparities Across the Lifespan: Meaning, methods, and mechanisms.” *Annals of the New York Academy of Sciences*: 1186: 5-23.
- Link, B.G., and J.C. Phelan. (1995). “Social Conditions as Fundamental Causes of Disease.” *Journal of Health and Social Behavior* 35: 80-94. Pages 84-88.
- Lantz, PM. Socioeconomic Factors, Health Behaviors, and Mortality *JAMA*; Jun 1998; 279(21): 1703-8
- Kreiger et al. (2010). “Who, and what, causes health inequities? Reflections on emerging debates from an exploratory Latin American/North American workshop.” *Journal of Epidemiol Community Health* September 2010; 64 , 9

Additional:

- Global Health: Chapter 3.

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

Required:

- Fullilove, M. (2009). *Root shock: How tearing up city neighborhoods hurts america, and what we can do about it* Random House Digital, Inc.(Pg3-7,71-107)
- Kawachi I, Berkman LF(2003). *Neighborhoods and health*. 2003; Chapter 6
- Wallace, R. & Wallace, D. 1990, "Origins of public health collapse in New York City: the dynamics of planned shrinkage, contagious urban decay and social disintegration.", *Bulletin of the New York Academy of Medicine*, vol. 66, no. 5, pp. 391.

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

Required:

- TBD

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

Required:

- Braveman P, Cubbin C, Egerter S, Williams D, Pamuk E. Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us. American journal of public health. 2010;100(S1):S186.
- Viruell-Fuentes E. Beyond acculturation: immigration, discrimination, and health research among Mexicans in the United States. Social Science & Medicine. 2007;65(7):1524-1535.
- Zellner J, Martinez-Donate A, Sanudo F, et al. The interaction of sexual identity with sexual behavior and its influence on HIV risk among Latino men: Results of a community survey in northern San Diego County, California. American journal of public health. 2009;99(1):125.
- 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:

- Triangulating on success: Innovation, public health, medical care, and cause-specific U.S. mortality rates over a half century (1950-2000). Rust G, Satcher D, Fryer GE, Levine RS, Blumenthal DS. Am J Public Health. 2010;100(S1):S95-S104.
- A randomized controlled study of cognitive therapy for relapse prevention for bipolar affective disorder. Lam DH, Watkins ER, Haward P, Bright J, Wright K, Kerr N, Parr-Davis G, Sham P. Arch of Gen Psychiatry. 2003;60:145-152.
- Temporal trends in rates of patient harm resulting from medical care. Landrigan CP, Parry GJ, Bones CB, Hackbarth AD, Goldmann DA, Sharek PJ. New Engl J Med. 2010;363(22):2124-2134.
- Transforming insurance coverage into quality health care: Voltage drops from potential to delivered quality. Eisenberg. JM and Power EJ. JAMA. 2000;284(16): 2100-2107.



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

Required:

Required:

- Grossman, M., V. R. Fuchs, et al. (2003). The Demand for Health, 30 Years Later: What Do We Know? What Do We Need to Know? ASSA Meetings, AEA/iHEA session, Washington DC, Journal of Health Economics.

Additional:

- Russell, L. (1994). Educated Guesses: Making Policy about Medical Screening Tests. Berkeley and Los Angeles, University of California Press.

**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:

- Manski, CF. (2000). Economic analysis of social interactions. Journal of Economic Perspectives [Readable overview of the estimation issues in peer effects models]
- Christakis, N., Fowler, J., 2007. The spread of obesity in a large social network over 32 years. The New England Journal of Medicine 357, 370–379.
- Cohen-Cole, E. and J.M. Fletcher (2008a). “Is Obesity Contagious? Social Networks vs. Environmental Factors in the Obesity Epidemic.” Journal of Health Economics, 27(5): 1382-1387
- Fowler, JH and NA Christakis. 2008. Estimating peer effects on health in social networks: A response to Cohen-Cole and Fletcher; and Trogdon, Nonnemaker, and Pais. Journal of Health Economics, 27: 1400-1405
- Cohen-Cole, E. and J.M. Fletcher (2008b). Estimating Peer Effects in Health Outcomes: Replies and Corrections to Fowler and Christakis. SSRN Working Paper
- Cohen-Cole, E. and J.M. Fletcher (2008c). “Detecting Implausible Social Network Effects in Acne, Height, and Headaches: Longitudinal Analysis.” British Medical Journal 2008, 337: a2533
- D.M. Cutler, E.L. Glaeser, J.M. Shapiro Why Have Americans Become More Obese? Journal of Economic Perspectives, 17 (3) (2003), pp. 93–118

- M. Jacobson, K. Brownell Small taxes on soft drinks and snack foods to promote health American Journal of Public Health, 90 (6) (2000), pp. 854–857
- 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:

- Manski, CF. (1993). Identification of endogenous social effects: The reflection problem. The Review of Economic Studies [The classic reference in economics]
- Durlauf, SN. (2000). Neighborhood effects. Handbook of Regional and Urban Economics. [More technical overview of estimation issues]
- Miguel, E. and M. Kremer. (2004). Worms: Identifying impacts of education and health in the presence of treatment externalities. Econometrica [State of the art empirical paper]
- "Taxing Soft Drinks and Restricting Access to Vending Machines to Curb Child Obesity." (with David Frisvold and Nathan Tefft) Health Affairs, May 2010, 29 (5): 1059–1066
- “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
- Merzel C, D’Afflitti J. Reconsidering Community-Based Health Promotion: Promise, Performance, and Potential. Am J Public Health. 2003;93:557–574.

Additional:

- Koepsell TD, Wagner EH, Cheadle AC, et al. Selected Methodological Issues in Evaluating Community-Based Health Promotion and Disease Prevention Programs. Annu. Rev. Publ. Health 1992. 13:31-57.

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

Required:

- Woolf SH. The Meaning of Translational Research and Why It Matters. JAMA 2008;299(2):211-213.

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

Required:

- CHAPTER 8 POP HEALTH: CONCEPTS AND METHODS
- Bodenheimer T. High and Rising Health Care Costs. Part 2: Technologic Innovation. Ann Intern Med. 2005;142:932-937.
- Detsky A, Laupacis A. Relevance of Cost-effectiveness Analysis to Clinicians and Policy Makers. JAMA. 2007 ;298(2).
- Sox HC, Greenfield S. Comparative Effectiveness Research: A Report From the Institute of Medicine. Annals of Internal Medicine. 2009;151(3):203-205.

**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:

- Gelman A. Multilevel (Hierarchical) Modeling. *Technometrics*. 2006;48(3):432-435.

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**Nov. 28**      **THANKSGIVING RECESS**

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**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)

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

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