

# **ARCH 519: Sustainability in the Environment: Infrastructures, Urban Landscapes, and Buildings**

**Units:** 3

**Spring 2025:** Thursday, 9:00 – 11:50 AM

**Location:** HAR 102

**Instructor:** Ying Wang

**Office:** HAR 102 (or via Zoom)

**Office Hours:** By appointment

**Contact Info:** [yingwang@okapiarchitecture.com](mailto:yingwang@okapiarchitecture.com)

**Class Material Support:** Kenneth Chang ([hsunchen@usc.edu](mailto:hsunchen@usc.edu))

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## **Course Description**

This course is designed for graduate students with prior academic or life experience relevant to sustainability. Students are expected to have an open mind, engage with the evolving nature of sustainability, and explore collaborative solutions to pressing environmental challenges.

The course will address urgent issues related to climate change, including:

- Energy efficiency and resource effectiveness
- Water crisis and management
- Mobility options, convenience with the negative impact to the environment
- Carbon and greenhouse gas (GHG) reduction
- Ecosystem restoration
- Climate adaptation and resiliency
- Environmental quality's interrelation with public health, social equity, and ecological justice

Using established and emerging sustainability frameworks, students will explore practical and measurable approaches to tackle these challenges at various scales, focusing on Los Angeles as a living laboratory. The course format includes lectures, seminars, discussions, and guest speakers from diverse professional backgrounds.

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## **Learning Objectives**

By the end of the course, students will:

- Understand global and local sustainability challenges, particularly in Los Angeles.
- Conduct environmental baseline assessments to identify and prioritize sustainability issues.

- Evaluate and select environmentally sound technologies and understand their applications and limitations.
  - Integrate LEED standards into projects and prepare to pass the LEED Green Associate (GA) and Accredited Professional (AP) exams.
  - Comprehend application of Envision (ENV) – Institute for Sustainable Infrastructure.
  - Develop awareness of contemporary sustainability goals.
  - Collaborate effectively on holistic sustainable development proposals.
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## **Course Notes**

Course materials will be available on Brightspace. No specialized technology or software is required.

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## **Required Readings and Supplementary Materials**

All required and supplementary readings are publicly available online or will be posted on Brightspace.

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## **Grading Breakdown**

- **Class Assignments:** 20%
- **Midterm (Online, 1 hour):** 30%
- **Final Project Presentation (Group):** 30%
- **Final Semester Submission:** 10%
- **Class Attendance and Participation:** 10%

## **Grading Scale**

- A: 94-100
- A-: 90-93
- 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

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## Assignment Policies

- All assignments must be uploaded to the course website before class on the due date.
- Late submissions are penalized by 10% if submitted within 24 hours and 20% within 48 hours. They will not be accepted beyond one week unless under serious circumstances with prior communication.

### Assignments Details:

**A. Class Assignments (20%)** Please check the deadline on Brightspace. Submit the files to Brightspace.

1. **Self-Introduction in writing:** Share your background, academic experiences, notable achievements, and goals for this class. (Max 3 pages, font size 12) Deadline: Jan 25<sup>th</sup>
2. **Operational Carbon Analysis for Buildings:** Summarize Chapters 2 & 3 of "Green Energy and Infrastructure" and answer related questions. (Max 3 pages, font size 12) Deadline: Feb 1<sup>st</sup>
3. **Embodied Carbon Calculation:** Calculate embodied carbon as instructed, provide EC3 or OneClick results, and explain your findings briefly. (Submit as PDF) Deadline: Feb 8<sup>th</sup>
4. **(Sustainable Development Goals) SDGs Goal 13 - Climate Change:** Calculate your ecological footprint at <https://www.footprintcalculator.org/home/en>. Share your thoughts and actions to reduce your footprint, with a screenshot of your results. (Max 3 pages, font size 12) Deadline: Apr 5<sup>th</sup>
5. Tracking your own "Carbon footprint" from April 1<sup>st</sup> to April 30<sup>th</sup>. Share your result and thought. Deadline: May 8<sup>th</sup>

**B. Final Group Project Presentation – 30%**

Present group project findings, including LEED scorecard details and recommendations for the client. (30 minutes per group)

**C. Final Individual Entire Semester Submission – 10%**

Compile all semester work into an individual portfolio. Creativity and innovation are encouraged. Deadline: May 8<sup>th</sup>

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## Attendance and Participation

Consistent in-person attendance and punctuality are crucial. Active engagement involves completing assigned readings, contributing thoughtfully to discussions, and interacting respectfully with both peers and instructors.

- **Unexcused Absences:** More than two may result in a failing grade.
- **Tardiness:** More than two instances count as an unexcused absence.

## Online Attendance and Participation

Class date with ‘\*’ is scheduled to hold online by zoom. (Date:Jan 23, Jan 30, Mar 13) Please attend the class via USC zoom account. The lecturer will **conduct a roll call** randomly as the class participation.

- **Online lecture** : Punctual attendance for online lectures is mandatory and constitutes a key part of the course requirements. Roll calls will be conducted randomly at the start, middle, or end of the session.
- **Online Midterm Open-book Exam(60 mins)** : Ensure you have a stable internet connection, a working webcam, and a functional microphone. Select a quiet, well-lit space without distractions. Refrain from communicating with others during the exam, and keep your camera on unless you have valid reasons and prior approval. Submit the exam before the deadline.

## Course Schedule

	Class Date	Topic
#1	16-Jan	General Overview: Urgent Crises and LEED Criteria
#2	*23-Jan	Energy (Part 1)
#3	*30-Jan	Energy (Part 2)
#4	6-Feb	LEED Site Criteria:
#5	13-Feb	Water Crisis and Resources
#6	20-Feb	Indoor Air Quality
#7	27-Feb	Material/Waste
#8	6-Mar	Other Approaches
#9	*13-Mar	LEED v5 Major Changes & <b>Midterm Exam</b>
	20-Mar	<b>Spring Break</b>
#10	27-Mar	Global Energy Resources
#11	3-Apr	ENV Comprehension (Part 1)
#12	10-Apr	ENV Comprehension (Part 2)
#13	17-Apr	LEED, ENV and Others Sustainability Criteria (Worldwide)
#14	24-Apr	Final LEED Presentations (4 Teams)
#15	1-May	Final Presentations, Environment, Social and Governness
	8-May	Final Submission

## Academic and Support Policies

**Academic Conduct:** Plagiarism and other forms of academic dishonesty are serious offenses. Refer to USC’s policies on academic integrity at [SCampus Part B](#).

**Support Systems:**

- **Mental Health Services:** (213) 740-9355, [studenthealth.usc.edu/counseling](http://studenthealth.usc.edu/counseling)
- **Title IX Office:** (213) 821-8298, [titleix.usc.edu](http://titleix.usc.edu)
- **Disability Services:** (213) 740-0776, [dsp.usc.edu](http://dsp.usc.edu)

For emergencies, contact USC Department of Public Safety at (213) 740-6000.

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This revised syllabus improves readability and ensures all sections are consistent in formatting and tone. Let me know if additional edits are needed!