



**Architecture 519**  
**Sustainability in the Environment:**  
**Infrastructures, Urban Landscapes, and Buildings**  
**(or “The Los Angeles Sustainability Report Card”)**

**Units: 3**  
**Spring 2024, Thursdays from 9:00 AM to 11:50 PM.**

**Location:** Harris 102

**Instructor: Russell Fortmeyer**

**Office:** N/A

**Office Hours:** Thursdays after class or via Zoom

**Contact Info:** [fortmeyer@usc.edu](mailto:fortmeyer@usc.edu)

### **Course Description**

Set goals. Quantify baselines. Implement initiatives. Measure outcomes. Report results. Make adjustments and keep moving. Achieving climate action goals in cities and regions is hard work. It requires broad, systems thinking married with subject matter expertise and a weary understanding of real-world logistics and operating procedures. Sustainability planning has evolved into climate action planning and, increasingly, so-called Environmental, Social, and Governance (ESG) plans for public agencies, cities, counties, states, and governments, as well as the private sector.

In this seminar, students will engage an interdisciplinary agenda focused on issues emerging in this broad category of sustainability planning, including carbon footprints and mitigation, environmental justice and social equity, mobility and vision zero planning, water and resource efficiency, urban resilience and heat island mitigation, and ecosystem restoration.

Working with established and emerging sustainability frameworks, this course aims to explore and apply practical (and measurable) approaches to address sustainability challenges at the street, neighborhood, district, and regional scale with a focus on the greater Los Angeles area as a laboratory for investigation. The course identifies where action might be taken to transform existing infrastructures, landscapes and buildings to meet a broad range of sustainability goals.

Over the course of the semester, students will work in groups to undertake a comprehensive audit of City and County of Los Angeles sustainability, resilience, and climate action plans to assess the efficacy of these planning instruments and identify gaps, possibilities for further action and policy directions, and benchmark their outcomes against other global frameworks. Ultimately, the class will produce a “report card” on how the greater Los Angeles region is actually performing toward meeting its stated climate action commitments.

### **Learning Objectives**

By the end of the course, students will:

1. Understand the broad range of sustainability issues facing cities and regions, both globally and in Los Angeles.
2. Have the ability to conduct an environmental baseline assessment to identify and prioritize sustainability issues and needs.

3. Have the ability to benchmark and compare buildings and portfolios of buildings in regard to annual energy and water use, carbon emissions, on-site renewable energy production potential (and other sustainability indicators) and have familiarity with the units of measurement (with emphasis on measurable, quantitative, and time-bounded outcomes).
4. Have the ability to identify and select environmentally sound technologies (as alternatives to conventional technologies) and understand their basic applicability and limitations.
5. Develop an awareness of contemporary sustainability goals, policies and initiatives for the City and County of Los Angeles and the State of California.
6. Understand how governance and policy can be used to inform the performance of the built environment as it relates to resource consumption, urban resilience, public health, and social equity.
7. Develop an awareness of promising urban-scale sustainability projects and assessment frameworks.
8. Develop the ability to work collaboratively in the development, documentation, reporting and public presentation of a report card for the climate action policies and their implementation within the broader Los Angeles Basin.

### Course Notes

The course will be supported by materials posted on Blackboard.

### Technological Proficiency and Hardware/Software Required

It is expected that students will have general knowledge of desktop publishing software such as InDesign or Microsoft Publisher.

### Required Readings and Supplementary Materials

Weekly readings will be assigned and posted on either Blackboard or from publicly available online resources. References are vetted background documents that students may use to inform their assignment work or to improve their understanding of key topics.

### Description and Assessment of Assignments

The lectures provide the conceptual framework for the course and will be supplemented with assigned readings, in class exercises and assignments. Students are expected to complete all the assigned readings on time (see weekly course schedule). Students will be graded on the level of completeness, accuracy and quality of work presented for each section. Students will work in teams on assignments, which will coalesce into a collaborative project for the entire class that will be delivered publicly at the end of the semester.

### Assignments and the LA Sustainability Report Card

A brief synopsis of each assignment is provided below. Each assignment will have two components—one responds to the weekly lecture topic and the other will focus specifically on the LA Sustainability Report Card project.

Group	Focus Area	Context
1	Carbon – Energy	City, State
2	Water and Ecology	City, County, State
3	Mobility	City, County, State
4	Carbon – Materials and Solid Waste	City, County
5	Social Equity and Health	City, County

### Assignment #1 / Mapping Sustainability

Students will respond to the week’s readings that cover the fundamentals of sustainability in relation to the built environment, in both global and California / Los Angeles contexts. In class, we will lay out a system boundary for the semester, identify crossover sustainability planning metrics,

and relate the focus areas to the agencies, governments, private sector, and people who can inform our work.

