



**Carleton
University**



**Azrieli School of
Architecture & Urbanism**

COURSE OUTLINE

ARCN 5005 - Theory and Practice of Architectural Representation

Fall 2023

Thursday, 13:35 – 16:25 Room AA-435

1.0 - GENERAL INFORMATION

INSTRUCTORS

Nicolas Arellano Risopatron (he/him), BAS, PhD Candidate

TEACHING ASSISTANTS

N/A

OFFICE HOURS

Office hours will be online and flexible. We suggest that you make an appointment via email or talk to your instructor before or after class to make an appointment.

Tuesday 9:30 to 11:30 am (Online via Zoom link found on Brightspace or in person if required)

1. Weekly consultation with the instructor
2. All questions to be placed on GitHub issue.
(<https://github.com/nicoarellano/reposarch/issues>)
The process will be explained on the first class.
3. Questions shall be responded during office hours only. Students are encouraged to attend consultations.
4. consultation time to schedule the consultation. Instructor shall be present during office hours only if a consultation request has been received in the timeline requested and will only remain online as long as students have questions/discussions.
5. No course material questions will be answered via email, all questions relating to course material not brought up during a consultation must be submitted to the issues page, unless anonymity is required, in that case, email to the instructor will be permitted.
(nicolasarellanorisop@cmail.carleton.ca).
6. All questions will be responded to in a manner that the entire class can benefit

CALENDAR DESCRIPTION

'Free-hand drawing' as a way of observing and understanding the world. Various media and techniques introduced through a wide range of studio exercises.

Includes: Experiential Learning Activities.

COURSE DESCRIPTION

The course reflects on the use of computers and computer coding for architectural representation, and it analyses the different ways in which coding can impact architecture.

It will explore the obstacles that architects must overcome in order to benefit from a fruitful relationship between computers and architecture.

Coding has the potential to further expand the current limits of our imagination. Computers are a tremendous contribution to our architectural exploration if we continue to explore innovative research that includes human input with computer logic and processing power to arrive at collaborative solutions.

Every class will be followed by a workshop that will teach students the skills to understand, modify, and to develop digital tools. This will give them awareness of the parts of a digital software in order to understand its biases and potential.

The full course description could be found in this link:

<https://reposarch.vercel.app/arcn5005/course-description>

Topics:

- Digitalization
- Coding
- Open source software for architects
- 3d modelling
- Open BIM (IFC)
- Open GIS
- Collaboration techniques

PREREQUISITES

N/A

COURSE AIMS AND LEARNING OUTCOMES

Upon completing this course students should be able to:

- 1) Use Open Source software for CAD, 3D modeling, BIM, photogrammetry, and GIS.
Alternative to mainstream proprietary software
- 2) Introduction to basic coding and visual programming tools
- 3) Introduction to web development techniques
- 4) Web collaboration using GitHub.

2.0 - METHODOLOGIES, THEORIES AND PRINCIPLES

In person lectures, in person workshops, online lectures, visual presentations, supplementary readings and audiovisual resources, quizzes, and assignments.

3.0 ASSIGNMENTS, SCHEDULE, & ASSESSMENT

COURSE ASSIGNMENTS

1. Quizzes will be based on the material presented in the lectures.
2. Assignments will be based on the labs or workshops. They will be individual, and group based.

The assignments will be further articulated in the Project Brief

COURSE SCHEDULE

The full course schedule can be found here:

<https://reposarch.vercel.app/arcn5005/toc>

CRITICAL DATES

The course calendar will be found here:

<https://reposarch.vercel.app/arcn5005/calendar>

Evaluation		Weight	
Quiz 1	10%	Week 5: October 5th at 14:35	Week 5: Online quiz (Brightspace) 20 minutes at the beginning of the class - It will cover contents of 4 first weeks
Assignment 1	10%	Week 7: October 19th at 14:35	3d model using Blender, MeshRoom and Three.js
Quiz 2	10%	Week 9: November 9th at 14:35	Week 5: Online quiz (Brightspace) 20 minutes at the beginning of the class - It will cover contents of 7 first weeks
Assignment 2	10%	Week 11: November 23th at 14:35	BIM model using Blender + Blender BIM and ifc.js
Quiz 3	10%	Week 12: November 30th at 14:35	Week 5: Online quiz (Brightspace) 20 minutes at the beginning of the class - It will cover contents of 11 first weeks
Assignment 3	10%	Week 13: December 07th at 14:35	Custom map using Maplibre
Final Assignment	30%	Week 15: December 18th time TBD	Combine all together into a GIS/BIM platform

ASSIGNMENT WEIGHT & GRADING

This course has multiple outputs spread throughout the duration of the term.

