



Semester	Spring 2023
Time	Tuesdays 9:00AM - 11:50AM
Location	Harris Hall - 102
Instructor	Anthony Brower, AIA, LEED Fellow (anthony.brower@usc.edu) Global Climate Action & Sustainability Practice Area Leader @ Gensler
TA's	Najiyya Nadir Siddiqui (najiyyan@usc.edu)
Office Hours	Monday – Friday 11:30-12:30 by availability and appointment only https://calendly.com/anthonybrower/usc-office-hours

Air Quality

The history of Los Angeles is littered with accounts of poor air quality dating back to the mid 1900's. Since then, numerous regulations have been passed to “clean up” the city. We know some of the causes, but the results are often obscured by competing interests, political agendas, environmental incidents, a fluctuating population, and other impacts. What truly impacts air quality at the urban scale? Will a thoughtfully composed overlay of data and statistical comparisons reveal trends that support or discount widely accepted narratives?

Architects see and solve problems. Critical thinking is paramount in design and its relevance is heightened when analyzing data, both quantitative and qualitative, to propose effective and meaningful solutions. We are living through a time when the profession is in transition. Designing without understanding the impacts of our decisions is no longer possible. State and National Codes now place limits on the design of buildings and cities. This is a time of great challenge for architects (and future architects). It is also a time of great opportunity.

Course Description

This course will expose seniors and/or graduate students to critical thinking by working through, comparing, and overlaying data from multiple sources to arrive at a narrative of understanding that must be discovered. Our initial analysis will generate an understanding of air quality at the city scale over a period of decades. This study will build a narrative framework that unpacks what the intersectionality of events reveals as true drivers of change and influence.

With that foundation established we will shift into a systematic evaluation process for performing and diagnosing indoor environmental quality relative to thermal, lighting, air quality, acoustic, and spatial conditions in buildings. Emphasis will be on fundamental approaches for developing integrated environmental design methods that are primary requirements for students in the fields of architecture, environmental design, occupational science & therapy, and building science. This knowledge is basic to understanding the principles underlying human-building interaction for enhancing occupants' health and work productivity, especially in office workplaces.

The course will focus on the design process required to promote healthful indoor environmental quality (IEQ) and the needs of building users that promotes work productivity, psychological comfort, aesthetic quality, and occupant satisfaction. Technical applications will involve surveys, environmental data collection, and in-depth analysis, as well as suggested steps and processes for solving environmental problems. Course content is designed to help students develop a framework for addressing indoor environmental design and research problems and for identifying practical solutions to the design / control process that will assure a successful building indoor environment project.

Textbooks

Required: The Healthy Indoor Environment: How to assess occupants' wellbeing in buildings

By Philomena M. Bluysen, ISBN: 978-131-58872-96, 466 pages, 2014

https://uosc.primo.exlibrisgroup.com/permalink/01USC_INST/273cgt/cdi_askewsholts_vlebooks_9781134581443

Selected Chapters as Handouts

H1 | Routledge Companion to Design Research, Chapter 1

H2 | Narrative, Arc & Purpose

H3 | Human Factors & Ergonomics | Chapter 4

H4 | Air Pollution Control Technology Handbook, Chapters 6, 7, & 10

Learning Outcomes

Upon completion of this course, a student should understand the following concepts and ideas:

1. Critical thinking
 - a. Combining information from various sources to create original insights
2. Post Occupancy Evaluation (POE) and Indoor Environmental Quality (IEQ)
 - a. Origin of POE and technical definitions
 - b. POE and building indoor environmental quality
 - c. Impacts of IEQ on human health, productivity, and environmental satisfaction
 - d. Benefits of conducting a POE study
3. Qualitative and quantitative evaluation methods
 - a. Documenting Architectural and environmental variables for building indoor environments
 - b. Environmental measurements
 - c. Building attribute surveys
 - d. Environmental satisfaction surveys (User questionnaire)
 - e. Data collection and archival projects
4. Analysis methods and techniques
 - a. Quantitative studies
 - b. Problem identification and solution findings
 - c. Examination of correlations between environment and human factors

Recommended Preparation

Any building thermal, lighting, air quality, and/or acoustic systems, architectural design and process, and statistical analysis experiences and/or preparations are recommended.

