GPH598 Special Topics: Urban Heat Islands

(Fall 2016: ASU Class # 89504)

MEETINGS:
Wednesdays from 12:55 PM to 4:10 PM
Tempe, ED 200. Fall, 2016

INSTRUCTOR:
Professor David Sailor conducts research at the intersection of urban climate and the built environment. He is a Professor in the School of Geographical Sciences and Urban Planning and a Senior Sustainability Scientist with GIOS. He also holds an affiliation with the School of Sustainable Engineering and the Built Environment. Dr. Sailor brings a unique interdisciplinary perspective to this course that should prove beneficial to students from a range of academic backgrounds.

COURSE OVERVIEW:
An Urban Heat Island (UHI) is an urbanized area that is warmer than its unbuilt surroundings due to human activities. This course will use the UHI phenomenon as motivation for a comprehensive study of the urban climate system and its relationship with the built infrastructure of cities. Topics will include:

- the urban energy balance and urban atmospheric processes
- materials in the built environment
- waste heat from energy consumption in cities
- heat island causes, consequences, and mitigation strategies/technologies

This course is intended for graduate students in Geographical Sciences, Urban Planning, Design, Engineering, Sustainability and related disciplines interested in learning about the urban climate system.

LEARNING OBJECTIVES:
Students successfully completing this class will be able to…

- define and describe urban climate processes including urban effects on winds, turbulence, radiation exchange, and urban energy balances
- articulate differences between urban and unbuilt areas that are responsible for differences in local climate
- discuss the concept of urban heat islands with respect to spatial structure (horizontal and vertical), temporal characteristics (diurnal to seasonal), and weather parameters beyond air temperature
- understand the various end-point effects of urban heat islands, such as human thermal comfort, heat-related mortality, energy use, water use, and air pollution
- critique the likely effects, including co-benefits and unintentional adverse consequences, of various urban heat mitigation strategies

Contact Professor Sailor for more information:
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