USC Dornsife
Dana and David Dornsife
College of Letters, Arts and Sciences
Spatial Sciences Institute

SSCI 600: The Geography of Life and Death

Units: 4

Term—Day—Time: Fall, 2017, Mondays and/or Wednesdays, 9:00-11:50 a.m.

Location: AHF 145D

Instructor: John Wilson, Ph.D.
Office: AHF B55F
Office Hours: Tuesdays, 9:00-9:50 a.m. and Fridays, 2:00-2:50 p.m. or by appointment
Contact Info: jpwilson@usc.edu, 213-740-1908 (office)

Library Help: Sherry Mosley
Office: VKC B40C
Office Hours: By appointment
Contact Info: smosley@usc.edu, 213-740-8810 (office)

Course Description
This course explores the various ways place (and space) have been invoked and used to better understand human health outcomes and social and environmental determinants in the past few decades. The course will examine the current approaches, methodological issues, and enduring challenges in spatial epidemiology, quantitative approaches used for disease mapping and modeling, the various ways in which individual-level exposures can be resolved with place-based information, how place-based human behaviors might mediate these health-related exposures, and the kinds of data and tools that are now available for conducting research synthesizing population, health, and place. The current state-of-the-art will be will be introduced with an assortment of weekly readings and discussions and a series of individual projects will allow class participants to develop their own proposals for more detailed research.

Learning Objectives
On completion of this course, students will be able to:

- Describe the various ways place (and space) have been invoked to better understand human health outcomes as well as social and environmental determinants.
- Describe the settings, populations, and issues that are often skipped, ignored, or overlooked in the empirical literature on population, health, and place.
- Discuss how place affects different groups of people in different ways and how place can be used to accomplish meaningful social change.
- Discuss the ways in which research to date has linked environment, genetics, and behavior to inform our understanding of human health outcomes.
- Discuss how genomic and proteomic knowledge and databases might support individual- and population-level geographic research on human genetics and health outcomes.
- Discuss the various ways in which we can resolve individual-level exposures and place-based information.
- Discuss some of the ways in which place-based human behaviors mediate health-related exposures and whether or not simulation and gaming approaches can yield lasting salubrious health behaviors.
- Discuss the current approaches, methodological issues, and enduring challenges in spatial epidemiology.
- Describe the quantitative approaches that have been used for disease mapping and modeling during the past few decades.
- Describe the kinds of data and tools that are currently available for conducting research synthesizing population, health, and place.

Prerequisite(s): None
Co-Requisite (s): None
Concurrent Enrollment: None
Recommended Preparation: Students must be enrolled in an existing USC Ph.D. program

Course Notes
The course will be taught as a seminar and class meetings will be used to discuss the assigned readings and any questions and related topics that arise from the readings. The learning and

teaching strategies are student-centered. They aim to encourage a deep-learning approach by using reflection and self-evaluation. The individual class sessions will be organized around a series of class readings (and occasional guest presentation) that are designed to provide the essential background and framework for study. Students will be required to reflect on their learning through in-class discussions and weekly briefs.

Required Readings and Supplementary Materials

The weekly readings will be accessed via the USC Library's electronic collections and/or provided by the instructor via Blackboard.

Description and Assessment of Assignments

Students must prepare a seminar, a research paper and presentation, and participate in class discussion on a regular basis.

Class Participation (7%): A class participation grade will be assigned based upon how actively students engage in the course. Students will be required to read all material outlined for each week of the course, and be prepared to lead and participate in group discussions about the readings in class. Failure to attend, or not be adequately prepared to discuss the readings will lead to the assignment of a lower grade for that week.

Weekly Briefs (39%): Each week students will use the Blackboard Discussion Forum to provide a critique of an article of their own choosing. These electronic commentaries will be shared among the class, and graded based on the overall quality of the contribution. To help simulate discussion, each student will comment on at least one other student's critique each week.

Class Seminar (15%): Each student will conduct a seminar on a topic determined in consultation with the instructor. The student leading the seminar will prepare a one-page summary to be distributed in advance of the class itself. The topic may focus on a specific technique or application that spans the intersection of population, health and place and has not otherwise covered in the course.

