Environmental Health Sciences 208: Built Environment and Health

UCLA School of Public Health Syllabus – Winter 2016

Updated: December 20, 2015

Course information

Time: Tuesdays 2:00 pm - 4:50 pm

Location: Room 61-262, Center for Health Sciences (UCLA Fielding School of Public Health)

Units: 4

Instructor:

Richard J Jackson MD, MPH, AIA(Hon), ASLA(Hon) Professor, Environmental Health Sciences UCLA School of Public Health 56-070 CHS 650 Charles E Young Drive Los Angeles, California 90095-1772 Phone 310 206-8522 (prefer email please) Cell 510 295 5674 (for urgent use only)

dickjackson@ucla.edu

Office Hours: By appointment

Teaching Assistant: Jeff Loi MPH

jeff.chau.loi@gmail.com

Office Hours: Tuesdays 11-12; Thursdays 3:30-4:30; and by appointment

Course Description

An interdisciplinary course on **Built Environment and Health (BEH)** with an emphasis on creating health-based change

The US and other developed and developing countries face epidemics of acute and chronic diseases that can originate or accelerate due to land use and built environment (BE) decisions. While the hazards presented by air and water pollution are well recognized to result in infectious and toxicologic illnesses, there has been increased recognition of the hazards presented by building and community designs that fail to optimize human health. Land use and built environment decisions have impacts for good or ill in every locality and for every age, social, economic and racial group, and these impacts range from the very acute (e.g. motor vehicle trauma) to the long term (e.g. obesity, diabetes, cancer, heart disease).

BE decisions are largely based on financial, regulatory, insurance, political, cultural and other factors. BE changes are made in the context of cultural and community values, vested interests, environmental and budget constraints, and more—how is health connected to those issues? How can health considerations be made more cogent and effective? This course will explore the "networks" around the BE, especially the health connections. Students will analyze these factors and related disease endpoints with an emphasis on exploring solutions-oriented approaches that confer substantial co-benefits for health, environment, equity and economy. Students will learn the vocabulary of related disciplines, the history, values, and some of the tools to effect change. Because they are essential skills to be a change agent, the course will have an emphasis on students' communication and leadership skills.

Over the last 15 years research into BEH has advanced substantially. International, national, state and local BEH efforts are developing rapidly. Awareness of the health implications of the built environment has grown exponentially. BEH concepts are now increasingly embraced at the "top" by various elected and appointed leaders, planning directors and enlightened developers; and increasing at the "bottom" by recently trained individuals entering the profession and by energized communities. The course will focus on strategizing ways to move health into all policies, through applied participatory and communication skillsets.

While the advancement of the field of BEH contains elements that are strongly positive for both current and future health, all successes contain within them dangers and the seeds for failure. A genuine danger is that health issues may become the next mere design fad, and just as new buildings and developments are being "greenwashed", so "healthwashing" may erode substantive improvements to health and the built environment. The future of BEH efforts will succeed or fail depending on the cogency of data and clarity of the messaging by future practitioners of public health, urban planning, architecture, business, law and related fields.

Course objectives

By completing the class assignments, required readings, and through active participation, students will be able to:

- 1. Understand how the built environment impacts health both positively and negatively.
- 2. Have a basic knowledge of the literature and issues regarding the built environment and health.
- 3. Develop vocabulary and skills to represent the significance of public health in policymaking settings, including those pertaining to the built environment.
- 4. Identify resources available to shape the built environment to improve public health.
- 5. Be conversant with built environment remedies that confer co-benefits in terms of health, sustainability, and economy.
- 6. Understand and be able to participate in the built environment decision-making process.

ASPH Competencies

A number of core competencies developed by the Association of Schools of Public Health were identified to enhance the education and training of public health graduates. The following are some of the ways this course equips students with analytical and problem-solving skills to address public health issues while considering relevant core competencies.

