# Comparing indoor air quality between student dwellings and low-income communities

Proper indoor air quality (IAQ) is paramount to the health of building occupants and is influenced by indoor and nearby outdoor sources in addition to building characteristics such as ventilation rate and age. In this study we assess the IAQ of student occupied apartments and houses in central Austin, TX and compare pollutant concentrations to those measured in low-income communities in east Austin. We measure five components of IAQ -- carbon dioxide, particulate matter, carbon monoxide, temperature, and relative humidity -- using a device of our own creation that leverages multiple low-cost, consumer-grade sensors. Twenty of these devices were placed in student dwellings for a period of 11 weeks and will be compared to measurements from 15 devices placed in low-income homes for a period of 12 weeks. During both deployments, we will also gather data on participant activity, objective and self-reported sleep quality, mood, and building characteristics. These datasets not only allow us to compare IAQ measurements but provide a wealth of data that can be used to assess relationships between variables such as IAQ and sleep quality or mood both within and across study populations. Our hypothesis is that the proximity to outdoor sources of pollution will manifest in worse IAQ within low-income homes. This study highlights the benefits of consumer-grade sensors for monitoring components of IAQ and health while also underscoring the need for low-income communities to be properly informed and protected.