ARCH 113 | Visual and Digital Media II

Rooftop Garden Design for Rio de Janeiro Ministry of Public Health and Education by Roberto Burle Marx, gouache and graphite on board, 1938.

Schedule

Fridays 9:30AM-12:30PM, 1:30PM-5:30PM EST

Instructor

Isabel Ochoa (she/her) – iochoa@uwaterloo.ca

Teaching Assistants

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Territorial Acknowledgment

We acknowledge that the School of Architecture is located on the traditional territory of the Neutral, Anishinaabeg and Haudenosaunee peoples. The University is situated on the Haldimand Tract, the land promised to the Six Nations that includes 10 kilometres on each side of the Grand River. (see references here: https://uwaterloo.ca/engineering/about/territorial-acknowledgement)

Course Description

ARCH 113 introduces students to computing techniques for architectural drawing. Building on the graphic practices acquired in ARCH 110, ARCH 113 engages students in 3D modeling and digital representation to develop design ideas and effectively convey spatial information. Throughout the term, architectural representation will be utilized as a tool for two purposes:

1. **Research –** Involves utilizing drawings and models to learn about, test and challenge design ideas. ARCH 113 will focus on exploring the role of digital tools in architectural design.
2. **Communication –** Involves conveying design objectives to others. The success of a design project relies on our ability to communicate its intent clearly and thoughtfully. Architectural drawing is therefore both a tool and a craft. This course seeks to equip students with a technical and analytical skillset applicable from conceptualization to production in the process of design.

ARCH 113 will act as a support course for work developed in ARCH 193: Design Studio. Lectures and tutorials will provide students with a practical understanding of architectural drawing conventions and digital workflows. Students are expected to develop their visual communication skills by applying drawing conventions and digital workflows with precision and intent. Lab assignments will provide the opportunity to research and explore possibilities for innovative extensions of these practices.

There are endless software and digital workflows that can broaden the scope of our creative projects. These tools are constantly evolving in parallel with standards across the architectural profession. They can rapidly change or become obsolete. Therefore, maintaining fluid digital literacy requires both knowledge of the operations available to designers as well as an understanding of how to engage digital media, regardless of the specific tools. For the purposes of this course, we will be working across the following digital platforms:

- **Rhinoceros 7** will be the primary software used for Computer Aided Drafting (CAD) and Computer Aided Modelling (CAM).
- **Enscape** will be the primary software used for rendering.
- **Vray** will be an alternate software used for rendering specific drawing types.
- **Adobe Photoshop CC** will be used for editing raster graphics.
- **Adobe Illustrator CC** will be used for creating and editing vector graphics.
- **Adobe InDesign CC** will used for creating and editing layouts.

As you continue to build on your representational toolkit throughout the term, it is important to continually question the efficacy of your newly acquired digital workflows. While software can increase efficiency and broaden creative scope, it can also be distracting, time-consuming and detrimental to a project when used without thoughtful consideration. There is a high level of abstraction that occurs when we move away from orthographic drawing to 3D modeling. Without context and scale to ground our work in 3D space, it is easy to become absorbed in needless details or conceive of the buildings we design without experiential considerations. As a result, we will spend time discussing how to use software nimbly and productively.

Course Goals and Learning Outcomes

The following is a list of expected learning outcomes for ARCH 113, as per the *Canadian Architectural Certification Board* guidelines outlined by the University of Waterloo School of Architecture:

A1. Critical Thinking Skills
"Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well reasoned conclusions, and test them against relevant criteria and standards"
▪ Build adeptness and critical intuition for digital representation workflows. This means determining what are the most appropriate methods of digital craft and how to use them.

A2. Research Skills
"Ability to employ basic methods of data collection and analysis to inform all aspects of the programming and design process."
▪ Utilize architectural drawing as a method of inquiry to support design processes.
▪ Establish healthy habits for successful digital workflows and collaboration.

A3. Graphic Skills
"Ability to employ appropriate representational media to convey essential formal elements at each stage of the programming and design process."
▪ Develop a practical understanding of architectural drawing conventions and techniques.
▪ Learn and apply the fundamentals of 2D drawing and 3D modelling.
▪ Learn and apply the fundamentals of digital graphics. This includes raster graphics, vector graphics and layouts.
▪ Make appropriate and creative decisions in presenting work.

A9. Precedents
"Ability to make a comprehensive analysis and evaluation of a building, building complex, or urban space."
▪ Gather and evaluate architectural drawing precedents to build graphic literacy.

