

# Architectural Epidemiology: architecture as a mechanism for designing a healthier, more sustainable world

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## INTRODUCTION

Land use decisions can both contribute to and reduce the prevalence of two of the most urgent global public health challenges:

### non-communicable diseases and the health effects of climate change.

- 1/4 of the global burden of disease can be traced back to environmental exposures.<sup>1</sup>
- 20% of lower respiratory infections in developed countries have been attributed to exposure to poor outdoor air pollution.<sup>1</sup>
- The World Health Organization estimates that climate change exacerbates the negative health effects of extreme weather events, food scarcity, and infectious disease to the tune of 150,000 excess deaths per year globally.<sup>2</sup>

1. A Prüss-Ustün, C Corvalán. *Preventing Disease Through Healthy Environments: Towards an estimate of the environmental burden of disease*. WHO: Geneva, 2006. 16pp.
2. World Health Organization/United Nations Environment Program. *Health Environment: Managing the Linkages for Sustainable Development, a Toolkit for Decision-makers, synthesis report*. WHO: Geneva, 2008. 88pp.

## METHODS

**Research Question:** How many academic courses in architecture, planning or public health schools in the U.S. and internationally currently teach all of the elements of Architectural Epidemiology?

### Methods:

- I. Review abstracts and syllabi for courses at the universities listed on the Georgia Tech Built Environment and Public Health Clearinghouse website as offering coursework on architecture, planning, or public health: <http://healthyplaces.gatech.edu/>
- II. Review abstracts and syllabi for public health courses at the universities listed in the Global Consortium on Climate and Health Education at Columbia University: <https://www.mailman.columbia.edu/research/global-consortium-climate-and-health-education>
- III. Add courses that appear in relevant Google searches but were not captured by the GA Tech or Columbia clearinghouses.

## CONCLUSIONS

**Additional training is needed in built environment disciplines (e.g., Architecture, Landscape Architecture, Engineering, Construction, and Real Estate Development, among others) providing tools to evaluate ways in which exposure to the built environment can lead to positive or negative health outcomes (or both).**

**Architectural epidemiology can fill that gap.**

When policy solutions are tailored to make changes in the built environment benefitting health, **scale matters.**

- Community planners develop visions and policy frameworks targeting improvements in climate change and/or chronic disease metrics at the community or regional scale.<sup>3</sup>
- These visions are implemented at the site level through architectural design.<sup>4</sup>
- However, design teams often prioritize the immediate programmatic and aesthetic needs of the client (usually a private developer) rather than the long-term needs of the surrounding neighborhood or community.<sup>4</sup>

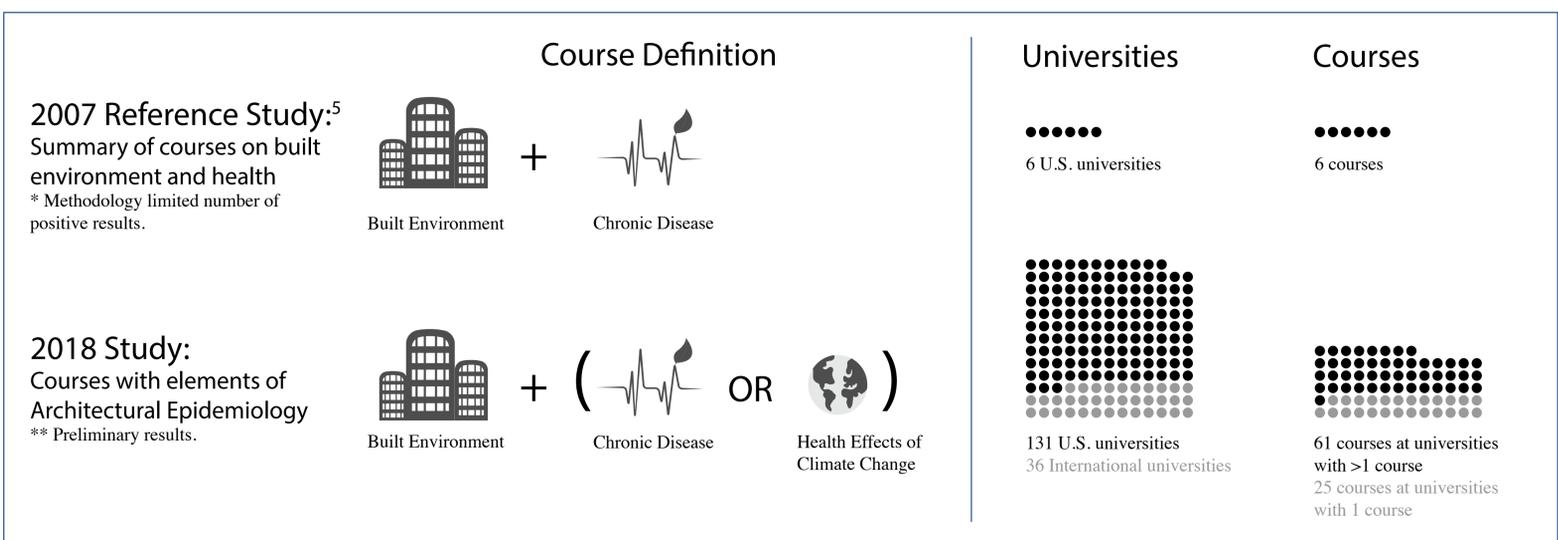
3. H Bulkeley and M M Betsill. *Cities and Climate Change: Urban sustainability and global environmental governance*. Routledge: New York, 2003. 237 pp.
4. L Anselin, J L Nasar, E Talen. Where Do Planners Belong? Assessing the Relationship between Planning and Design in American Universities. *Journal of Planning Education and Research*. 2011. 31(2):196-207.

