## Course ID and Title:  Arch 537 Plant Ecology & Identification
**Units: 3**
**Fall 2024, Mondays 9-11:50 am**


**Location:** 102 Harris or field sites

**Instructor: Isaac Brown**
**Office: n/a**
**Office Hours:** by appointment
**Contact Info:** isaacbro@usc.edu, isaactbrown@gmail.com 949-610-3993


## Course Description
Plant Ecology & Identification will emphasize the role of plants in shaping the ecology and sustainability of landscapes in both natural and urban areas. We will learn about plants in the context of *landscape ecosystems* that are combinations of air, earth, biota, and human factors.  Your ability to identify plants serve two important purposes in this course and in professional practice: 1) their presence at a site can indicate characteristics of site ecology critical to identifying appropriate plant selection, conservation, resilience, and environmental stewardship strategies; and 2) to provide a foundation for your use of native and other ecologically appropriate plants in design as they are increasingly being called for in projects and policies worldwide.

This course will emphasize building field skills in plant and landscape ecology and will include a three-hour lecture or field lab on Mondays from 9-11:50. While we will spend time in the classroom during the first half of the semester, the second half will be spent in the field learning about plant ecology firsthand. **Therefore, appropriate walking shoes/hiking boots are required.  Sun protection and water are critical for field visits, especially early in the semester. You will be required to secure transportation to field sites that may be as far as a 1-hour drive from campus.  Please arrive at the field sites by 9 am sharp.  We will leave sites as appropriate to ensure that you are back on Campus by 11:50. Traffic in LA doesn't always cooperate, so please allow extra time to travel to sites, especially during the morning commute.**

The course consists of two parts, Part 1: Plant and Landscape Ecology, and Part 2: Plant Identification.  Part 1 will draw from scientific literature, professional practices, case studies, and field site visits to provide a science foundation for understanding site ecology and the role of plants in natural and built landscapes. Part 1 will also develop your skills for applying plant and landscape ecology in design at multiple spatial scales from sites to regions in landscape architecture, urban design, and planning projects.

Your knowledge development during Part 1 will be evaluated through participation in readings, class discussions, assignments, and a mid-term exam.  The mid-term will emphasize science topics covered in the lectures and readings including the following topics:

LECTURES PART 1: PLANT AND LANDSCAPE ECOLOGY
- AIR: (microclimates, urban heat island, shade and cooling, urban forestry, drought, air pollution, changing temperature patterns, etc.)
- EARTH: (soils, physiography, geological hazards, etc.)
- HYDROLOGY: (riparian ecosystems, stormwater, flooding, groundwater, landscape water use, landscape implications of water supply/recycling, changing precipitation patterns, etc.)

- BIOTA: (biodiversity, native plants, habitat connectivity, urban wildlife, landscape carbon cycling, wildfire, etc.)
- SOCIAL ECOLOGY: (perception, behavior, traditional ecological knowledge, ethnobotany, environmental justice, pollution and hazard exposure, etc.)

Part 2 will emphasize field-based learning to understand how the natural abiotic, built, and social context of sites, combined with plant biology, determine plant site-suitability and ecological stewardship opportunities such as ecological restoration, ecosystem services, hazard prevention, and pollution reduction. Los Angeles is part of a global biodiversity hotspot with exceptional plant diversity. We will use field visits to natural and urban ecosystems as a living laboratory to develop your plant identification and ecological site analysis abilities. Field visits will emphasize learning about the ecology of native plants, and associated ornamental and invasive plant species, in their natural, restored, or designed contexts. While we will emphasize local plants and ecosystems of Los Angeles, the techniques you will learn are applicable anywhere in the world that your future practice takes you.

Your knowledge gained in Part 2 will be evaluated based on your ability to identify plants and ecological conditions in the field. Approximately four field visits will include plant identification quizzes. A final combined field and in-classroom exam will cover all plant material presented throughout the course. You will be required to maintain a field notebook during Part 2 of the course. Plants and ecological conditions will be taught during the following field visits during class time and on one Saturday or Sunday.