Prerequisite(s): N/A

Co-Requisite(s): N/A

Concurrent Enrollment: N/A

Communication

Communication is beyond critical! If you have a challenge with attending class, an event outside of your control that prevents completion of an assignment in a timely manner, or any other issues, you need to communicate with me immediately. I will be happy to see what arrangements can be made to accommodate special and viable circumstances for missed work. Attempting to ask for leniency more than a week after a due date is unacceptable. In the professional world you need to communicate challenges to your clients immediately as the resulting risks of delayed communication being far worse than a class grade.

Teaching Method

This class will be conducted as a seminar and will mix lecture presentations by the instructor with student presentations, slide presentation, project reviews, and guest speakers. Required texts and several reference books will be recommended to supplement coursework. Since the course is primarily for graduate-level students, course participants can choose any data type or source relative to their research interests or projects they are conducting.

Course Schedule

Wk	Date	Ch	Topic	
1	1/10/23	H1	Research Methodology Data Collection & Sources	
2	1/17/23		Research Methodology Data Overlapping	A1
3	1/24/23		Research Methodology Trend Identification & Refinement	A2
4	1/31/23	H2	Narrative, Arc, & Purpose Presentation 1	A3
5	2/7/23		Introduction to POE & Productivity	POV1
6	2/14/23	HIE 1	Interior Impacts Site Visit 1	
7	2/21/23	H3	Arch Design & Environmental Variables Site Observations	A4
8	2/28/23	H4	Site Visit 2	A5
9	3/7/23		Data Visualization	A6
10	3/14/23		No Class – Spring Recess	
11	3/21/23		Exam Review & Indoor Air Quality Assessment	
12	3/28/23		Midterm 2 Indoor Air Quality Analysis	A7
13	4/4/23		Production Progress Narrative, Arc, & Purpose	
14	4/11/23		Production Progress	A8
15	4/18/23		Production Progress	A9
16	4/25/23		Project Presentations	POV2
17	5/2/23		No Class – Study Day	
18	5/9/23		Final Project Presentation (8am-10am)	

^A Chapters, publications (P), and/or handouts (H) are to be read in advance of each noted class day

Deliverables: Quizzes, Assignments, Projects, Exams, Homework, etc.

There will be homework assigned throughout the semester. Material on quizzes, midterm exams, and the final exam will be heavily related to the homework, required textbook, and other assigned reading. All exams will be open book but limited in time. This means that notes, previous exams, previous quizzes may not be brought into the exam. Possession of a previous exam, quiz or any webpage while taking an exam will disqualify the exam. You are encouraged to study using these materials before the exams, but you may not bring them into the exam with you. If you find that you have such materials among your notes, you must immediately take them out and place them upside down on the floor in front of you, along with your phone/tablet and any other mobile devices, for the duration of the exam.

All deliverables are mandatory and due at the beginning of class on the required due date. Failure to submit a deliverable on-time and reasonably well attempted shall result in a deduction of 50% of the assigned point value, with an additional 10% deducted for each full-day late until such work is delivered into the instructor's possession, properly completed. Any missed class or deliverable not properly

submitted within one calendar week of a required due date may result in a failing grade to the student in this course.

Grading Breakdown

The grade for the semester will be based on the following percentages

% of Grade	Assignment	Points
65%	Qualitative Class Project	
	15% Research based deliverable	200
	15% Interior based post occupancy evaluation deliverable	150
	30% Final production deliverable	300
15%	Quantitative Assessments	
	15% Exam	150
20%	Participation	
	4% Assignments	40
	6% Developing your unique Point of View	160

Participation

We will discover together what works for our class with respect to in-class participation. If a logical method does not present itself, we will simply shift the participation points to the point of view deliverable

Establishing a **Point of View** is critical for any practicing architect. You will be expected to take a position on the topic covered in class and develop a unique narrative on how this topic positively intersects with and can influence design. Impactful narratives also take current events into account. One student's final narrative may be selected to expand their topic further through a co-authored publication on Gensler's thought leadership blog on design after the conclusion of the course.