Learning Objectives	ASPH Competencies	Course Application
Exploring how the physical environment, specifically the built environment, directly and indirectly impacts health.	B.1. Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents. B.3. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues. B.5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety.	 Through textbook and journal readings, students will become fluent in terminology essential to public health and urban planning fields. Assignments require students to incorporate technical knowledge and vocabulary to demonstrate mastery of basic concepts. Class discussion will provide space for open exploration of BEPH issues.
2. Understanding specific environmental vectors including air, water, chemical toxicants and how they are facilitated or impeded by the built environment.	B.3. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues. B.5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety. B.7. Discuss various risk management	 Through textbook and journal readings, students will become fluent in environmental terminology essential to public health and urban planning fields. Assignments require students to incorporate technical knowledge and vocabulary to demonstrate mastery of basic concepts. Lectures will emphasize environmental challenges.
3. Exploring ways in which social, cultural and economic factors affect human health through the medium of the built environment; specifically to understand the history of health disparities as imbedded in built environment and health decisions.	B.2. Describe genetic, physiologic and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards. B.7. Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity.	 Through reading responses students will explore the complexity and breadth of BEPH issues. Students are expected to apply critical thought to presentations, responses, and discussions. Guided discussions aim to explore full scope of BEPH disparities.
4. Specifically examining federal, state and local laws, codes and regulations that shape the built environment, which in turn shapes	B.3. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.	 Each class will examine legislative framework for leading BEPH topics. Students are expected to incorporate policy analysis into final

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health.	B.5. Specify approaches for assessing,	group presentations and discussion.
	preventing and controlling	
	environmental hazards that pose risks	
	to human health and safety.	
	B.7. Discuss various risk management	
	and risk communication approaches in	
	relation to issues of environmental	
	justice and equity.	
	B.7. Discuss various risk management	To be explored through discussion,
Examining specific strategies,	and risk communication approaches in	final presentations, and reading
remedies and tactics to have	relation to issues of environmental	responses.
health concerns intervene in built	justice and equity.	·
environment decisions	B.8. Develop a testable model of	
	environmental insult.	
6. Developing specific communication skills (verbal, expository and written) that will aid in advancing the public health message of built environment and health.	B.7. Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity. F.7. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.	Students will develop effective communication, presentation, and writing skills through Radio Perspective piece, Final Group Presentation / Report, and weekly reading responses.
7. Understanding the strengths and limitations of the current data and research available in the area of built environment and health.	B.8. Develop a testable model of environmental insult.	 To be explored through lecture, discussion, final presentations, and reading responses.

Class Structure and Participation

The first two lectures will be didactic. Examples of previous presentations and oral perspectives will be given. The remaining eight classes will include a combination of presentations by the instructor, student discussion, guest speakers and the student presentations. In-class dialog is essential as this is an active seminar-style class. Students who are disengaged doing other activities risk zeroing their participation score. All students are expected to read the assigned readings and submit responses and assignments by the deadlines listed below.

Course Grading

1. Participation: 20%

Radio Perspective Piece: 15%
 Weekly Reading Responses: 20%

4. Three or four class quizzes (less than 20 minutes) on prior assigned readings. 20%

5. Final BEH Issue Group Project: 25%

Radio Perspective, Weekly Reading Responses, Take-home Midterm Exam, and Final Group Project

- 1. Radio Perspective: Each student is expected to prepare a two-minute (~117 second) oral "perspective" piece on BEH. The student will submit an edited recording for the entire class to listen to and participate in a constructive feedback dialog. The perspective should work on a personal, emotional (versus intellectual) level, and must not use jargon or overly technical language. Please refrain from using background noises for effect in your recording. Humans have learned from storytelling for thousands of years; this method of communication is an important tool for influencing policy change. For examples of perspectives go to: http://www.kqed.org/radio/programs/perspectives/
 - Free audio editing software is: http://www.nch.com.au/wavepad/index.html;
 - More resources and editing guide posted to www.my.ucla.edu
 - Perspective presentations will take place Weeks 3 and 4. Sign-up will be on Week 2.
- 2. <u>Required Reading and Quizzes:</u> students must complete the required readings. Quizzes at the beginning of at least 3 classes will review the prior 2 weeks of assigned readings. Lowest Quiz Score will be dropped.

