

## Media for Landscape Architecture: Dynamics Systems

Landscape Architecture 639, 3 units, Spring 2021 Semester

Location WPH B36 Waite Phillips Hall, Basement #36 @ University of Southern California

Time Thursdays, 2-4:50PM PST

Instructor Alexander Robinson, Associate Professor

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Slack: Alexander Robinson

Office Hours Tuesdays, 2-3PM PST and by appointment

### Course Introduction

In this course students will learn digital workflows to conduct landscape architecture design research. In particular, the course will address how these workflows relate to dynamic landscape systems, existing and proposed.

In recent years, the need for advanced design methodologies has become ever more pressing as landscape projects are asked to manage—or serve as—dynamic systems. Increasingly projects must perform dynamic environmental services and/or manage dynamic risks, while still providing quality open space. To effectively navigate the multifarious requirements of these projects, landscape architects must invent workflows, specific to the challenges of each project, where specialized analyses operate alongside typical design tools. For example, to design a flood control channel they might interface various advanced real-time evaluative tools (e.g. hydraulic modeling, habitat analysis, and economic evaluations) within an iterative community-inclusive design process.

The parametric software Grasshopper, integrated with other plugins and software, is a powerful platform to develop and enhance, these workflows. Over the course of the semester, students will learn how to build an entire “apparatus,” within Grasshopper and associated tools; a set of advanced design controls, analytical tools, and communication instruments, that constitutes a workflow tailored to a specific design problem.

The course is divided into two halves. Each half focused on a fundamental formal landscape typology: (extruded) form and field. First, students will develop an apparatus for designing river form; a practice that should also be useful for more commonly designed linear forms (e.g. walls, paths, benches, etc.) Second, students will design landscape “fields”; grid conditions, such as urban fabrics, topographic meshes, and plantings. Students will explore tools that simulate and analyze field conditions (e.g. climate, movement, hydrology, etc.) and practice “field” design operations, such as parametric planting. In both halves’ students will produce apparatuses that result in an advanced representation.

### Learning Objectives

- Learn how to assemble digital design apparatuses for landscape architecture design research problems. Digital design apparatuses include a design control system, landscape analysis and modeling, and communication practices.
- Gain basic fluency in advanced landscape architecture design and analysis software suites, primarily Grasshopper and its plugins
- Gain a personal understanding of how advanced digital practices operate for your design practice and interests
- Gain proficiency in digital practices related to landscape form and field subjects

- Learn how to create advanced digital drawings and dynamic visualizations

## Prerequisites

This is an advanced landscape architecture media course. The prerequisite is Arch 548: Media for Landscape Architecture: 3D Design. That said, with some proficiency in Rhino and the Adobe Suite you are likely able to qualify for taking this course. Please feel free to contact the instructor.

## Software, Tools, and Resources

Students will be required to use the latest version of **Rhino on Windows** (which includes **Grasshopper**). Additional free software suites will be used, including **Twinmotion**, various **Grasshopper Plugins**, the **Adobe Creative Cloud Suite**, including **After Effects**. Time allowing, we may delve into **Processing** or **Unity/Unreal**.

### USC technology rental program

We realize that attending classes online and completing coursework remotely requires access to technology that not all students possess. If you need resources to successfully participate in your classes, such as a laptop or internet hotspot, you may be eligible for the university's equipment rental program. To apply, please submit an application. The Student Basic Needs team will contact all applicants in early August and distribute equipment to eligible applicants prior to the start of the fall semester.

### [Software available to USC Campus](#)

**Lynda** Software Tutorial (USC provided)

<https://itservices.usc.edu/lynda/>

## Assignments

### 6 Biweekly Assignments

There will be five assignments, each assigned and due bi or tri-weekly. Each assignment will be described in more detail in assignment sheets posted on blackboard. All assignments must be submitted to Miro *and* blackboard. Generally, you are required to post assignment progress on Miro before the class after the assignment introduction.

### Final Assignment: Application of class practices in studio

For your final assignment you will propose and execute an apparatus relevant to your studio this semester. You are required to represent and reflect upon the apparatus, your application of it, and its results. If you are not taking a studio, a final assignment will be provided. You will be required to make a proposal describing this application, that must be approved for credit.

## Class Methodology

### Lectures & Demos

There will be regular lectures / demos to introduce topics and demo assignments.

### Assignment Pin-Ups

You will be expected to pin up all your assignments on Miro on the day it is due **30 minutes before class starts!**

### Assignment Comments

You will be required to give *constructive* comments on a few other students work in Miro. The comments will be anonymous (technology allowing!) to the other students. You will identify your comments to the instructor. The comments must be useful.

### Final Review

Outside reviewers will come to discuss and evaluate your body of work instead of a final exam. All

students must be pinned up 30 minutes prior to the scheduled start time to participate in the review. Presentation durations will be specified. Time allowing, there will also be a mid-review.

### Readings

There will be readings associated with each class assignment.