Structure

Class time will be split between three sections:

Lectures (~0.5-1hr) – Will focus on examining drawing conventions and methods of architectural representation as well as their applications and efficacy across different contexts. Each week we will look at a set of drawing types that form part of your deliverables for ARCH 193.

Tutorials (~1-2hrs) – Will focus on digital skill acquisition. These tutorials will explain the fundamental tools required to complete the course work. However, it is expected that you utilize architectural drawing as a mode of inquiry to advance your skillset beyond this training. Tutorials will set up the framework for completing weekly lab assignments.

Labs (~4hrs) – Lab assignments are to be completed during the rest of the afternoon. The teaching team will be available for support until 5:30pm EST.

Resources

There are no required textbooks for this course. Students are strongly encouraged to reference publications and digital media as a way of developing graphic literacy.

Hardware requirements:
- Working laptop and mouse.
- External hard drive for regular file back-ups.

Software requirements:
- Rhinoceros 7
- Enscape
- Vray
- Adobe Photoshop CC
- Adobe Illustrator CC
- Adobe InDesign CC

*Note: Enscape is not supported by Mac OS. Students using Mac OS computers will need to run Bootcamp on their machines. Support for this is available through the Architecture Computing and Media (ACM) office.

Course Assessment

Students must complete all exercises and obtain a passing average to receive credit for this course. Course assessment will be broken up into three sets of deliverables:

Assignments 1-9 – *70% of total grade*
- 4 labs @5%, 5 labs @10%
- Lab assignments are structured as exercises to be completed during class time.

Final Assignment – *25% of total grade*

Participation and Attendance – *5% of total grade*
- 2.5% of the total grade will be deducted for every class missed. Two or more classes missed will result in a grade of 0% for the attendance portion of this course. Attendance will be taken at each class.

  In addition to the criteria provided as part of each assignment outline, all submission will be evaluated on:

- Completion of deliverables.
- Craft, clarity and precision of the work.
- Demonstrated understanding of digital skillset acquired during tutorials.
- Consideration of compositional principles and communication techniques covered during lectures.

Course Delivery Platforms and Communication

The following platforms will be used to deliver, organize, and share course content:

- **LEARN –** Work submission, grade recording and release.
- **Email –** Official communications including communications outside of class hours.
- **Microsoft Teams –** Remote lectures, live communications during class hours, tutorials and seminars, course documents and recorded lectures.
- **Miro –** Virtual pin-up space for presenting and sharing work.

Response times for communication outside class time with the teaching team will be up to 24 hours, Monday to Friday 9AM-6PM EST. Please use **email only** to communicate with the teaching team outside of class hours. When asking the teaching team for digital support, please follow these protocols:

- Include files in question.
- List the steps you have already taken in problem-solving.
- Include images and notes of what you are trying to achieve.

Course Time Zone

All dates and times communicated in this outline and the duration of the course are expressed in Eastern time (local time in Waterloo, Ontario, Canada).

Covid-19 Special Statement

Given the continuously evolving situation around COVID-19, students are to refer to the University of Waterloo's developing information resource page (https://uwaterloo.ca/coronavirus/) for up-to-date information on academic updates, health services, important dates, co-op, accommodation rules and other university level responses to COVID-19.

Notice of Recording

As we pivot to remote teaching to start the term, instructors may need to record lectures. In this case, the course's official Notice of Recording document will be found on the course's LEARN site. This document outlines shared responsibilities for instructors and students around issues of privacy and security. Each student is responsible for reviewing this document.

Fair Contingencies for Emergency Remote Teaching

We are facing unusual and challenging times. The course outline presents the instructor's intentions for course assessments, their weights, and due dates in Winter 2022. As best as possible, we will keep to the specified assessments, weights, and dates. To provide contingency for unforeseen circumstances, the instructor reserves the right to modify course topics and/or assessments and/or weight and/or deadlines with due and fair notice to

students. In the event of such challenges, the instructor will work with the Department/Faculty to find reasonable and fair solutions that respect rights and workloads of students, staff, and faculty.

Late Work

Assignments that are handed in late will receive 0%. No late work will be accepted.

ARCH 113 relies on digital tools to complete all course deliverables. Students are expected to work diligently to ensure all assignments are submitted on time. Digital fluency, including file and software maintenance, are critical to both your academic success as well as your professional development. Computer crashes, corrupt files or forgetting to save or back-up will not be acceptable excuses for late submissions.

Only in the case of a justified medical or personal reason will these penalties be waived, and only if these have been officially submitted to the Undergraduate Student Services Co-Ordinator and accepted by the Undergraduate Office. Students seeking accommodations due to COVID-19, are to follow Covid-19-related accommodations as outlined by the university here: (https://uwaterloo.ca/coronavirus/academic-information#accommodations).

