
PHS 705

Topics in Population Health Sciences I

Fall 2019

Dates/course meeting time: Monday, August 26th, 2019 – Monday, November 25, 2019
Monday & Wednesday, 10:05-11:20 AM

Academic credit: 3.0

Course format: Lecture/seminar + discussion

Instructor's Information

Matthew Dupre, PhD
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Leah Zullig, PhD
leah.zullig@duke.edu

What is this course about?

This course is designed to introduce students to the transdisciplinary field of population health sciences and provide students with a greater understanding of the general theories, concepts, and measures often used in population health sciences. Through didactic teaching, course readings, discussions, and structured exercises, students will learn to define population health and its measurement; understand the major concepts and constructs that define the social determinants of health, the physical and built environment, individual behaviors, and other factors that shape population health and health inequalities; and explain implementation strategies to transform health care practice.

What background knowledge do I need before taking this course?

No prerequisite required.

What will I learn in this course?

- Understand fundamental concepts and perspectives in population health sciences.
- Discuss health and illness from a population perspective.
- Demonstrate familiarity with the temporal and multilevel sources of health disparities.
- Convey introductory knowledge of foundational disciplines in population health.
- Analyze scientific literature to assess quality of evidence base and identify current gaps in population health knowledge.
- Evaluate basic perspectives and approaches to address population health disparities.
- Identify implementation strategies relevant to specific populations and population health issues.

How will my grade be calculated?

- Class participation and attendance – 20%
- Discussion Lead – 20%
- Midterm essay – 30%
- Final essay – 30%

How can I prepare for the class sessions to be successful?

Students are expected to attend classes regularly and complete assigned readings and coursework in a timely manner. Students also will be expected to prepare for active participation in class discussions and to serve as a Discussion Lead (moderator) for assigned readings during the semester.

What required texts, materials, and equipment will I need?

Suggested Textbook: Keyes and Galea. Population Health Science. 2016. *Oxford University Press*.

Required Readings: All assigned reading material (articles, reports, briefs, etc.) are listed below and will be posted on *Sakai*.

What is the expected course schedule?

Week 1

Date:	Monday, August 26, 2019
Class topic	Introductions, Course Overview, and Assignments
Format	Lecture/Discussion
Lead Facilitator(s)	Matthew Dupre, PhD & Leah Zullig, PhD

Date	Wednesday, August 28, 2019
Class topic	Introduction to Population Health Science
Format	Lecture/Discussion
Readings	<u>Required:</u> Doyle, Y.G., Furey A., Flowers J.. "Sick Individuals and Sick Populations: 20 Years Later." <i>Journal of Epidemiology and Community Health</i> . (2006). 60:396–398. Kindig D., Stoddart G. "What Is Population Health?" <i>American Journal of Public Health</i> . (2003). 93(3):380-383.
Lead Facilitator(s)	Matthew Dupre, PhD

Week 2

Date	Monday, September 2, 2019
Class topic	Labor Day (no class)

Date	Wednesday, September 4, 2019
Class topic	Data in Population Health Sciences: Electronic Health Records
Format	Lecture/Discussion
Readings	<p><u>Required:</u> Acquiring and Using Electronic Health Record Data https://rethinkingclinicaltrials.org/resources/acquiring-and-using-electronic-health-record-data/</p> <p>Using Electronic Health Records for Population Health Research: A Review of Methods and Applications https://www.annualreviews.org/www.annualreviews.org/doi/full/10.1146/annurev-publhealth-032315-021353</p> <p><u>Review:</u> Duke Enterprise Data Unified Content Explorer https://deduce.duhs.duke.edu/webDoc/helpDesk/deduce/supporting_documentation/DEDUCE_v7_training_with_PACE.pptx</p>
Lead Facilitator(s)	Michelle Smerek & Keith Marsolo, Ph.D.