- 3. FINAL: BEH Issue Group Project: Students will work in groups of 3-4 students on a project and presentation that investigates an assigned and specific Built Environment issue that will address context, policy, finance, legal, cultural issues. The presentations will require that students scope the context of an issue, the challenges and assets, obstacles and opportunities, and map out a strategy for dealing with these and possible tactics. The best work groups are composed of students with different background and skills. Opinions are inadequate! The presentation to the class must incorporate qualitative and quantitative data and research results into their analyses and strategies for remedy. The project consists of three components:
 - **a.** One to Two-page Project Proposal: A synopsis of the project description, literature review, research questions, and findings will be due by Week 5.
 - b. Meet with Instructor in Weeks 3 or 4 to conceptualize proposal.
 - c. Five-page Project Report / Memo: As a group students will author a Project/Policy memo draft to a selected local official offering an outline of the goals, assets, challenges, and opportunities for a project. For example, a draft memo to the Chancellor of UCLA as to the benefits and opportunities to the Purple Line Subway extension along Wilshire Blvd. The written report will need to be in more depth and more extensively referenced. The group must outline the dangers to and opportunities for public benefit and health, with thoughts about ways to extend the benefits and limit harms related to the project.
 - d. Suggested Projects:
 - i. Specific Comments on the State General Plan, what's new? What's good? How to make it stick?
 - ii. The Los Angeles River: how to improve without damaging communities already present
 - iii. The Los Angeles Mobility Plan: what is it, how can it be altered to better health?
 - iv. What are the next strategies to improving biking at UCLA, then environs, then Los Angeles?
 - v. Homelessness: the most important built environment is shelter. How to address?
 - vi. How to take high end built environment changes, e.g. Delos, and scale them to serve all?
 - vii. What would healthy schools look like? How about college student residences?
 - viii. High Speed Rail in the Central Valley: how it can help and not harm health.
 - ix. Inevitable Carbon Tax. How to optimize expenditures?
 - e. <u>PowerPoint Presentation</u>: The class presentation would briefly outline the project history, obstacles, costs, cultural and other relevant factors, especially those related to health. Each group must present the project, research, and findings. The dates for presentations will be set by Week 4. Each group is given 20 minutes to present. Time will be kept to ensure students adhere to the time limit. Presentations should be creative, convincing, and insightful (e.g. include photos taken by the student on a site visit if possible). *DO NOT just read your PowerPoint. DO NOT present a visual summary that lacks insight into the "frame" of BE issue. Presentations must be specific to a place and time. Presentations such as: "stairs or green roofs, farmers markets or school gardens are good etc..." are self-evident and lacking in original work or insight, and will receive negative feedback from the class and in grading.*

Text

Required:

Andrew L Dannenberg, Howard Frumkin, Richard J Jackson (Eds.). (2011). *Making Healthy Places: Designing and Building for Health, Well-being, and Sustainability*. Washington, DC: Island Press.

Richard J Jackson with Stacy Sinclair (2011). *Designing Healthy Communities*. ISBN: 978-1-1180-3366-1 Jossey-Bass (used copies are on Amazon; one will be put on reserve in the BioMed library.)

<u>Urban Land Institute Building Healthy Places Toolkit</u>: Strategies for Advancing Health in the Buit Environment. (2015) PDF is available for no charge online.

Additional required readings will be posted on the course website.

Strongly Recommended because it focuses stongly on community issues and how positive change is created, rather than just why it is needed:

Four Hour Public Broadcasting Series (2011). Designing Healthy Communities. Media Policy Center http://designinghealthycommunities.org/

Additional recommended readings will be posted in the schedule and on the course website.

Additional Texts and Resources for Information:

- Howard Frumkin, Lawrence Frank, Richard Jackson (2004). *Urban Sprawl and Public Health: Designing, Planning and Building for Healthy Communities*. Island Press
- Russell P Lopez (2012). The Built Environment and Public Health. Jossey-Bass
- Jason Corburn (2009) Toward the Healthy City
- Sonoma County (2010). *Healthy by Design: A Public Health and Land Use Planning Workbook*. http://www.healthysonoma.org/javascript/htmleditor/uploads/Healthy_By_Design_Workbook.pdf
- Active Living Research http://activelivingresearch.org

Radio Perspective Topics Used in the Past and Some Suggestions (Remember, be specific to a time and place—you want to help your listener to care about the issue.)

