

USC School of Architecture | Fall 2018 | ARCH 410  
Instructor: Biayna Bogosian <bbogosia@usc.edu>  
Schedule: August 10-18, 2018, 9:00am-1:00pm & 2:00pm-6:00pm  
Location: Watt Hall 201

## **COMPUTER TRANSFORMATIONS: introduction to precision modeling and representation techniques**

### **OVERVIEW**

This seminar focuses on the development of critical and technical skills for production of rigorous formal and graphic documentations. As an introduction to the world of computerization and computational design, we will follow a list of prescribed exercises, which will elevate the students' proficiency in tool use. This process will consist of seven assignments; each part will contain modeling/drawing/analysis agendas. The lessons will oscillate between 2D and 3D digital productions, managed with acts of high fidelity. This course is also devoted to the development of the students' visual intelligence and expanding the territories of architectural graphic conventions. The goal is to encourage skillful observation and translation of architectural strategies in order to learn the basics of computer integrated design and achieve critical modes of representation.

### **LEARNING OBJECTIVES**

This course is designed to introduce advanced architectural representation using Rhinoceros 3D - a NURBS surface modeling program. This seminar will provide the ability to fluidly navigate through an array of representation applications to develop, test, produce and communicate various drawing and design ideas. Through lectures, discussions, and hands-on tutorials, the students will develop technical and analytical communication skills for their future design studio courses. The main acquired knowledge will entail advance skills for graphical diagramming, orthographic drawing, three-dimensional modeling, rendering with current software, and computational modeling techniques. Students will be tasked to realize multiple forms of visual communication techniques by delivering complete, formatted, and timely submissions of high-quality, clear composition graphic outputs.

### **SOFTWARE REQUIREMENTS**

Drawing/Modeling/Analysis/GIS data management: Rhino + Grasshopper + Grasshopper plugins  
Presentation + Layout: Adobe Photoshop + Adobe Illustrator + Adobe InDesign

## DESCRIPTION AND ASSESSMENT OF ASSIGNMENTS

Seven assignments are scheduled throughout the duration of this course, which will test the student's understanding of the analytical and technical topics covered in class. These assignments will require one to follow in-class tutorials and discussions. To demonstrate that the student has completed each tutorial, he/she will submit a digital file to the course's Blackboard page.

## SCHEDULE BREAKDOWN

Date	Topics/Daily Activities	Homework Assigned Deliverables
Friday, August 10	<ul style="list-style-type: none"><li>• Course Overview</li><li>• Intro to Rhino Interface + Geometry types</li></ul>	
Saturday, August 11	<ul style="list-style-type: none"><li>• Group selection</li><li>• 2D drawing construction + conventions</li><li>• 3D modeling</li></ul>	<ul style="list-style-type: none"><li>• Assignment 1 Due: Module file submission</li></ul>
Sunday, August 12	<ul style="list-style-type: none"><li>• Intro to Grasshopper</li><li>• Intro to GIS in Grasshopper</li></ul>	<ul style="list-style-type: none"><li>• Assignment 2 Due: Module 2D documentation + 3D model</li></ul>
Monday, August 13	<ul style="list-style-type: none"><li>• Surface operations in Grasshopper</li><li>• Module instantiation + differentiation in Grasshopper</li></ul>	<ul style="list-style-type: none"><li>• Assignment 3 Due: Site identification + analysis</li></ul>
Wednesday, August 15	<ul style="list-style-type: none"><li>• Rendering in Rhino</li><li>• Hybrid representation techniques</li><li>• Intro to board layout</li></ul>	<ul style="list-style-type: none"><li>• Assignment 4 Due: Module Integration w/ site</li></ul>
Thursday, August 16	<ul style="list-style-type: none"><li>• In-class work session</li></ul>	<ul style="list-style-type: none"><li>• Assignment 5 Due: Board mock-up (digital)</li></ul>
Friday, August 17	<ul style="list-style-type: none"><li>• In-class work session</li></ul>	<ul style="list-style-type: none"><li>• Assignment 6 Due: Board mock-up (printed)</li></ul>
Saturday, August 18	<ul style="list-style-type: none"><li>• In-class work session</li></ul>	<ul style="list-style-type: none"><li>• Assignment 7 Due: Final Board (printed + mounted)</li></ul>

## GRADING AND EVALUATION

Course assignments will be graded according to quality, clarity, intricacy, creativity and depth of operations. Careful planning and a serious, consistent commitment will be required for you to successfully navigate the various deliverables in this course. As such, consistent and interactive attendance is required. Attendance and participation will be reflected in final grades.

The table below demonstrates all Arch410 assignments and their point distribution:

Type	Percentage	Assessment
Assignment 1	5	Individual
Assignment 2	10	Group
Assignment 3	10	Group
Assignment 4	10	Group
Assignment 5	10	Group
Assignment 6	15	Group
Assignment 7	30	Group
Participation	10	Individual
<b>Total</b>	<b>100</b>	

## LATE POLICY

A half grade will be deducted from an assignment each day that it late (e.g. an assignment graded as an A will become a B+ if it is submitted two days late). The instructor might not penalize the student if the student submits convincing evidence of a medical or other emergency that made completing the assignment at the scheduled time impossible.

## 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, <http://policy.usc.edu/scientific-misconduct>.

### Support Systems:

*Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call*

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. [engemannshc.usc.edu/counseling](http://engemannshc.usc.edu/counseling)

*National Suicide Prevention Lifeline – 1 (800) 273-8255*

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. [www.suicidepreventionlifeline.org](http://www.suicidepreventionlifeline.org)

*Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call*

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. [engemannshc.usc.edu/rsvp](http://engemannshc.usc.edu/rsvp)

*Sexual Assault Resource Center*

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: [sarc.usc.edu](http://sarc.usc.edu)

*Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086*

Works with faculty, staff, visitors, applicants, and students around issues of protected class. [equity.usc.edu](http://equity.usc.edu)

*Bias Assessment Response and Support*

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. [studentaffairs.usc.edu/bias-assessment-response-support](http://studentaffairs.usc.edu/bias-assessment-response-support)

*The Office of Disability Services and Programs*

Provides certification for students with disabilities and helps arrange relevant accommodations. [dsp.usc.edu](http://dsp.usc.edu)

*Student Support and Advocacy – (213) 821-4710*

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. [studentaffairs.usc.edu/ssa](http://studentaffairs.usc.edu/ssa)

*Diversity at USC*

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. [diversity.usc.edu](http://diversity.usc.edu)

*USC Emergency Information*

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. [emergency.usc.edu](http://emergency.usc.edu)

*USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.* Provides overall safety to USC community. [dps.usc.edu](http://dps.usc.edu)