Week 3

Date	Monday, September 9, 2019
Class topic	Data in Population Health Sciences: Restricted use Micro-data from the Federal Statistical System
Format	Lecture/Discussion
Readings	<p><u>Review:</u> Triangle Research Data Center (TRDC) https://trdc.ssri.duke.edu/</p> <p>Federal Statistical Research Data Centers - Census Bureau https://www.census.gov/about/adrm/fsrdc/about/available_data.html</p> <p>National Center for Health Statistics (NCHS) https://www.cdc.gov/rdc/b1datatype/Dt122.htm</p> <p>Agency for Health Care Research and Quality (AHRQ) https://meps.ahrq.gov/data_stats/onsite_datacenter.jsp</p> <p>Census (Demographic and Household Employment)</p>

	https://www.census.gov/ces/dataproducts/demographicdata.html https://www.census.gov/ces/dataproducts/lehddata.html
Lead Facilitator(s)	Gale Boyd, PhD

Date	Wednesday, September 11, 2019
Class topic	Population Dynamics
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Reither, E.N., Hauser R.M., Yang Y. “Do Birth Cohorts Matter? Age-Period-Cohort Analyses of the Obesity Epidemic in the United States.” <i>Social Science & Medicine</i>. (2009). 69:1439–48.</p> <p>Keyes, K.M., R. Nicholson, J. Kinley, S. Raposo, M.B. Stein, E.M. Goldner, J. Sareen. “Age, Period, and Cohort Effects in Psychological Distress in the United States and Canada.” <i>American Journal of Epidemiology</i>. (2014). 179: 1216–1227.</p> <p><u>Optional:</u> McCracken, K. , and D.R. Phillips . “Epidemiological Transition.” In <i>International Encyclopaedia of Human Geography</i> (vol. 3); Edited by R. Kitchin and N. Thrift. (2009): 571–579. Oxford: Elsevier.</p> <p>Omran, A.R. “The epidemiologic transition: A theory of the epidemiology of population change.” <i>Milbank Memorial Fund Quarterly</i>. (1971): 49: 509–538.</p> <p>Suzuki, E. “Time changes, so do people.” <i>Social Science & Medicine</i>. (2012). 75: 452– 456.</p>
Lead Facilitator(s)	Matthew Dupre, PhD

Week 4

Date	Monday, September 16, 2019
Class topic	Socioeconomic Disparities and Health
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Braveman, P.A., C. Cubbin, S. Egerter, D.R. Williams, E. Pamuk. “Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us.” <i>American Journal of Public Health</i>. (2010). 100: S186–S196.</p> <p>Odutayo, A., P. Gill, S. Shepherd, A. Akingbade, S. Hopewell, K. Tennankore, B.H. Hunn, C.A. Emdin. “Income Disparities in Absolute Cardiovascular Risk and Cardiovascular Risk Factors in the United States, 1999-2014.” <i>JAMA Cardiology</i>. (2017). 2:782-790.</p>

	<p><u>Optional:</u> CDC: https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health</p> <p>Phelan, J.C., B.G. Link, P. Tehranifar. "Social Conditions as Fundamental Causes of Health Inequalities: Theory, Evidence, and Policy Implications." <i>Journal of Health and Social Behavior</i>. (2010): 51: S28–S40.</p>
Lead Facilitator(s)	Matthew Dupre, PhD

Date	Wednesday, September 18, 2019
Class topic	Context Matters
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Zeng, Y., D. Gu, J. Purser, H. Hoenig, N. Christakis. "Associations of Environmental Factors with Elderly Health and Mortality in China." <i>American Journal of Public Health</i>. (2010). 100:298–305.</p> <p>Balfour J.L., G.A. Kaplan GA. "Neighborhood Environment and Loss of Physical Function in Older Adults: Evidence from the Alameda County Study." <i>American Journal of Epidemiology</i>. (2002). 155(6):507–515.</p> <p><u>Optional:</u> Diez Roux, A.V., C. Mair. "Neighborhoods and Health." <i>Annals of the New York Academy of Sciences</i>. (2010). 1186:125–145.</p> <p>Luo, Y. "Neighborhood Social Environment and Health." In: Gu D., Dupre M.E. (eds) <i>Encyclopedia of Gerontology and Population Aging</i>. (2019). Springer. https://doi.org/10.1007/978-3-319-69892-2_1013-1</p>
Lead Facilitator(s)	Matthew Dupre, PhD