Built Environment and Health Issues Related to:

- Active Design Guidelines (e.g. NYC)
- Agricultural Decisions and Policy
- Air Pollution
- All Cost Accounting, Life Cycle Analysis
- Automobiles, Speed, Policy
- Bicyclists/Cycling
- Billboards and Signage
- Climate Change (BE as a mitigator and adaptor)
- Disasters and BEH (a specific disaster)
- Drought and BEH
- Emerging Technologies (micro tracking, GIS, etc)
- Environmental Impact Mitigations (green roofs, etc)
- Fires and BEH
- General or Master Plans and BEH
- Gentrification where is it good
- Gentrification where is it bad
- Happiness and BEH
- Health Impact Assessment (specific sites)
- Hospitals and Medical Care Facilities and Health
- Impervious Surfaces
- International Experience (what you have learned from other cities and countries)
- Legislation (recently passed or pending)
- Mental health and BE

- National Defense and BEH
- Noise and BEH
- Parks and BEH
- Parking
- · Pedestrians/Walking
- Physical Activity
- Policing
- Prisons
- Public Places/Spaces
- Rail and Bus Transit
- Resilient Cities
- Rural Health
- Schools and BEH
- Safety and Security of various BEs
- Sleep and BEH
- Stairways, elevators, and BEH
- Sports Facilities and BEH (stadiums, etc)
- Sustainability and BEH
- Tax Policy as BEH Policy
- Transportation (very specific topics)
- Tree Canopy and Health
- Vulnerable Populations (elderly, children, minorities, etc)
- · Water Pollution and BEH

Schedule of Weekly Classes:

	of Weekly Classes:	
Week	Topics	Required Readings and Assignments:
Week 1 Jan. 5	 Introduction to Course: "Life, Liberty, and Happiness" Overview of the course and subject area Built Environment and Health Past and Present Social determinants of health Review syllabus, grading, introductions Sample Radio Perspectives Westwood Village BEH Tour Meet with Andrew Thomas, Executive Director of Westwood Business Improvement District 	Required Readings: (prior to next class) Making Healthy Places: Preface and Introduction (Chapter 1) & Chapter 9 Corburn, J. (2004). Confronting the challenges in reconnecting urban planning and public health. American Journal of Public Health, 94(4): 541-546. Recommended Readings: Younger M, Morrow-Almeida HR, Vindigni SM, Dannenberg AL. The built environment, climate change, and health: opportunities for co-benefits. American Journal of Preventive Medicine. 2008;35(5):517–26. 1. Personal Course Objectives - Due Sunday, Jan. 10 at 5:00pm Please write a one to two page statement about what you hope and expect to learn from EHS 208 on BEH. Submit to forum on CCLE. 2. Submit 1-page radio perspective proposal to CCLE by Thursday, January 14 th at 11:59pm 3. Sign up for radio perspective presentation day on CCLE (Present on Week 3 or Week 4) 4. Join Healthy Places listserv at CDC: http://www.cdc.gov/healthyplaces/listserv.htm 5. Join Active Living Research listserv: http://activelivingresearch.org/.
Week 2	1. Lecture & Discussion:	Required Readings:
Jan. 12	Environmental Impacts on Air, Water, Vegetation, Biodiversity. Some Discussion of Climate Change and Health	Making Healthy Places: Chapters 4, 6 & 16
	 Air Quality Water Quality Heat Island Effect Tree Canopies Resource use and depletion Biodiversity Climate change trends and BE Natural & Man-Made Disasters: How BE can mitigate or aggravate Community organizing and physical resilience 2. Example of successful group project	Scan this, be prepared to discuss generally: http://www.opr.ca.gov/docs/DRAFT General Plan Guidelines for public comment 2015.pdf KPCC story of AB 32 implementation and fuel fees. American Academy of Pediatrics Committee on Environmental Health. (2009). The built environment: Designing communities to promote physical activity in children. Pediatrics. 123(6):1591-1598.