Final Project (39%): In the second half of the course, each student will work on a project determined in consultation with the instructor. These projects will focus on a specific health challenge or problem and the final report (24%) and class presentation (15%) will summarize the current understanding of the problem and the range of solutions that have been attempted thus far, as reported in the published literature.

.

Grading Breakdown

Assignment	No. of Assignments	% of Grade
Class Participation	14	7
Class Presentation	1	15
Final Projects	1	39
Weekly Briefs	13	39
TOTAL	**29**	**100**

Assignment Submission Policy

Assignments will be submitted for grading via Blackboard using the due dates specified in the Course Schedule below.

Additional Policies

Students are expected to attend and participate in every class session and to complete and upload all assignments before the deadlines noted in the Course Schedule below. Late work will be assessed a penalty of 10% per day and zero grades will be assigned for work more than one week late.

Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings and Homework	Deliverables/Due Dates
Week 1 8/21	**Introduction to Class** Brief introductions coupled with a discussion of class goals, projects, and reading assignments.		No deliverables.
Week 2 8/28	**Place Foundations** The first part of a three-part discussion exploring the various ways in which place has been conceptualized and used to better understand human health outcomes and determinants. This week's readings focus on the meaning of place in people's everyday lives.	**Kemp (2011).** Place, history, memory: Thinking time within place. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the Boundaries of Place.* Berlin, Springer: 3-19. **Matthews (2011).** Spatial polygamy and the heterogeneity of place: Studying people and place via egocentric methods. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the Boundaries of Place.* Berlin, Springer: 35-55. **Gehlert et al. (2011).** Placing biology in breast cancer disparities research. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the Boundaries of Place.* Berlin, Springer: 57-72. **Leung & Takeuchi (2011).** Race, place, and health. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the Boundaries of Place.* Berlin, Springer: 73-88. **Voss (2007).** Demography as a spatial social science. *Population Research and Policy Review* 26: 457-476.	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 8/24. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 8/28.
Week 3 8/30	**Place and Health** The second of a three-part discussion exploring the various ways in which place has been conceptualized and used to better understand human	**Meade (2012).** The geography of life and death: Deeper, broader, and much more complex. *Annals of the Association of American Geographers* 102: 1219-1227. **Mennis et al. (2011)** The effect of neighborhood characteristics and spatial spillover on urban juvenile	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 8/31. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Wednesday, 9/6.

	health outcomes and determinants, with a special focus on Stamp's classic 1964 book.	delinquency and recidivism. *The Professional Geographer* 63: 174-192. **Stamp (1964).** *The Geography of Life and Death.* Ithaca, NY, Cornell University Press.	
Week 4 9/18	**Population, Health, and Place** The third and final part of a three-part discussion exploring the various ways in which place might be conceptualized and used to better understand human health outcomes and determinants in the next few decades. This week's readings, in particular, explore some of the ways in which modern geospatial technologies can be used to characterize the key relationships linking people, health, and place.	**Goodchild (2011).** Formalizing place in geographic information systems. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the Boundaries of Place.* Berlin, Springer: 21-33. **Mennis & Mason (2011).** People, places, and adolescent substance use: Integrating activity space and social network data for analyzing health behavior. *Annals of the Association of American Geographers* 101: 272-291. **Mennis & Mason (2012).** Social and geographic contexts of adolescent substance use: the moderating effects of age and gender. *Social Networks* 34: 150-157. **Mitchell et al. (2000).** *Inequalities in Life and Death: What If Britain Were More Equal?* Bristol, UK, The Policy Press. **National Research Council (2011).** How does where people live affect their health? In *Understanding the Changing Planet: Strategic Directions for the Geographical Sciences.* Washington, D.C., National Academy of Sciences: 67-82. **Wu et al.** (2016). Land use mix and five-year mortality in later life: Results from the Cognitive Function and Ageing Study. *Health & Place* 38: 54-60.	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 9/7. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 9/11.
Week 5 9/20	**New GIS Data Sources** A discussion of some of the new data sources and the types of processing that must be performed to yield useful information and/or to use them with other kinds of digital data in spatial models.	**Buzzelli et al. (2006).** A GIS spatiotemporal model of ambient air pollution exposure. *Epidemiology* 17: S112-118. **Goodchild (2007).** Citizens as voluntary sensors: Spatial data infrastructure in the World of Web 2.0. *International Journal of Spatial Data Infrastructures Research* 2: 24-32. **Johnson & Barton (2004).** Where in the world are my field plots? Using GPS effectively in environmental field	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 9/14. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 9/18.