Week 5

Date	Monday, September 23, 2019
Class topic	Psychosocial Stressors and Health
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Lantz, P.M., House, J.S., Mero, R.P., Williams, D.R. "Stress, Life Events and Socioeconomic Disparities in Health: Results from the Americans' Changing Lives Study." <i>Journal of Health and Social Behavior</i>. (2005). 46: 274-288.</p> <p>Everson-Rose S.A., Lutsey P.L., Roetker N.S., Lewis T.T., Kershaw K.N., Alonso A., Diez Roux A.V. "Perceived Discrimination and Incident Cardiovascular Events: The Multi-Ethnic Study of Atherosclerosis." <i>American Journal of Epidemiology</i>. (2015).182:225-34.</p>

Lead Facilitator(s)	Matthew Dupre, PhD

Date	Wednesday, September 25, 2019
Class topic	Social Support and Health
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Berkman, L.F., L. Leo-Summers, R.I. Horwitz. "Emotional Support and Survival after Myocardial Infarction: A Prospective, Population-based Study of the Elderly." <i>Annals of Internal Medicine</i>. (1992). 117:1003-9.</p> <p>Bell, C.N., R.J. Thorpe, T.A. LaVeist. "Race/Ethnicity and Hypertension: The Role of Social Support." <i>American Journal of Hypertension</i>. (2010). 23(5): 534–540.</p> <p><u>Optional:</u> Uchino, B. N.. "Understanding the Links Between Social Support and Physical Health: A Life-Span Perspective with Emphasis on the Separability of Perceived and Received Support." <i>Perspectives on Psychological Sciences</i>. (2009). 4:236-255.</p>
Lead Facilitator(s)	Matthew Dupre, PhD

Week 6

Date	Monday, September 30, 2019
Class topic	Life Course Perspective: Definitions and Concepts
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Dupre, Matthew E., Linda K. George, Guangya Liu, and Eric D. Peterson. "The Cumulative Effect of Unemployment on Risks for Acute Myocardial Infarction." <i>Archives of Internal Medicine</i>. (2012). 172:1731-1737.</p> <p>Lippert, A.M. "Stuck in Unhealthy Places: How Entering, Exiting, and Remaining in Poor and Nonpoor Neighborhoods is Associated with Obesity during the Transition to Adulthood." <i>Journal of Health and Social Behavior</i>. (2016). 57:1-21 .</p>
Lead Facilitator(s)	Matthew Dupre, PhD

Date	Wednesday, October 2, 2019
Class topic	Life Course Perspective: Theoretical Orientations to Population Health
Format	Lecture & Student/Group-led Discussion

Readings	<p><u>Required:</u> Dupre, Matthew E. "Educational Differences in Age-Related Patterns of Disease: Reconsidering the Cumulative Disadvantage and Age-as-Leveler Hypotheses." <i>Journal of Health and Social Behavior</i>. (2007). 48: 1-15.</p> <p>Brown, Tyson H., Angela M. O'Rand, and Daniel E. Adkins. "Race-Ethnicity and Health Trajectories: Tests of Three Hypotheses Across Multiple Groups and Health Outcomes." <i>Journal of Health and Social Behavior</i>. (2012). 53: 359-377.</p>
Lead Facilitator(s)	Matthew Dupre, PhD

Week 7

Date	*No class* -- Monday, October 7, 2019
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Date	Wednesday, October 9, 2019
Class topic	<p>Midterm Exam:</p> <ul style="list-style-type: none"> - Overview and assignment (take-home exam) - Due date (10/18/19)
Format	Lecture/Discussion
Lead Facilitator(s)	Matthew Dupre, PhD

Week 8

Date	Monday, October 14, 2019
Class topic	Defining Health Services Research
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Lohr, Kathleen N., and Donald M. Steinwachs. "Health services research: an evolving definition of the field." <i>Health services research</i> 37.1 (2002): 15.</p> <p>Whicher, Danielle, et al. "The Future of Health Services Research: Advancing Health Systems Research and Practice in the United States." (2018). Available from: https://bit.ly/2XF0cXT</p>
Lead Facilitator(s)	Leah Zullig, PhD

Date	Wednesday, October 16, 2019
Class topic	Health Services Research: Common Outcomes
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Lohr, Kathleen N., and Donald M. Steinwachs. "Health services research: an evolving definition of the field." <i>Health services research</i>. 37.1 (2002): 15.</p>

