ARCH 207 Computer Applications in Architecture
Units: 2
Spring 2022—Fridays—10-11:20am

Location: WAH B1
https://maps.usc.edu/?id=1928&reference=WAH#lm/552474

ZOOM:
https://usc.zoom.us/j/95432012632?pwd=dHVSOWo2aHN6L05ZeENSbHpkm2gxZz09

Instructor: Sarah Hammond
Office Hours: by appointment
Contact Info: skhammon@usc.edu

Course Description
Through a series of lectures and workshops, students will learn the benefits of parametric design and achieve a level of design complexity beyond traditional digital modeling techniques.

As a part of this course, we will explore computational strategies to develop and to control complex geometries paralleling industry case studies. Students will gain a foundation in the design tool Grasshopper in Rhino3D and various plug-ins like Kangaroo Physics, Weaverbird, Ladybug, and Galapagos. We will also introduce simple loops in the Python programming language, allowing students to create their own custom components.

Learning Objectives
Students will:
- Learn the Rhino3D and Grasshopper UI.
- Think parametrically.
- Understand industry applications of computational design.
- Demonstrate an understanding of data management.
- Learn how to design and to control complex geometries.
- Integrate Python to create custom components.
- Explore optimization techniques.
- Manipulate imagery.
- Implement Grasshopper plug-ins to advance design creation.
- Utilize algorithmic design.

Recommended Preparation: Familiarity with Rhino3D is recommended.
Course Notes
Students will have weekly labs and two projects (midterm and final). Class will be divided into the following parts:
1. Lab Review (if assigned)
2. Lecture + Precedent
3. Tutorial
4. Workshop

Technological Proficiency and Hardware/Software Required
Students should bring their laptop and mouse to class. The following software is required: Rhino3D + Grasshopper

Required Readings and Supplementary Materials

Grading Breakdown

<table>
<thead>
<tr>
<th>Assessment Tool (assignments)</th>
<th>Points</th>
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<tbody>
<tr>
<td>Labs (8)</td>
<td>40</td>
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<tr>
<td>Midterm Project</td>
<td>15</td>
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<tr>
<td>Final Project</td>
<td>35</td>
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<td>Participation</td>
<td>10</td>
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<td>TOTAL</td>
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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
When assigned, labs will be due Wednesdays at 11:59pm.

Grading Timeline
Labs submitted on time will be graded before the following class.
Additional Policies
Late labs will have 1 point deducted from the final score each day past the due date. Labs must be submitted before the following class session when the answers will be reviewed. If not received by then, students will receive a 0.

Course Schedule: A Weekly Breakdown
Subject to change throughout the semester

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<tr>
<th>Week</th>
<th>Lab</th>
<th>Lab Due Date</th>
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SPRING RECESS

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FINAL Project Review
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. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

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 of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298 equity.usc.edu, 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
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
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
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
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.