Quiz 1	10%
Quiz 2	10%
Quiz 3	10%
Assignment 1	10%
Assignment 2	10%
Assignment 3	10%
Final Assignment	30%
Attendance	10%

GRADING

For the grade in the “A” range, the instructor will have judged the student to have satisfied the stated objectives of the course in an outstanding to excellent manner; for the “B” range, in an above average manner; for the “C” range, in an average manner with C- being the lowest acceptable grade in the BAS - Design Core courses; for the “D” range, in the lowest acceptable manner in non-Core courses, and for “F”, not to have satisfied the stated objectives of the course.

Grades will be assigned as A+ (90-100%), A (85-89%), A- (80-84%), B+ (77-79%), B (73-76%), B- (70-72%), C+ (67-69%), C (63-66%), C- (60-62%), D+ (57-59%), D (53-56%), D- (50-52%), F (0-49%) and ABS.

A grade of C- or better in each course of the BAS Core courses (ARCS) is required for a student to remain in *Good Standing*.

Please refer to the Undergraduate Calendar for regulations concerning grades and other program requirement information:

<https://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/grading/>

Regulations concerning grades and other program requirement information specific to the Architecture program can be found here:

<https://calendar.carleton.ca/undergrad/undergradprograms/architecturalstudies/>

** Each grade will be based upon a comparison (1) with other students in the course and/or (2) with students who have previously taken the course and/or (3) with the instructor's expectations relative to the stated objectives of the course, based on his/her experience and expertise.

ATTENDANCE

Attendance to class is mandatory. It is your responsibility to be informed of decisions and announcements made during scheduled class time. Frequent unaccounted-for absences may result in a failing grade, whether or not exams or assignments have been completed.

FEEDBACK & EVALUATION PROCEDURES

For assignments: Every tutorial session is feedback. Students will receive additional feedback at the scheduled review dates and the work will be evaluated, and feedback given within two weeks of each assignment date.

For quizzes: Students will receive feedback at assessment points the same day.

EVALUATION CRITERIA

- **Self-directed work:** initiative in completing the required work and your engagement in each class,
- **Creativity, spatial imagination:** thoughtfulness, rigour and clarity of design thinking; intelligence and sophistication of architectural proposition, and how work compares to other students in the class and from previous years,
- **Process work, engagement and attitude:** preparedness at weekly tutorials/workshops and pin-ups; steady and improved elaboration of formal and spatial ideas (e.g. through sketches, drawings, and study models),
- **Application of technologies and skills:** knowledge, and ability of digital and analog techniques,
- **Completeness and craft of the work:** ability to meet deadlines.
- **Review preparedness:** the professionalism of presentation and quality of verbal communication and work presented.

Discretionary Evaluation Criteria – determined through class participation

- **Independence & self-directed work:** initiative and engagement in the studio work and the thoughtful evaluation and interpretation of all project requirements.
- **Review preparedness:** the professionalism of presentation and quality of verbal communication and work presented.
- **Attendance**

ACADEMIC INTEGRITY

It is a student's responsibility to know and understand Carleton University's Student Rights and Responsibilities and Academic Integrity policies:

<https://carleton.ca/secretariat/wp-content/uploads/Students-Rights-and-Responsibilities-Policy.pdf>

<https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy-2021.pdf>

- All academic work must be a student's own, completed through their intellectual and physical abilities.
 - Understand the full breadth of what constitutes plagiarism; cite and reference all sources, including non-academic, video (tutorial) and film sources properly (Chicago style preferred).
 - Unless explicitly stated or agreed to in writing, students may not use Artificial Intelligence tools (i.e., ChatGPT or Midjourney) to start, develop and/or complete an assignment.
 - Collaboration or teamwork is encouraged. The assignment work and process must be available to be checked by classmates.
- Quizzes are meant to be kept private.