**Assignment #2 / Gap Assessment and Missing Pieces**

Using a global framework for sustainable management planning and reporting, students will identify gaps within their focus areas from the “consolidated plans” within our system boundary, specifically focusing on measurable outcomes that may contribute to better outcomes for the region. Students will also create “historical” views of key metrics in their focus areas to inform the broader auditing process.

**Assignment #3 / Report Card Work Plan and Final Group Project Outline**

Students will outline the data management approach, analysis and requests for information needed, outreach strategy, and timeline for completing the overall report card assessment. In class, we will also lay out the requirements for the final group project.

**Assignment #4 / District Futures 1**

In the first part of this assignment, students will map neighborhood district data across the metrics from consolidated sustainability plans within our system boundary. We will document historical data sets to identify trends against the metrics as they play out at the district level.

**Assignment #5 / District Futures 2**

In the second part of this assignment, students will develop a high-level eco-district plan that would address opportunities and challenges identified in the first part.

**Assignment #6 / 15 Minutes in LA**

Students will develop a “15-minute city” plan for their assigned neighborhood district, developing a baseline for existing conditions and comparing the 15-minute approach and the initiatives required to make it feasible. This assignment will focus on visual collateral over text and analysis.

**Assignment #7 / Sustainable Housing**

Students will investigate housing typologies from outside of LA that could represent a more sustainable approach to residential development for the city. Students will assess a “site adaptation” of a single case study in the context of their assigned neighborhood district, assessing its potential against the five focus areas and specific goals.

**Assignment #8 / Midterm Workshop and Briefing Presentation**

At midterm, students will provide an interim progress report on their focus area audit. Each group will present their findings in class as part of a comprehensive workshop to solicit feedback from the class, identify challenges and opportunities in completing the audit, and brainstorm new approaches to initiatives that could provide better outcomes for focus area targets. The approaches can be—but are not limited to—either policy, technological, community programs, or communications.

**Assignment #9 / Building Decarbonization and Circular Economy**

Using external benchmarking tools and publicly available existing building performance data, students will undertake a decarbonization case study to identify potential opportunities and challenges for meeting climate action goals in LA.

**Assignment #10 / Regeneration**

Students will explore how landscape or nature can be reintroduced into LA’s denser neighborhoods as a “green infrastructure”, identifying biodiversity, microclimate, and public health benefits in addition to providing infrastructural benefits.

**Assignment #11 / Air Quality Microclimates**

Instead of considering macro policies and initiatives to address air quality, students will identify hyper-location design and technical approaches to improving air quality for pedestrians in LA.

## Grading Breakdown

The total grade for this course will be based on:

Assignment	% of Grade
Assignments 1-11	50%
In-class Exercises	20%
Midterm Presentation	5%
Final Project Presentation	5%
Final Project Report	20%
<b>TOTAL</b>	<b>100%</b>

## Grading Scale

Course final grades will be determined using the following scale

A	95-100%
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

## Assignment Submission Policy

All assignments must be completed and uploaded to Blackboard prior to class time on the day they are due.

## Grading Timeline

Work will be graded within two weeks of the due date.

## Extra Credit

There is no extra credit awarded for this course.

## Attendance and Late Work

Attending classes is a basic responsibility of every USC student who is enrolled in courses at the School of Architecture. Although any student should be evaluated primarily on their demonstrated knowledge through project development, papers, quizzes, and exams, the School believes important skills such as verbal presentation, design discussion and articulation of critical issues within each course are equal additional measures of demonstrated knowledge, particularly for our professional degree programs.

More than two unexcused absences may result in a failing grade. More than two instances of unexcused tardiness will be counted as an absence. Work turned in late will not be accepted unless a serious circumstance prevented the work from being completed and submitted on schedule. Timely communication with the instructor is necessary for late work to be accepted.

Any student not in class within the first 10 minutes is considered tardy, and any student absent (in any form including sleep, technological distraction, or by leaving mid class for a long bathroom/water break) for more than 1/3 of the class time can be considered fully absent. 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 (if possible) to make up work missed due to absences, not the instructor's, although such recourse is not always an option due to the nature of the material covered.

### Course Schedule: A Weekly Breakdown

- Readings should be completed by the date shown on the calendar. References are background.
- Check Blackboard for weekly readings.

