Human experience is sensory. Anthropocentric human/computer sensing shapes our behaviors. Urban and ex-urban behaviors are fundamentally being reshaped in scales of time. We measure air, sound, light, water, energy, social interaction, housing, inclusion and now Covid19.

This course will focus on the use of Grasshopper and Arduino based sensor prototypes and other potentially live data interfaces to measure, visualize, analyze and understand urban and ex-urban data. In parallel students will study urban sensing problems, understand local perception, read relevant theories, formulate qualities and indicators, collect data, analyze and ultimately design behavioral change. Environmental micro-climatic differences will be studied simultaneously across human scaled urban and non-urban spaces and compared to baseline conditions via EPW weather database files using Grasshopper plugins Ladybug and Diva, often situated at airport weather stations miles away.

*Introductory knowledge of Rhino Grasshopper is required or pre-course [online tutorials](https://blogs.uoregon.edu/523f17/), [http://www.lcabcn2017uo.wordpress.com](http://www.lcabcn2017uo.wordpress.com).
Gracia, proto-Superilla

Poblenou, first Example Superilla

San Antoni, Superilla

Horta Superilla

Barcelona streets

Copenhagen streets

New York
Atmosphere + Design: Human-Scale Atmospheric Data in Urban Design
ARCH 4/523, Media for Design Development, Elective, Fall 2017  
https://blogs.uoregon.edu/523f17/

The design methods taught in this class investigate the measurement of human-scaled and time-based geospatial understandings using Rhino Grasshopper and Arduino microprocessor based sensor prototypes. Micro-climatic differences are studied simultaneously across small urban and non-urban spaces. This data is baselined alongside certified stations downtown and online EPW datasets via distant airports weather stations using Grasshopper plugin Ladybug. Students choose and test their own sensors. One class sensor platform was combined to include temperature, humidity, barometric pressure, PM air quality, sound and rain. Data is then simultaneously measured using 4-8 sensor platforms located across the: 1) city, 2) neighborhood and 3) human-scaled Kesey Plaza.
Barcelona Urban Design Program 2017
Barcelona, Granada, French Pyrenees, Berlin and “The Netherlands” [https://icabcn2017uo.wordpress.com/]

Design of cities is changing. New urban design methods including the use of mobile phones, Grasshopper / GIS and low-cost Arduino microprocessors are changing the way architects understand cities. This ten-week summer urban design program in the Catalan city of Barcelona, Spain offers students insight into the measurement and design of urban relationships. In-situ work allows the integration of both existing and newly acquired datasets using architectural scaled software Rhino Grasshopper, associated plugins and custom scripts. Local expert disciplines include planning, urban ecology, architecture, robotic engineering, transit and landscape architecture. Cultural and natural comparison is provided via travel to the Granada and Berlin. In Barcelona students live, work and research in the pedestrian neighborhood of Poblenou. Students participate from the University of Oregon, New Jersey Institute of Technology and Reed College.

Urban Sound-Sanctuary
by Jake Brown, Borka Petrovic and Daniel Purtha

Equitable Urbanism: Aging In Place
by Harrision Moser, Hannah Sis and Kevin Tan

Urban Air Flow
By Illia Fiere, Brandon Gardi and Isabella Ospina
findings as programming suggestions:
- more commerce
- new housing types
- accessible seating
- accessible water + toilets
- broadband and access to internet

public house