		studies. *Frontiers in Ecology & the Environment* 2: 475-482. **Mavoa et al. (2011).** Linking GPS and travel diary data using sequence alignment in a study of children's independent mobility. *International Journal of Health Geographics* 10: 64. **Moskowitz & Young (2006).** Ecological momentary assessment: what it is and why it is a method of the future in clinical psychopharmacology. *Journal of Psychiatry & Neuroscience* 31: 13-20. *Environmental Health* 10: 12. **Zielstra & Hochmair (2011a).** A comparative study of pedestrian accessibility to transit stations using free and proprietary network data. *Transportation Research Record* 2117: 145-152. **Zielstra & Hochmair (2011b).** Digital street data: Free versus proprietary. *GIM International* 25: 29-33.	
Week 6 9/25	**Justice in Places** A discussion of the ways in which place affects different groups of people in different ways and especially of how place can be used to accomplish meaningful social change.	**Pastor et al. (2004).** Waiting to inhale: The demographics of toxic air releases in 21st century California. *Social Science Quarterly* 85: 420-440. **Peña (2011).** Structural violence, historical trauma, and public health: The environmental justice critique of contemporary risk science and practice. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the Boundaries of Place.* Berlin, Springer: 203-218. **Sasson et al. (2014)** The HANDDS program: A systematic approach for addressing disparities in the provision of bystander cardiopulmonary resuscitation. *Academic Emergency Medicine* 21: 1042-1049. **Spencer et al. (2011).** Environmental justice and the well-being of poor children of color. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the Boundaries of Place.* Berlin, Springer: 219-233. **Stack (2011).** Attachment and dislocation: African-American journeys in the USA. In Burton et al. (eds.) *Communities, Neighborhoods and Health: Expanding the*	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 9/21. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 9/25.

		Boundaries of Place. Berlin, Springer: 237-247.	
Week 7 10/2	**Genetic GIS** A discussion of the research to date that has linked environment, genetics, and behavior to inform our understanding of human health outcomes.	**Sloan et al. (2009).** Ecogeographic genetic epidemiology. *Genetic Epidemiology* 33: 281-288. **Biek & Real (2010).** The landscape genetics of infectious disease emergence and spread. *Molecular Ecology* 19: 3515-3531. **Janies et al. (2011).** The Supramap project: Linking pathogen genomes with geography to fight emergent infectious diseases. *Cladistics* 27: 61-68. **Mantooth & Riddle (2011).** Molecular biogeography: The intersection between geographic and molecular variation. *Geography Compass* 5: 1-20. **Perry et al. (2010).** *Genetic Landscapes GIS Toolbox: Tools to create genetic divergence and diversity landscapes in ArcGIS.* Sacramento, CA: U.S. Geological Survey Western Ecological Research Center, **Storfer et al. (2007).** Putting the 'landscape' in landscape genetics. *Heredity* 98: 128-142.	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 9/28. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 10/2.
Week 8 10/4	**Genetics** A discussion exploring how genomic and proteomic knowledge and databases might support individual- and population-level geographic research on human genetics and health outcomes.	**Kolf (2012).** Scientific team sequences 1,092 human genomes to determine standard range of human genetic variation. *E! Science News* (feature article). **Mefford (2012).** Diagnostic exome sequencing: Are we there yet? *New England Journal of Medicine* 367: 1951-1953. **Meissner (2012).** What can epigenomics do for you? *Genome Biology* 13(10): 420. **The 1,000 Genomes Project Consortium (2012).** An integrated map of genetic variation from 1,092 human genomes. *Nature* 491: 56-65.	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 10/5. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 10/9.
Week 9 10/16	**Environment** A discussion exploring some of the ways we can resolve individual-level exposures and place-based information.	**Balshaw & Kwok (2012).** Innovative methods for improving measures of the personal environment. *American Journal of Preventive Medicine* 42: 558-559. **Balshaw et al. (2005).** Research strategies for safety evaluation of nanomaterials, Part III: Nanoscale	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 10/12. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 10/16.