Wk	Day	Topic	Readings and Assignments	Deliverable / Due Dates
1	Jan 11	Frameworks and fundamentals, and our plan of attack	<b>Assignment #1 / Mapping Sustainability</b>  <b>General Readings</b> <ol style="list-style-type: none"> <li>1. UN Sustainable Development Goals</li> <li>2. The Brundtland Report</li> <li>3. Global Reporting Initiative (GRI)</li> <li>4. Paris Climate Agreement (2015)</li> </ol> <b>Los Angeles Readings</b> <ol style="list-style-type: none"> <li>1. pLAn (2019), Green New Deal</li> <li>2. Our County (2019)</li> <li>3. CA Assembly Bill 32</li> </ol>	
1				
2	Jan 18	Management structures and governance, benchmarking, setting targets	<b>Assignment #2 / Gap Assessment and Missing Pieces</b>  <b>General Readings</b> <ol style="list-style-type: none"> <li>1. C40 Climate Action Planning (2020)</li> <li>2. Recommendations of the Task Force on Climate-related Financial Disclosures (2017)</li> <li>3. From Transparency to Performance: Industry-Based Sustainability Reporting on Key Issues (2010)</li> </ol> <b>Los Angeles Readings</b> <ol style="list-style-type: none"> <li>1. This is not fine (2023)</li> </ol> <b>References</b> <ol style="list-style-type: none"> <li>1. ISO 14001, Environmental Management Systems</li> <li>2. <a href="#">Science-based Targets Initiative</a></li> </ol>	DUE: Assignment #1
2				
3	Jan 25	Land use and sustainability	<b>Assignment #3 / Report Card Work Plan and Final Group Project Outline</b>  <b>General Readings</b> <ol style="list-style-type: none"> <li>1. Building Energy Efficient Communities (2010)</li> </ol> <b>Los Angeles Readings</b> <ol style="list-style-type: none"> <li>1. ReCode LA (2022)</li> </ol> <b>References</b> <ol style="list-style-type: none"> <li>1. LA Transit Neighborhood Plans</li> </ol>	DUE: Assignment #2
3				

<b>Wk</b>	<b>Day</b>	<b>Topic</b>	<b>Readings and Assignments</b>	<b>Deliverable / Due Dates</b>
4	Feb 1	Districts and communities, eco-city plans and green cities	<b>Assignment #4 / District Futures Part 1</b>  <b>General Readings</b> <b>Los Angeles Readings</b> <ol style="list-style-type: none"> <li>1. A Sustainable Little Tokyo (2014 and 2020)</li> </ol> <b>References</b> <ol style="list-style-type: none"> <li>1. LEED for Communities</li> <li>2. The EcoDistrict Protocol</li> </ol>	DUE: Assignment #3
4				
5	Feb 8	Environmental justice, ethical planning and design	<b>Assignment #5 / District Futures Part 2</b>  <b>General Readings</b> <ol style="list-style-type: none"> <li>1. Environmental Justice Toolkit</li> </ol> <b>Los Angeles Readings</b> <ol style="list-style-type: none"> <li>1. The People’s Plan (2017)</li> </ol> <b>References</b> <ol style="list-style-type: none"> <li>3. Destination Crenshaw</li> </ol>	DUE: Assignment #4
5				
6	Feb 15	Urban mobility and Transit-Oriented Communities (TOCs)	<b>Assignment #6 / 15 Minutes in LA</b>  <b>General Readings</b> <ol style="list-style-type: none"> <li>1. The 15 Minute City (2023)</li> </ol> <b>Los Angeles Readings</b> <ol style="list-style-type: none"> <li>1. <a href="#">LA is encouraging developers to put denser housing near transit (Curbed, 2020)</a></li> <li>2. Los Angeles Mobility Plan 2035 (2016)</li> <li>3. Los Angeles Transit Oriented Communities Program Guidelines (2018)</li> </ol> <b>References</b> <ol style="list-style-type: none"> <li>1. <a href="#">C40 15 Minute City Guide</a></li> </ol>	DUE: Assignment #5
6				
7	Feb 22	Sustainable and affordable housing, houselessness and crisis	<b>Assignment #7 / Sustainable Housing</b>  <b>General Readings</b> <ol style="list-style-type: none"> <li>1. <a href="#">AB1287 Density Bonus for Housing</a></li> </ol> <b>Los Angeles Readings</b> <ol style="list-style-type: none"> <li>1. LA Housing Element Report (2022 and 2014)</li> <li>2. Single-family Zoning in Los Angeles (2022)</li> </ol> <b>References</b>	DUE: Assignment #6
7				
8	Feb 29	Urban climate, heat, climate-resilient adaptation planning, wildland-	<b>Assignment #8 / Midterm Workshop Preparation</b>  <b>General Readings</b>	DUE: Assignment #7