FIELD LABS PART 2: PLANT AND ECOLOGICAL CONDITIONS IDENTIFICATION
- Oak Woodland (Griffith Park)
- Riparian Woodland (LA River & Arroyo Seco)
- Chaparral & Coastal Sage Scrub (Griffith Park)
- Dunes & Marsh (Ballona Wetlands)
- Montane Woodlands (Mount Wilson)

The end goal of the course is to provide you with technical and professional skills for characterizing site ecology leading to appropriate plant selection, ecological design, and ecological stewardship solutions in landscape architecture, management, and planning projects.


## Learning Objectives
By the end of this course, students will be able to:
- Describe the role of plants in shaping urban ecosystems and their management (biodiversity conservation, ecosystem services, pollution, and ecological hazards) across multiple spatial scales in landscape design and planning project contexts.
- Characterize abiotic site conditions (soils, physiography, hydrology, microclimates, etc.) that determine optimal plant selection and design for ecological restoration and sustainable landscapes.
- Identify a selection of common native plants and plant communities as "indicators" of ecological conditions that can inform appropriate plant selection and ecological design strategies; non-native plants commonly used in water efficient and sustainable urban landscapes; and a selection of invasive plant species and their implications for landscape sustainability.
- Recognize how plant ecology is applied in professional landscape, urban design, engineering, and planning practice.
- Apply analysis techniques for quantifying the environmental benefits of plants in landscape architecture projects including water quality benefits, carbon cycling benefits, and biodiversity benefits, etc.
- Familiarize yourself with current events and trends in landscape ecology in Los Angeles and around the world.

**Prerequisite(s):** none
**Co-Requisite(s):** none
**Concurrent Enrollment:** none
**Recommended Preparation:** none

## Course Notes – Field Visits

You will be required to secure transportation to field sites that may be as far as a 1-hour drive from campus. Please arrive at the field sites by 9 am sharp. We will leave sites in time to ensure that you are back on Campus by noon. Traffic in LA doesn't always cooperate, so please allow extra time to travel to sites, especially during the morning commute.

Field visits will occur rain or shine. The following materials are required for field visits:
- Appropriate walking shoes/hiking boots.
- Field notebook (recommendation: approximately 5"x8", spiral bound, firm covers)
- Clip board
- Sun protection
- Water
- Rain gear as appropriate (plastic poncho can be purchased for a few dollars)
- Plastic bag to cover your field notebook when writing in the rain

## Technological Proficiency and Hardware/Software Required

None

## Required Readings and Supplementary Materials

Required readings will be posted on Brightspace

## Optional Readings and Supplementary Materials

Wildflowers of Orange County and the Santa Ana Mountains, Bob L. Allen, Fred M. Roberts, Jr.

Forest Ecology, 4th Edition, Burton V. Barnes, Donald R. Zak, Shirley R. Denton, Stephen H. Spurr
https://www.wiley.com/en-us/Forest+Ecology%2C+4th+Edition-p-9780471308225

## Description and Assessment of Assignments

Plant identification quizzes will occur approximately every other field visit. There will be 6 quizzes, your lowest quiz score will be dropped (you are graded on 5 best quiz scores). A final plant identification exam will be held at the end of the course. Scoring will be based on proper identification and spelling of scientific names (genus and species). A final class project will result in a site-appropriate plant list for a selected project site.

## Participation

Participation will be scored based on completion of your field notebook.

## Grading Breakdown

| Assessment Tool (assignments) | Points | % of Grade |
|---|---|---|
| Midterm | 50 | 30% |
| Plant ID Quizzes (field) | 50 | 20% |
| Plant ID Exams (1 lab, 1 field) | 50 | 25% |
| Assignments | 50 | 20% |
| Participation/Field Notebook | 10 | 5% |
| TOTAL | | |

## Grading Scale

Course final grades will be determined using the following scale (tentative, subject to change):

| Letter grade | Corresponding numerical point range |
|---|---|
| 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

The ecological site analysis and project outline will be submitted in person to the instructor during class. Final project report must be uploaded to Brightspace by the end of the scheduled final exam time window.

## Grading Timeline

Quizzes and exams will be graded within 2 weeks.

## Course Specific Policies

None

## Attendance

Attendance is mandatory. There will be no make-up opportunities for field visits including field quizzes.