Passing Grades

The standard minimum passing grade in each ARCH course is 50% with the following exceptions: the minimum passing grade is 60% for all studio courses (ARCH 192, ARCH 193, ARCH 292, ARCH 293, ARCH 392, ARCH 393, ARCH 492, and ARCH 493). Grades below the specified passing grade result in a course failure.

Mental Health Support

All of us need a support system. We encourage you to seek out mental health supports when they are needed. Please reach out to Campus Wellness (https://uwaterloo.ca/campus-wellness/) and Counselling Services (https://uwaterloo.ca/campus-wellness/counselling-services).

Equity Diversity and Inclusion Commitment

The School of Architecture is committed to foster and support equity, diversity and inclusion. If you experience discrimination, micro-aggression, or other forms of racism, sexism, discrimination against 2SLGBTQ+, or disability, there are several pathways available for addressing this:

A. If you feel comfortable bringing this up directly with the faculty, staff or student who has said or done something offensive, we invite you, or a friend, to speak directly with this person. People make mistakes and dealing them directly in the present may be the most effective means of addressing the issue.
B. You can reach out to either the Undergraduate office, Graduate office, or Director (Anne Bordeleau). If you contact any of these people in confidence, they are bound to preserve your anonymity and follow up on your report.

C. You can choose to report centrally to the Equity Office. The Equity Office can be reached by emailing equity@uwaterloo.ca. More information on the functions and services of the equity office can be found here: https://uwaterloo.ca/human-rights-equity-inclusion/about/equity-office.

D. Racial Advocacy for Inclusion, Solidarity and Equity (RAISE) is a student-led Waterloo Undergraduate Student Association (WUSA) service launching in the Winter 2019 term. RAISE serves to address racism and xenophobia on the University of Waterloo campus with initiatives reflective of RAISE's three pillars of Education and Advocacy, Peer-to-Peer Support, and Community Building. The initiatives include but are not limited to: formal means to report and confront racism, accessible and considerate peer-support, and organization of social events to cultivate both an uplifting and united community. You can report an incident using their online form.

We understand that these circumstances can be troubling, and you may need to speak with someone for emotional support. Good2Talk (https://good2talk.ca/) is a post-secondary student helpline based in Ontario, Canada that is available to all students.

Academic Integrity, Grievance, Discipline, Appeals, and Note for Students with Disabilities

Academic integrity – In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check the Office of Academic Integrity for more information.]

Grievance – A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4. When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline – A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for his/her actions. [Check the Office of Academic Integrity for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline. For typical penalties, check Guidelines for the Assessment of Penalties.

Appeals – A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals.

Note for students with disabilities – AccessAbility Services, located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Turnitin.com – Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit the alternate assignment.

Topics and Schedule

Week	193 Project	Date	Lecture/Topics	Workflows	Lab	Evaluation	Due
01	P1	January 7	Drawing Site Part 1	Rhino, Illustrator	Lab 01	5% - completion	January 7 at 9:00PM EST
02		January 14	Tectonic Morphologies/ Advanced 3D Modelling	Rhino, Illustrator	Lab 02	10% - quality/craft	January 14 at 9:00PM EST
03		January 21	Paraline Drawings	Rhino, Illustrator	Lab 03	10% - quality/craft	January 21 at 9:00PM EST
04		January 28	TBD	Work session for ARCH 193 P1.3 Deadline – Sign-up with ARCH 113 teaching team			
05	P2	February 4	Sectional Perspectives	Rhino, Illustrator	Lab 04	5% - completion	February 4 at 9:00PM EST
06		February 11	Graphic Narratives	InDesign	Lab 05	10% - quality/craft	February 11 at 9:00PM EST
07		February 18	TBD	Teaching Team Q+A			
			Reading Week (February 21 - February 27) – No Class				
08	P3	March 4	Drawing Site Part 2	Rhino	Lab 06	5% - completion	March 4 at 9:00PM EST
09		March 11	Principles of Composition/ Introduction to Rendering	Rhino, Enscape	Lab 07	5% - completion	March 11 at 9:00PM EST
10		March 18	Advanced Photoshop	Rhino, Photoshop	Lab 08	10% - quality/craft	TBD
			University Holiday Closure on March 25th – No Class				
11	P3	April 1	Composite Drawings	Rhino, Illustrator, Photoshop	Lab 09	10% - quality/craft	TBD
			Classes End Tuesday April 5				
			Final Assignment Due Last Day of Exams – April 26 at 11:59PM EST				

note: course content and lab assignments are subject to change