

22nd SCHOOL OF BIOMETRICS



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Dr Lawson is Professor of Biostatistics in the Division of Biostatistics and Bioinformatics, Department of Public Health Sciences, College of Medicine, MUSC and is an MUSC Distinguished Professor and ASA Fellow. He was previously a Professor of Biostatistics in the Department of Epidemiology & Biostatistics, University of South Carolina, SC. His PhD is from the University of St. Andrews, UK and was in Spatial Statistics.

He has over 160 journal papers on the subject of spatial epidemiology, spatial statistics and related areas. In addition to a number of book chapters, he is the author of 10 books in areas related to spatial epidemiology and health surveillance. The most recent of these is Lawson, A.B. et al (eds) (2016) *Handbook of Spatial Epidemiology*. CRC Press, New York, and in 2018 a 3rd edition of *Bayesian Disease Mapping; hierarchical modeling in spatial epidemiology* CRC Press. As well as associate editorships on a variety of journals, he is an advisor in disease mapping and risk assessment for the World Health Organization (WHO). He is founding editor of the Elsevier journal *Spatial and Spatiotemporal Epidemiology*. Dr Lawson has delivered many short courses in different locations over the last 15 years on Bayesian Disease Mapping with OpenBUGS and INLA, Spatial Epidemiology and disease Clustering.

Web site: <http://academicdepartments.musc.edu/phs/research/lawson/>

Topic:

Spatial Analysis for Biomedical and Related Fields

Statistical and Epidemiological Issues in Small Area Health Analysis: disease mapping, clustering, and surveillance

Abstract:

The spatial analysis of health outcome data has seen a major expansion in the last few years. Many studies now routinely incorporate geo-referencing to allow for contextual effects. Spatial contextual effects could take a variety of forms: 'neighborhood' effects, census region or postal district effects or more directly environmental effects such as measured air pollution, radiation or water quality. In this talk I will discuss the basic statistical and epidemiological issues affecting small area analysis of health outcomes. A major focus will be on cancer and disease mapping and cluster detection. A secondary focus will be on online health surveillance. I will look at case event and count data and discuss modeling these different types of outcome. Focus will be on lip and respiratory cancer as well as surveillance of respiratory infections.