	Chalmers, Iain, and Paul Glasziou. "Avoidable waste in the production and reporting of research evidence." <i>The Lancet</i> . 374.9683 (2009): 86-89.
Lead Facilitator(s)	Leah Zullig, PhD

Week 9

Date	Monday, October 21, 2019
Class topic	Behavioral Health Interventions: Definitions & Conceptual Frameworks
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Prochaska, James O., and Wayne F. Velicer. "The transtheoretical model of health behavior change." <i>American journal of health promotion</i> 12.1 (1997): 38-48.</p> <p>Champion, Victoria L., and Celette Sugg Skinner. "The health belief model." <i>Health behavior and health education: Theory, research, and practice</i> 4 (2008): 45-65. Available from: https://bit.ly/2VVkQm4</p> <p><u>Optional:</u> "Health Promotion and Disease Prevention Theories and Models - Rural Toolkit." <i>Health Promotion and Disease Prevention Theories and Models - Rural Toolkit</i>, www.ruralhealthinfo.org/toolkits/health-promotion/2/theories-and-models.</p>
Lead Facilitator(s)	Leah Zullig, PhD

Date	Wednesday, October 23, 2019
Class topic	Behavioral Health Interventions: Case Study
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Prochaska, Judith J., and James O. Prochaska. "A review of multiple health behavior change interventions for primary prevention." <i>American journal of lifestyle medicine</i> 5.3 (2011): 208-221.</p> <p>Bosworth, Hayden B., et al. "Telemedicine cardiovascular risk reduction in veterans: The CITIES trial." <i>American heart journal</i> 199 (2018): 122-129.</p> <p><u>Optional:</u> Zullig, Leah L., et al. "The Cardiovascular Intervention Improvement Telemedicine Study (CITIES): rationale for a tailored behavioral and educational pharmacist-administered intervention for achieving cardiovascular disease risk reduction." <i>Telemedicine and e-Health</i> 20.2 (2014): 135-143.</p>
Lead Facilitator(s)	Leah Zullig, PhD

Week 10

Date	Monday, October 28, 2019
Class topic	Community-Engaged Participatory Research & Place-Based Initiatives
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Israel, Barbara A., et al. "Review of community-based research: assessing partnership approaches to improve public health." <i>Annual review of public health</i> 19.1 (1998): 173-202.</p> <p>Wallerstein, Nina, and Bonnie Duran. "Community-based participatory research contributions to intervention research: the intersection of science and practice to improve health equity." <i>American journal of public health</i> 100.S1 (2010): S40-S46.</p>
Lead Facilitator(s)	Leah Zullig, PhD

Date	Wednesday, October 30, 2019
Class topic	Community-Engaged Participatory Research & Place-Based Initiatives: Local Resources
Format	Lecture/Discussion
Readings	None
Lead Facilitator(s)	Rosa Gonzalez-Guarda, PhD

Week 11

Date	Monday, November 4, 2019
Class topic	Defining Dissemination and Implementation Science
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Brownson, Ross C., Graham A. Colditz, and Enola Knisley Proctor, eds. <i>Dissemination and implementation research in health: translating science to practice</i>. Oxford University Press, 2018.</p> <p>Proctor, Enola, et al. "Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda." <i>Administration and Policy in Mental Health and Mental Health Services Research</i> 38.2 (2011): 65-76.</p>
Lead Facilitator(s)	Leah Zullig, PhD

Date	Wednesday, November 6, 2019
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Class topic	Dissemination and Implementation Science: Frameworks & Study Designs
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Curran, Geoffrey M., et al. "Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact." <i>Medical care</i> 50.3 (2012): 217.</p> <p>Damschroder, Laura J., et al. "Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science." <i>Implementation science</i> 4.1 (2009): 50.</p> <p><u>Optional:</u> Kitson, Alison L., et al. "Evaluating the successful implementation of evidence into practice using the PARIHS framework: theoretical and practical challenges." <i>Implementation science</i> 3.1 (2008): 1.</p>
Lead Facilitator(s)	Leah Zullig, PhD

Week 12

Date	Monday, November 11, 2019
Class topic	Dissemination and Implementation Science: Fit, Fidelity, & Adaptation
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Castro, Felipe González, Manuel Barrera, and Charles R. Martinez. "The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit." <i>Prevention Science</i> 5.1 (2004): 41-45.</p> <p>Zullig, Leah L., et al. "Changing CHANGE: adaptations of an evidence-based telehealth cardiovascular disease risk reduction intervention." <i>Translational behavioral medicine</i> 8.2 (2018): 225-232.</p>
Lead Facilitator(s)	Leah Zullig, PhD