2010 Imperative Statement

The Architecture Faculty has voted to accept the 2010 Imperative-- to improvement of ecological literacy among the students and faculty and to achieve a carbon-neutral design school campus by 2010. To that end, this class will address issues of carbon neutrality and **supports** the following goal for all designs produced in the USC School of Architecture:

"The design should engage the environment in a way that dramatically reduces or eliminates the need for fossil fuel."

This does not mean that no other issues are to be addressed. Precisely to the contrary, all design issues are fair game, but in the background, all will be considered within the generalized goal of reducing or eliminating the need for fossil fuel.

Calculation Of Grade

Letter grades are converted to numeric values using the following guidelines:

Undergraduate Students	Letter	GPA Equivalent	%	Graduate Students
Passing Grades	A	4.0	93-100	Passing Grades
	A-	3.7	90-92.99	
	B+	3.3	87-89.99	
	B	3.0	83-86.99	
	B-	2.7	80-82.99	
	C+	2.3	77-79.99	
	C	2.0	73-76.99	Failing Grades
	C-	1.7	70-72.99	
	D+	1.3	67-69.99	
	D	1.0	63-66.99	

	D-	0.7	60-62.99	
Failing Grade	F	0.0	0-59.99	

Critical Dates and Religious Observances:

The university recognizes the diversity of our community and the potential for conflicts involving academic activities and personal religious observation. The university provides a guide to such observances for reference and suggests that any concerns about lack of attendance or inability to participate fully in the course activity be fully aired at the start of the term. As a general principle students should be excused from class for these events if properly documented and if provisions can be made to accommodate the absence and make up the lost work. Constraints on participation that conflict with adequate participation in the course and cannot be resolved to the satisfaction of the faculty and the student need to be identified prior to the drop add date for registration. After the drop add date the University and the School of Architecture shall be the sole arbiter of what constitutes appropriate attendance and participation in a given course.

Disruptive Behavior

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Judicial Affairs for disciplinary action.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. Violations of academic honesty (i.e. copying another student's work and submitting it as your own) will result in a grade of "0" for the assignment or quiz and may have other disciplinary consequences. Students who share their work with others will also receive a grade of "0". Quizzes and tests must be taken in class, even if the quiz or test is given online. Students who submit a quiz or test given online (through Blackboard or other means) and who are not in the classroom at the time the quiz or test is administered are violating the principles of academic honesty. The test or quiz being taken will be graded as "0". There may be other disciplinary consequences. All students are expected to understand and abide by these principles.

SCampus, the Student Guidebook, (www.usc.edu/scampus or <http://scampus.usc.edu>) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

Professional Degree

The USC School of Architecture's five-year BARCH degree is an accredited professional architectural degree program. All students can access and review the NAAB Conditions of Accreditation (including the Student Performance Criteria) on the NAAB Website, http://www.naab.org/accreditation/2004_Conditions.aspx.

Attendance

Attending classes is a basic responsibility of every USC student who is enrolled in courses at the School of Architecture. Regular and punctual class attendance is considered an essential part of satisfying the NAAB accreditation requirements therefore attendance will be taken at every class session. Students who are not in class at the time a quiz is given will not be given an opportunity to make up the test (without exception) and will be given a grade of "0" for the quiz. Students who take a test or quiz and do not remain for the duration of the lecture will have their quiz or test disqualified (and graded as "0"). Students who arrive late for class will not be given any extension of time to take a quiz or test; the quiz end time will be the same for all students. If arriving late, a student must be respectful of a class in session and do everything possible to minimize the disruption caused by a late arrival. It is always the student's responsibility to seek means to make up work missed due to absences.

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

Students and Disability Accommodations

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
eeotix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776

osas.usc.edu

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-3340 or otfp@med.usc.edu

chan.usc.edu/otfp

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.