		technologies for assessing risk and improving public health. *Technological Sciences* 88: 298-306. **Meliker & Jacquez (2007).** Space-time clustering of case-control data with residential histories: Insights into empirical induction periods, age-specific susceptibility, and calendar-year-specific effects. *Stochastic Environmental Research & Risk Assessment* 21: 625-663. **Qi & Du (2013).** Tracking and visualization of space-time activities for a micro-flu transmission study. *International Journal of Heath Geographics* 12(1): 6.	
Week 10 10/18	**Behavior** A discussion of some of the ways in which place-based human behaviors mediate health-related exposures and whether or not simulation and gaming approaches can yield lasting salubrious health behaviors.	**Benarous et al. (2016).** Ecological momentary assessment and smartphone application intervention in adolescents with substance use and comorbid severe psychiatric disorders: Study protocol. *Frontiers in Psychiatry* 7: 157. **Cattell et al. (2008).** Mingling, observing, and lingering: Everyday public spaces and their implications for well-being and social relations. *Health & Place* 14: 544-561. **Clary et al. (2017).** Between exposure, access and use: Reconsidering foodscape influences on dietary behaviors. *Health & Place 44:* 1-7. **Daniel et al. (2008).** Framing the biosocial pathways underlying associations between place and cardio-metabolic disease. *Health &Place* 14: 117-132. **Mennis et al. (2016)** The role of tobacco outlet density in a smoking cessation intervention for urban youth. *Health & Place* 38: 39-47.	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 10/19. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 10/23.
Week 11 10/30	**Spatial Epidemiology** A discussion of the current approaches used in spatial epidemiology and some of the outstanding methodological issues.	**Aimone et al. (2013).** A systematic review of the application and utility of geographic information systems for exploring disease-disease relationships in pediatric global health research: The case of anaemia and malaria. *International Journal of Health Geographics* 12(1): 1. **Auchincloss et al. (2012).** A review of spatial methods in epidemiology,	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 10/26. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 10/30.

		2000-2010. *Annual Review of Public Health* 33: 107-122. **Beale et al. (2008)** Methodological issues and approaches to spatial epidemiology. *Environmental Health Perspectives* 116: 1105-1110 **Elliott & Wartenberg (2004).** Spatial epidemiology: Current approaches and future challenges. *Environmental Health Perspectives* 112: 998-1006. **Ostfeld et al. (2005).** Spatial epidemiology: An emerging (or re-emerging) discipline. *Trends in Ecology & Evolution* 20: 328-336. **Vazquez-Prokopec et al. (2012).** Spatial heterogeneity and risk maps of community infestation by *Triatoma infestans* in rural northwestern Argentina. *PLoS: Neglected Tropical Diseases* 6(8): e1788.	
Week 12 11/1	**Methods & Modeling** A discussion of the qualitative and quantitative approaches used for disease mapping and modeling during the past few decades.	**Goovaerts (2009).** Medical geography: A promising field of application of geostatistics. *Mathematical Geology* 41: 243-264. **Kitron (2000).** Risk Maps: Transmission and burden of vector-borne diseases. *Parasitology Today* 16: 324-325. **Lawson (2012).** Bayesian point event modeling in spatial and environmental epidemiology. *Statistical Methods in Medical Research* 21: 509-529. **Mennis et al. (2013).** Qualitative GIS and the visualization of narrative activity space data. *International Journal of Geographical Information Science* 27: 267-291. **Stevens & Pfeiffer (2011).** Spatial modeling of disease using data- and knowledge-driven approaches. *Spatial & Spatio-temporal Epidemiology* 2: 125-133. **Waller & Carlin (2010).** Disease mapping. In Gelfand et al. (eds.) *Handbook of Spatial Statistics.* Boca Raton, FL, Chapman and Hall/CRC Press: 217-243.	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 11/2. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 11/6.
Week 13 11/13	**Data & Resources** The first part of a two-part discussion exploring the data and	**Janies et al. (2012).** Analysis and visualization of H7 influenza using genomic, evolutionary, and	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 11/9.

