

SIO 87 THE NEED FOR SHADE

Spring 2021

Instructor: Nick Lutsko	Time: Th 11:00am – 12:00pm
Email: nlutsko@ucsd.edu	Place: (Remote)



Is shade an amenity or a necessity of urban life? Leafy parks and trees provide cool, restful places to enjoy warm weather. But as the world warms, shade is becoming an urban necessity, providing shelter from the extreme heat of worsening heatwaves. Unfortunately, shade is often distributed very unevenly within cities, with the poorest neighborhoods lacking in shady features, and full of heat storing materials such as asphalt and concrete. In this seminar, we will explore the topic of shade, including the links between shade inequalities and red-lining, the science of heat stress, the history of shade in the built environment, and potential solutions to the crisis of shade and income. Our goal is to understand why shade is such a problem, and how cities can adapt to provide more shade for their inhabitants.

Grading policy: Final project (70%), class participation (30%).

Final project: 2000 word essay on a topic of student's choice, or equivalent project. The topic of the project must be finalized by 5pm on May 14th.

Class participation: Students will either present 1 reading and submit 2 1-page written responses to class materials, or submit 4 written responses.

Attendance expectations: Students are expected to log in and attend class remotely, or watch Zoom recordings. Please let me know if you are unable to make a class, or have difficulties accessing the recordings.

Office hours: After class or by appointment.

Course Schedule:

04/01 — Heat and Income in U.S. Cities

Readings:

NPR Investigation: As Rising Heat Bakes U.S. Cities, The Poor Often Feel It Most

04/08 — Shade and Redlining

Readings:

Plumer and Popovich (2020) How Decades of Racist Housing Policy Left Neighborhoods Sweltering. NY Times

Hoffman, Shandas and Pendleton (2020) The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas. Climate

04/15 — Sam Bloch Guest Lecture

Readings:

Bloch (2019) Shade. Places Journal.

04/22 — The Science of Shade and Heat Stress 1 (Heat Stress)

Readings:

Buzan and Huber (2020) Moist Heat Stress on a Hotter Earth. Annual Reviews. Sections 1 and 2.

04/29 — The Science of Shade and Heat Stress 2 (Urban Heat Island Effect)

Readings:

U.S. Environmental Protection Agency (2008) Reducing urban heat islands: Compendium of strategies.

Chapter 1

05/06 — The Science of Shade and Heat Stress 3 (Clouds)

Readings:

Ceppi and Williams (2020) Why clouds are the missing piece in the climate change puzzle. The Conversation.

Zelinka et al. (2017) Clearing clouds of uncertainty. Nature Climate Change.

05/13 — Gillian Shaffer Guest Lecture

Readings:

Barber (2016) The Form and Climate Research Group, or Scales of Architectural History

Project outline due: 05/14

05/20 — Forrest Meggers Guest Lecture

Readings:

05/27 — Solutions 1: Trees

Readings:

LA Times: L.A. plans to plant 90,000 trees in two years. What can we learn from its oldest trees?

LAist: The History Of How Los Angeles Became A City Of Palm Trees

Guardian: Miami Beach to cut back on famous palm trees over climate concerns

06/03 — Solutions 2: Other Strategies

Readings:

US EPA: Using Green Roofs to Reduce Heat Islands

Bloomberg CityLab: The Problem With 'Cool Pavements': They Make People Hot

Guardian: Urban heat islands: cooling things down with trees, green roads and fewer cars

Final project due: 06/10