	presentations by past students.	Look over these websites:
	3. "Meet & Greet": Select presentation partners and potential topic	Local Government Commission It is a very good group. Their next national meeting is in Portland Feb 11-13, 2016
		American Lung Association is an important leader on respiratory health. National State of the Air
		Also check out: <u>State of the Air Report for California.</u>
		Recommended Readings:
		Public Health Effects of Inadequately Managed Stormwater Runoff. American Journal of Public Health. 93(9): 1527-1533.
		1. Complete Radio Perspective Recording. Round 1 to submit to CCLE by Sunday, January 17 th at 5:00PM.
Week 3 Jan. 19	1. <u>Lecture & Discussion: Land Use and Health</u>	Required Readings:
Jan. 19	 Introduction to Land Use Planning <u>Draft General Plan for California</u> 	Making Healthy Places: Chapters 10 & 17
	 Introduction to General Plans / Planning Frameworks 	Recommended Readings:
	Physical Planning: Where do things go?Urban Design	Building Health into Community Design: One Foundation's Effort
	 Urban River Parkways Obesity and Chronic Diseases	Urban River Parkways: UCLA FSPH Jackson RJ, Watson TW, et
	Active Living, Fitness vs. Obesity	al.
	Importance of Healthy Retail	
	Comments on the Draft General Plan	<u>Mapbox</u> and <u>runkeeper</u> did this linked world map on running and biking by smartphone users worldwide.
	2. <u>Student Perspectives</u>	Complete Radio Perspective Recording. Round 2 to submit to CCLE by Sunday, January 24th at 5:00pm
		2. Final Project groups: Try via email to set an appointment during Weeks 3 to 5 for your group's in-person meeting with Dr. Jackson.
Week 4	1. Lecture & Discussion:	Required Readings for next class
Jan. 26	Housing Policy as Health Policy	Making Healthy Places: Chapters 11, 14, 18, & 20
	Housing as a health environment	making reality ridees. Chapters 11, 14, 16, & 26
	Tax policy, financing affordable housing	Examine ChangeLab Solutions Planning Website
	Federal Reserve + bondsSuper Storm Sandy	Recommended Readings:
	Gentrification	
	Neighborhood design (grids, access,	McMillan, T.E. (2005) Urban form and a child's trip to school: the current literature and a model for future research. Journal
	walkability) • Safety & perception issues, crime	of Planning Literature. 19(4):440-456
	• Legal Issues	Steventon C.F. Hubernith D. and VWar- W. (2002) D
		Staunton, C.E., Hubsmith, D., and Kallins, W. (2003). Promoting Safe Walking and Biking to School: The Marin County Success
	2. <u>Student Perspectives</u>	Story. American Journal of Public Health. 93(9): 1431-1434.

Week 5 Feb. 2

1. Lecture & Discussion:

Transportation and Health

- Injuries as leading cause of years of life lost
- Traffic, trauma and health
- Blood pressure, road rage, stress
- Pedestrians: sidewalk/intersection design, walkable communities
- Public transit, parking
- Vehicles: SUVs, emergency vehicles
- Comparative risks of transportation
- Look at AB 32 and "Gas Tax"

2. Guest Speaker

Renee Fortier and Dave Karwaski, UCLA **Transportation**

Required Readings:

Making Healthy Places: Chapters 5 & 7

You already scanned this draft pan for California - be prepared to discuss in more depth:

http://www.opr.ca.gov/docs/DRAFT General Plan Guidelines for public comment 2015.pdf

US DoT and CDC Transportation and Health Tool:

http://www.transportation.gov/transportation-health-tool

Dangerous by Design 2014. Transportation for America. Victoria Transport Policy Institute Website

A New Transport Safety Narrative. Journal of Public Transportation, Vol. 17, No. 4, 2014

CalTrans Strategic Management Plan 2015-2020

Recommended Readings:

Putting Transit to Work in Main Street America: How Smaller Cities and Rural Places Are Using Transit and Mobility Investments to Strengthen Their Economies and Communities

Week 6

1. Lecture & Discussion: Feb. 9

Schools, Children, and Vulnerable Populations

- Child development, areas of exploration
- Safe Routes to School
- Funding, Budgets, and Legislation
- Persons with Disabilities
- School siting & design
- Physical Education, Playgrounds, Recess
- Cafeterias, food, vending machines
- Edible School Yard

2. Guest Speaker:

Julie Leung, MURP, MPH, Prevention Institute

Required Readings: (for next class)

Making Healthy Places:

Chapters 3 (Food Environments) & 15 (Contact with Nature)

Edible School Yard

HUD information on Persons with Disabilities

Los Angeles County PLACE Program

Policies for Livable Active Communities and Environments

Check out Parkscore at Trust for Public Land

Week 7 Feb. 16

1. Lecture & Discussion:

Parks, Greenspaces, Food Systems, and Urban Ag.