## Classroom norms

n/a

## Zoom etiquette

n/a

## Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the USC Student Handbook. All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

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

Academic dishonesty has a far-reaching impact and is considered a serious offense against the university. Violations will result in a grade penalty, such as a failing grade on the assignment or in the course, and disciplinary action from the university itself, such as suspension or even expulsion.

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.

**AI Generators**
In this course, I encourage you to use artificial intelligence (AI)-powered programs to help you with assignments that indicate the permitted use of AI. You should also be aware that AI text generation tools may present incorrect information, biased responses, and incomplete analyses; thus they are not prepared to produce text that meets the standards of this course. To adhere to our university values, you must cite any AI-generated material (e.g., text, images, etc.) included or referenced in your work and provide the prompts used to generate the content. Using an AI tool to generate content without proper attribution will be treated as plagiarism and reported to the Office of Academic Integrity. Please review the instructions in each assignment for more details on how and when to use AI Generators for your submissions.

## Course Content Distribution and Synchronous Session Recordings Policies
USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. (Living our Unifying Values: The USC Student Handbook, page 13).

***Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study.*** This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. (Living our Unifying Values: The USC Student Handbook, page 13).

## Course Evaluations
Please complete the course evaluation

## Course Schedule

|  | Topics/Daily Activities | Readings/Preparation | Deliverables |
|---|---|---|---|
| **Week 1** | **(meet in 212 Watt):** 8/26, Landscape and Urban Ecology introduction; | *See "Content">" Readings" Folder on Brightspace.* |  |
| **Week 2** | **9/2, Labor Day – no class** |  |  |
| **Week 3** | 9/9, Ecosystems: Ecosystems: Air Layer | *See "Content">" Readings" Folder on Brightspace.* | **Ecological Site Characterization 1 ASSIGNED** |
| **Week 4** | 9/16, Physiography Layer; Hydrology Process | *See "Content">"Readings" Folder on Brightspace.* | **Ecological Site Characterization 1 DUE** |
| **Week 5** | **TENTATIVE 9/16, Field Trip: LA RIVER & ARROYO SECO** | *See "Content">"Readings" Folder on Brightspace.* | **Ecological Site Characterization 2 ASSIGNED** |
| **Week 6** | 9/30, Ecosystems: Biota/Landcover Layer 1 | *See "Content">"Readings" Folder on Brightspace.* |  |
| **Week 7** | 10/7, Ecosystems: Biota/Landcover Layer 2 | *See "Content">"Readings" Folder on Brightspace.* | **Ecological Site Characterization 2 DUE** |
| **Week 8** | 10/14, Ecosystems: Human/Social Factors Midterm Review | *See "Content">"Readings" Folder on Brightspace.* |  |
| **Week 9** | 10/21, Midterm |  |  |
| **Week 10** | 10/28, Field Visit – Spring Canyon, Griffith Park, Oak Woodland | Review plant list on Brightspace |  |
| **Week 11** | 11/4, Field Visit – Rio de Los Angeles State Park, Riparian Woodland | Review plant list on Brightspace | **Quiz 1 (covers prior plant lists, not current week)** |
| **Week 12** | **11/11, Veteran's Day Day – no class** |  |  |
| **Week 13** | 11/18, Field Visit – Branson Canyon, Griffith Park, Chaparral & Coastal Sage Scrub | Review plant list on Brightspace | **Quiz 2 (covers prior plant lists, not current week))** |
| **Week 14** | 11/25 Field Visit – Ballona Dunes and Wetlands | Review plant list on Brightspace | **Quiz 3 (covers prior plant lists, not current week)** |
| **Week 15** | 12/2, Field Visit – Field Visit Mt Wilson – Montane Woodland and Review **(8 AM Start)** | Review plant list on Brightspace | **Quiz 4 (covers prior plant lists, not current week)** |
| **FINAL** | **Final Exam (Field and Lab)** |  | For exam date, please refer to the final exam schedule in the USC *Schedule of Classes* at classes.usc.edu. |

## Statement on University Academic and Support Systems

**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.

**Student Financial Aid and Satisfactory Academic Progress:**
To be eligible for certain kinds of financial aid, students are required to maintain Satisfactory Academic Progress (SAP) toward their degree objectives. Visit the Financial Aid Office webpage for undergraduate- and graduate-level SAP eligibility requirements and the appeals process.

**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 consists 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) 740-2500*
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
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.