Date	Wednesday, November 13, 2019
Class topic	Special Populations: Population Health in an Integrated Health Care System
Format	Lecture & Student/Group-led Discussion
Readings	<p><u>Required:</u> Atkins, David, Amy M. Kilbourne, and David Shulkin. "Moving from discovery to system-wide change: the role of research in a learning health care system: experience from three decades of health systems research in the Veterans Health Administration." <i>Annual review of public health</i> 38 (2017): 467-487.</p> <p>Hobson, Alexandra, and Alexa Curtis. "Improving the care of veterans: The role of nurse practitioners in team-based population health</p>

	management." <i>Journal of the American association of Nurse Practitioners</i> 29.11 (2017): 644-650.
Lead Facilitator(s)	Leah Zullig, PhD

Week 13

Date	Monday, November 18, 2019
Class topic	Special Populations: People with Multiple Chronic Conditions
Format	Lecture & Student/Group-led Discussion
Readings	<u>Required:</u> Zullig, Leah L., Heather E. Whitson, Susan N. Hastings, Chris Beadles, Julia Kravchenko, Igor Akushevich, and Matthew L. Maciejewski. "A systematic review of conceptual frameworks of medical complexity and new model development." <i>Journal of general internal medicine</i> 31, no. 3 (2016): 329-337.
Lead Facilitator(s)	Leah Zullig, PhD

Date	Wednesday, November 20, 2019
Class topic	Population Health in a Global Health Context
Format	Lecture & Student/Group-led Discussion
Readings	None
Lead Facilitator(s)	Janet Prvu Bettger, PhD

Week 14

Date	Monday, November 25, 2019
Class topic	Population Health in a Global Health Context: mHealth Case Study
Format	Lecture/Discussion
Readings	<u>Required:</u> Marcolino, Milena Soriano, et al. "The impact of mHealth interventions: systematic review of systematic reviews." <i>JMIR mHealth and uHealth</i> 6.1 (2018): e23. <u>Optional:</u> Labrique, Alain B., et al. "mHealth innovations as health system strengthening tools: 12 common applications and a visual framework." <i>Global health: science and practice</i> 1.2 (2013): 160-171. Mehl, Garrett, and Alain Labrique. "Prioritizing integrated mHealth strategies for universal health coverage." <i>Science</i> 345.6202 (2014): 1284-1287.

	WHO Guideline: Recommendations on Digital Interventions for Health System Strengthening." <i>World Health Organization</i> , World Health Organization, 18 Apr. 2019, www.who.int/reproductivehealth/publications/digital-interventions-health-system-strengthening/en/ .
Lead Facilitator(s)	Lavanya Vasudevan, PhD

Final Exam

Date	*No class* -- Monday, November 27, 2019
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Date	Monday, December 2, 2019
Class topic	Final Exam: <ul style="list-style-type: none"> - Overview and assignment (take-home exam) - Due date (12/9/19)

Academic Integrity

The faculty, staff, students, and affiliates of the Department of Population Health Sciences adhere to the Duke Community Standard:

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and nonacademic endeavors, and to protect and promote a culture of integrity.

To uphold the Duke Community Standard:

- I will not lie, cheat, or steal in my academic endeavors;
- I will conduct myself honorably in all my endeavors; and
- I will act if the Standard is compromised.

More information on students' responsibilities regarding the Duke Community Standard [can be found here](#).

Class Attendance

Students are allowed up to three missed class meetings during an academic semester, with prior instructor approval. Absences beyond or outside of this allotment may result in consequences for the student.

Diversity

Duke University Institutional Statement of Commitment to Diversity and Inclusion

Duke aspires to create a community built on collaboration, innovation, creativity, and belonging. Our collective success depends on the robust exchange of ideas—an exchange that is best when the rich diversity of our perspectives, backgrounds, and experiences flourishes. To achieve this exchange, it is essential that all members of the community feel secure and welcome, that the contributions of all individuals are respected, and that all voices are heard. All members of our community have a responsibility to uphold these values.