	tools that are currently available to characterize the linkages between population, health, and place.	geographic information in a modular web service. *Cladistics* 28: 483-488. **Jones et al. (2017).** A step-by-step approach to improve data quality when using commercial business lists to characterize retail food environments. *BMC Research Notes* 10: 35. **Linard & Tatem (2012).** Large-scale spatial population databases in infectious disease research. *International Journal of Health Geographics* 11(1): 7. **Meliker & Sloan C (2012).** Spatio-temporal epidemiology: Principles and opportunities. *Spatial & Spatio-temporal Epidemiology* 2: 1-9. **Tatem et al. (2012).** Mapping populations at risk: Improving spatial demographic data for infectious disease modeling and metric derivation. *Population Health Metrics* 10(1): 8.	Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 11/13.
Week 14 11/15	**Data & Resources (II)** The second and final part of a two-part discussion exploring the data and tools that are currently available to characterize the linkages between population, health, and place.	**Bian (2013).** Approaches to modeling dispersion of communicable diseases: A review. *Transactions in GIS* 17: 1-17. **Mennis et al. (2015).** Increasing the accuracy of urban population analysis with dasymetric mapping. *Cityscape* 17: 115-126. **Rezaein et al. (2007).** Geographical epidemiology, spatial analysis, and geographical information systems. *Journal of Epidemiology & Community Health* 61: 98-102. **Richardson et al. (2011).** *Establishing an NIH-Wide Geographical Infrastructure for Medical Research: Opportunities, Challenges, and Next Steps.* Washington, D.C., Association of American Geographers. **USAID (2012).** Measure DHS: Demographic and Health Surveys. WWW document, http://www.measuredhs.com/.	Submit briefs on Blackboard no later than 5:00 p.m. on Thursday, 11/16. Comment on at least one other brief on Blackboard no later than 9:00 a.m. on Monday, 11/20.
Week 15 11/29	**Final Presentations** Students will present their final projects, summarizing the insights gathered from their research of the		Students present their projects and answer questions from audience. Allow 30 minutes per student assuming a maximum of five or six in this class.

	specific problem context.		
FINAL 12/1			Final research papers to be uploaded to Blackboard no later than 5:00 p.m. on Friday, 12/1.

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, "Behavior Violating University Standards" https://policy.usc.edu/scampus-part-b/. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Support Systems

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.
https://engemannshc.usc.edu/counseling/.

National Suicide Prevention Lifeline - 1-800-273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. http://www.suicidepreventionlifeline.org.

Relationship & Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. https://engemannshc.usc.edu/rsvp/.

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: http://sarc.usc.edu/.

Office of Equity and Diversity (OED)/Title IX compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class.
https://equity.usc.edu/.

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. https://studentaffairs.usc.edu/bias-assessment-response-support/.

Student Support & Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. https://studentaffairs.usc.edu/ssa/.

Diversity at USC – https://diversity.usc.edu/
Tabs for Events, Programs and Training, Task Force (including representatives for each school), Chronology, Participate, Resources for Students.

Resources for Online Students
The Course Blackboard page and the GIST Community Blackboard page have many resources available for distance students enrolled in our graduate programs. In addition, all registered students can access electronic library resources through the link https://libraries.usc.edu/. Also, the USC Libraries have many important resources available for distance students through the link: https://libraries.usc.edu/faculty-students/distance-learners. This includes instructional videos, remote access to university resources, and other key contact information for distance students.