- Urban parks, recreational spaces
- Rural and agriculture Issues
- Farmers markets
- Community Agriculture
- Food Safety
- Parkscore

2. Guest Speaker:

Tyler Watson, PhD student, UCLA FSPH

3. Lecture & Discussion:

PART 1: Architecture, Design, & Health

- More on Climate Change
- Designing for Health
- Rebuild by Design
- What is 'sustainability': Social, Economic & Environmental?
- Energy efficiency
- USGBC and LEED, Smart Growth, New Urbanism, AIA

Required Readings:

Making Healthy Places: Chapters 8, 12, 13, and 19

Rebuild by Design. Hurricane Sandy Rebuilding Task Force.

AIA Local Leaders: Healthier Communities through Design

ULI Ten Principles to Build Healthy Places

ULI Business Case for Building for Health 2014

<u>US Green Building Council</u> <u>Northern California Chapter Building</u> Health Initiative

Recommended Readings:

Cervero, R., et al. (2007). Models for Change: Lessons for Creating Active Living Communities. Planning Magazine, A1-A12.

Eitler, Thomas W., Edward T. McMahon, and Theodore C. Thoerig. Ten Principles for Building Healthy Places. Washington, D.C.: Urban Land Institute, 2013.

Semenza, J.C. (2003). The intersection of urban planning, art, and public health: the Sunnyside Piazza. American Journal of Public Health, 93(9): 1439-1441.

1. Round 1 of Group Presentations

Week 8 Feb. 23

1. Lecture & Discussion:

PART 2: <u>Architecture</u>, <u>Design</u>, <u>& Health</u>, <u>Hospitals</u>

- More on Climate Change
- Designing for Health
- Rebuild by Design
- What is 'sustainability': Social, Economic & Environmental?
- Energy efficiency
- USGBC and LEED, Smart Growth, New Urbanism, AIA

2. Guest Speaker:

Jeffrey Averill, UCLA Campus Architect

3. Student Presentations

Required Readings:

Making Healthy Places: Chapters 21, 22, & 24

1. Round 2 of Group Presentations

Week 9	1. Student Presentations	Required Readings: - review
Mar. 1		
	2. Lecture & Discussion:	Examine the Congress for New Urbanism Website
	PART 1: Understanding 'The System' and	Evamina the Ctreatfilms website
	Building Social Capital	Examine the <u>Streetfilms</u> website.
	 Understanding the legal and political framework How do we navigate? 	Examine the Detroit Future City Executive Summary
	 21st century environmentalism 	Recommended Readings:
	 Defining 'equity': Social, Economic & 	
	Environmental?	Dannenberg, A.L., et al. (2008). Use of Health Impact
	 How to build social capital at global and local scales? 	Assessment in the U.S. 27 Case Studies, 1999–2007. American
	 Thinking about Detroit as a 20th Century 	Journal of Preventive Medicine. 34(3):241–25
	casualty and its rebuilding	
	Creating change	
	 How to build trust and leadership? 	
	'	
	3. Guest Speaker:	
	Nicholas Linesch, PLACE Program	
	LA County Dept. of Public Health	
Week	1. Lecture & Discussion:	
10 Mar. 8	PART 2: Understanding 'The System' and Building Social Capital	1. Complete Course Evaluations
IVIAI. O	Bullullig Social Capital	
	2. Lecture & Discussion:	
	Threat of Success; "Health Washing" and Power	
	Future of BEPH	
	What is success globally? Locally?	
	Who holds 'power'? What is it?	
	How does 'power' manifest?	
	 Defining and seeking justice 	
	How to create a culture shift?	
	 21st century environmentalism 	