Wk	Day	Topic	Readings and Assignments	Deliverable / Due Dates
		urban interface (WUI)	<ol style="list-style-type: none"> <li>1. Protecting Californians from Extreme Heat (2022)</li> <li>2. California's 4<sup>th</sup> Climate Change Assessment (2018)</li> </ol> <p><b>Los Angeles Readings</b></p> <ol style="list-style-type: none"> <li>3. Resilient Los Angeles (2018)</li> <li>4. California Healthy Places Index: Extreme Heat Edition (<a href="https://heat.healthyplacesindex.org/">https://heat.healthyplacesindex.org/</a>)</li> </ol> <p><b>References</b></p> <ol style="list-style-type: none"> <li>5. TreePeople Rx for Hot Cities (2020)</li> <li>6. SCAG Extreme Heat / Public Health (2020)</li> <li>7. <a href="#">Reducing Urban Heat Islands: Compendium of Strategies</a></li> </ol>	
8				
9	Mar 7	Midterm workshop and briefing presentations		DUE: Assignment #8 / Workshop facilitation and presentation materials
9				
10	Mar 14	No class – spring break		
10				
11	Mar 21	Low-carbon buildings, decarbonization, materials LCA	<p><b>Assignment #9 / Building Decarbonization and Circular Economy</b></p> <p><b>General Readings</b></p> <ol style="list-style-type: none"> <li>1. The Building Decarbonization Practice Guide (2019)</li> <li>2. Decarbonization Considerations: Grid-interactive Efficient Buildings (2022)</li> <li>3. Lifecycle Assessment Practice Guide (2019)</li> </ol> <p><b>Los Angeles Readings</b></p> <ol style="list-style-type: none"> <li>1. Los Angeles Affordable Housing Decarbonization Study Phase 2 (2021)</li> </ol> <p><b>References</b></p> <ol style="list-style-type: none"> <li>1. California Title 24-Part 6</li> <li>2. New York Local Law 97</li> </ol>	DUE: Assignment #8 Outcomes
11				
12	Mar 28	Green infrastructure, regenerative landscapes	<p><b>Assignment #10 / Regeneration</b></p> <p><b>General Readings</b></p> <ol style="list-style-type: none"> <li>1. Climate Action Field Guide (2021)</li> </ol> <p><b>Los Angeles Readings</b></p> <ol style="list-style-type: none"> <li>1. Green Infrastructure for Los Angeles (2009)</li> </ol> <p><b>References</b></p>	DUE: Assignment #9

Wk	Day	Topic	Readings and Assignments	Deliverable / Due Dates
			<ol style="list-style-type: none"> <li>1. HUD Green Infrastructure and the Sustainable Communities Initiative (2015)</li> <li>2. The Value of Green Infrastructure (2010)</li> <li>3. Living Building Challenge v4 (2019)</li> </ol>	
12				
13	April 4	Air quality and public health	<p><b>Assignment #11 / Air Quality Microclimates</b></p> <p><b>General Readings</b></p> <ol style="list-style-type: none"> <li>1. SCAQMD AB2766 Subvention Fund Program Resource Guide (2023)</li> </ol> <p><b>Los Angeles Readings</b></p> <ol style="list-style-type: none"> <li>1. SCAQMD Air Quality Management Plan (2022)</li> </ol> <p><b>References</b></p> <ol style="list-style-type: none"> <li>1. SCAQMD Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning (2005)</li> <li>2. LA Air Quality Element (1992)</li> </ol>	DUE: Assignment #10
13				
14	April 11	Water and climate change in the West	<p><b>Final Group Project</b></p> <p><b>General Readings</b></p> <ol style="list-style-type: none"> <li>1. Toward Net Zero Water (2011)</li> </ol> <p><b>Los Angeles Readings</b></p> <ol style="list-style-type: none"> <li>1. LA River Revitalization Master Plan (2010)</li> <li>2. Greater Los Angeles Greywater Program (2020)</li> </ol> <p><b>References</b></p>	DUE: Assignment #11
14				
15	April 18	Paying for it	<p><b>Final Group Project</b></p> <p><b>General Readings</b></p> <ol style="list-style-type: none"> <li>1. Cost of Green Revisited (2007)</li> <li>2. Natural Capitalism (2009)</li> </ol> <p><b>Los Angeles Readings</b></p> <p><b>References</b></p> <ol style="list-style-type: none"> <li>1. Urban Green Infrastructure: Valuation Toolkits (2020)</li> </ol>	
15				
16	April 25	Final group presentations		DUE: In-class presentation of final group project
16				DUE: Group project final report on FRIDAY, May 3 at Noon



## **Statement on Academic Conduct and Support Systems**

### **Academic Integrity:**

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, compromises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

### **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](http://osas.usc.edu). You may contact OSAS at (213) 740-0776 or via email at [osasfrontdesk@usc.edu](mailto:osasfrontdesk@usc.edu).

### **Support Systems:**

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

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

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

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

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 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) 740-0411

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

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

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) 442-1200 – 24/7 on call

Non-emergency assistance or information.

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

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) 442-2850 or [otfp@med.usc.edu](mailto:otfp@med.usc.edu)

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