### Schedule

**(subject to change)**

Date	Week	Day	Topics	Assignments (bi/tri-weekly)
<b>PART I: FORM</b>				
1/13	1	Thursday	Class Introduction, Grasshopper Introduction, Vectors I	Form 1: Section Apparatus
1/20	2	Thursday	Vectors II	
1/27	3	Thursday	Planes I	Form 2: Sectional Morphogenesis
2/3	4	Thursday	Numerical Analysis	
2/10	5	Thursday	Planes II	Form 3: Morphological Visualization
2/17	6	Thursday	Visualization I	
2/24	7	Thursday	Visualization II	
<b>PART II: FIELD</b>				
3/3	8	Thursday	Mesh	Field 1: Topographic Analysis
3/10	9	Thursday	Topographic Analysis	
3/17	10		SPRING BREAK	
3/24	11	Thursday	Workday	
3/31	12	Thursday	Grids, Suitability	Field 2: Parametric Planting
4/7	13	Thursday	Visualization III	
4/14	14	Thursday	Mesh II / Workday	
4/21	15	Thursday	ENVI-MET	Final Assignment
4/28	16	Thursday	ENVI-MET / Final Assignment Review	
<b>5/5</b>		Thursday	Final, 2-4PM	Final Assignment Due

The previous assignment is due the day the next one is assigned.

### Bibliography

Cantrell, Bradley, and Adam Mekies. *Codify: Parametric and Computational Design in Landscape Architecture* Abingdon, Oxon;: Routledge, 2018.

Walliss, Jillian, and Heike Rahmann. *Landscape Architecture and Digital Technologies: Re-Conceptualising Design and Making* Abingdon, Oxon ;: Routledge, 2016.

## Grading

Grading is made through a synthesis of the following: completion of assignments, instructor & outsider reviewers' assessment of work quality, effort, and participation in class.

5 Assignments (14% each)

Final Assignment: Integration of tools in studio project (20%)

Participation (10%)

### Assignment Grading Criteria

#### Basic (50%)

- Posted significant progress on Miro before 2<sup>nd</sup> class
- Met design requirements
- Met analysis requirements
- Met visualization requirements
- On time final submission

#### Design & Presentation (50%)

- Quality of Design Content (design choices and content)
- Originality & Identity (personal identify & investment / deviation from assignment demonstration; make the assignment your own!)
- Legibility & Communication (is it easy to "read" and comprehend the work?)
- Graphic Quality (overall quality/feel of visual graphic presentation & layout)
- Annotations & Text (formatting of text, quality of text, call outs, etc.)

### Assignment Re-Submittal Policy

You may re-submit two assignments. They are due two weeks after their grade is submitted to blackboard, or by the date of the final, whatever time is shorter.

### Participation Grade

Participation grade will be determined based on the following criteria:

- Does the student volunteer to ask questions?
- When participating synchronously does the student appear to be present and attentive?
- Does the student give *constructive* comments on other students work (as required in Miro)?

### Work Upload

Following reviews you will be required to upload all of your work. You will not receive your final grade until all your required work is uploaded. More instructions on this process will be distributed during the semester.

### Absences & Late Attendance Policy

You may miss one week of class instruction (one class) unexcused without penalty to your grade. Each class following will be a reduction 1/3 of a letter grade (e.g. B+ to B). Late attendance (with considerations of time zone, as per the Provost guidelines, above) will be tracked and seriously impact your participation grade.

### Letter Grade from Percentage

A      93–100%

A-	90-92%
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	0-59%

## Communication Tools

USC Blackboard will be the official repository of major announcements, the syllabus, assignment sheets, and readings.

[Blackboard help for students](#)

**Miro** will be used as a digital pin up space. You will be invited to a board and this will make you a member.

**Slack** is an important communication tool and the assigned class channel should be regularly checked. The platform will be used as a semi-formal group chat space. Official announcements, assignment clarifications, scheduling changes, relevant links, and more will be communicated via Slack. Some assignments will employ Slack specifically. You may directly message the instructor on Slack. You should be automatically added to the Slack channel dedicated to your class.

## Statement on Academic Conduct and Support Systems

### 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](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, [policy.usc.edu/scientific-misconduct](http://policy.usc.edu/scientific-misconduct).

### Support Systems:

*Counseling and Mental Health - (213) 740-9355 – 24/7 on call*  
[studenthealth.usc.edu/counseling](http://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](http://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](http://studenthealth.usc.edu/sexual-assault)

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

*Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298*

[equity.usc.edu](http://equity.usc.edu), [titleix.usc.edu](http://titleix.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](http://usc-advocate.symplicity.com/care_report)

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

*The Office of Disability Services and Programs - (213) 740-0776*

[dsp.usc.edu](http://dsp.usc.edu)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

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

[campussupport.usc.edu](http://campussupport.usc.edu)

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

*Diversity at USC - (213) 740-2101*

[diversity.usc.edu](http://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](http://dps.usc.edu), [emergency.usc.edu](http://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](http://dps.usc.edu)

Non-emergency assistance or information.