**Architectural Epidemiology** addresses the currently unmet needs of professionals in the real estate sector who:

- have been educated in the ways in which exposure to the built environment can lead to positive or negative health outcomes (or both);
- but, require additional training on the important role that exposure pathways (i.e., the interaction between specific populations and specific locations) play in determining the type and severity of health outcomes;
- and, are looking for tools and methodologies that could both inform the design process and allow for post-occupancy tracking of user behaviour and, in some cases, population health outcomes.

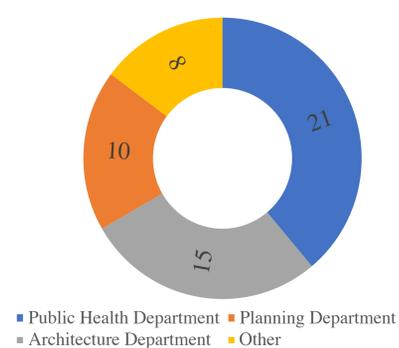
*Previous Related Research by these authors:*  
*A Houghton and C Castillo-Salgado. Health Co-Benefits of Green Building Design Strategies and Community Resilience to Urban Flooding: A Systematic Review of the Evidence. International Journal of Environmental Research and Public Health. 2017. 14(12):1519.*

## RESULTS

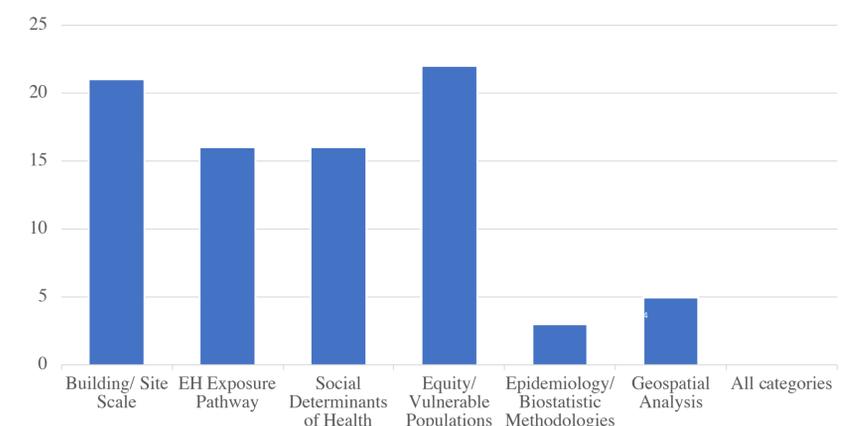


### Preliminary Results: Courses with Elements of Architectural Epidemiology

Number of Courses by Department



Number of Courses by Elements of Architectural Epidemiology



5. N D Botchwey, et al. A Model Curriculum for a Course on the Built Environment and Public Health. *American Journal of Preventive Medicine*. 2009. 36(2S):S63-S71.