LATENESS

1% of the project grade will be deducted for every day of lateness. The first 1% is initiated immediately after the deadline.

ANNOUNCEMENTS & CORRESPONDENCE

Please listen to all announcements and/or read all Brightspace correspondence carefully.

A growing frustration is the continual repetition of instructions, and request for additional clarification. An important ability in any profession is the thoughtful evaluation and interpretation of the project brief – this is a valuable skill all students need to learn and practice.

4.0 RESOURCES - COURSE COSTS

Computer and Software Requirements

Hardware:

1. It is expected that all students have access to a computer to complete course assignments. Unless discussed with the instructor, every student must bring their own laptop to every class.
2. It is expected that all students have access to a smartphone or digital camera.

Software: Design software to complete course assignments.

Free and /or Open source software will be sufficient to complete all the course assignments.

1. The students will be required to use the following programs:
Visual Studio Code: <https://code.visualstudio.com/download>
And its extensions
 - a. Live Server:
<https://marketplace.visualstudio.com/items?itemName=ritwickdey.LiveServer>
 - b. Prettier:
<https://marketplace.visualstudio.com/items?itemName=esbenp.prettier-vscode>
 - c. Material Icon Theme:
<https://marketplace.visualstudio.com/items?itemName=PKief.material-icon-theme>

- d. Console Ninja:
<https://marketplace.visualstudio.com/items?itemName=WallabyJs.console-ninja>
- e. Auto Import:
<https://marketplace.visualstudio.com/items?itemName=steoates.autoimport>
- 2. Node js: <https://nodejs.org/en/download>
- 3. Blender: <https://www.blender.org/download/>
- 4. BlenderBim: <https://blenderbim.org/download.html>
- 5. Meshroom: <https://alicevision.org/#meshroom>

Materials

N/A

IN-CLASS RESOURCES

1. The instructor will provide a list of recommended reading resources. The bibliography or the course can be found here:
<https://reposarch.vercel.app/arcn5005/resources>
2. The instructor will provide the links of YouTube videos that the students must watch.

SELF-DIRECTED RESOURCES

Increasingly, student's desire additional computer resources and tutorials. Please review the school calendar for workshop dates

OUT-OF-CLASS COMMITMENTS & WORKLOAD

It will be recommended that the students participate in this webinar scheduled outside of class hours:

Wednesday, September 20th – 13:00. That open company former ifc.js release.

<https://thatopen.com/f001-p01-launch-optin>

ACCOMMODATIONS

It is a student's responsibility to self-identify as needing accommodations and initiate a constructive dialogue with your instructor(s). If you require accommodations, please let your instructor(s) know early so that a plan can be developed and agreed upon in the beginning weeks of term – *please see below in the boiler plate for additional information.*

STUDENT PERFORMANCE CRITERIA

For the purposes of accreditation, graduating students must demonstrate understanding or ability in the areas listed below, according to an established sequence. This table lists 24 STC for the professional programs sequence.

- A1. Design Theories, Precedents, and Methods
- A2. Design Skills
- A3. Design Tools
- A4. Program Analysis
- A5. Site Context and Design
- A6. Urban Design
- A7. Detail Design

A8. Design Documentation

SECURITY AND SAFETY

- Avoid Working Alone After Hours · In Case of Emergency, Dial Extension 4444 from any campus phone.

INTELLECTUAL PROPERTY, COPYRIGHT AND FAIR DEALINGS

As a condition of participating in the course and for the purpose of academic evaluation, students will be required to upload in-progress and completed work to the instructor's desired online platform(s). It is expressly understood that any such records or copies of student work will be used for nonprofit presentation and for the purposes of this authorization, nonprofit presentation includes showing, screening, publication and releases or presentation as a public service by internet distribution, commercial broadcasting or publication in furtherance of course-specific and institutional learning objectives.

For reasons of intellectual property and copyright, please under no circumstances download course documents or presentations for distribution without first acquiring written permission of the author/instructor.

EQUITY, DIVERSITY, AND INCLUSION COMMITMENT

The Azrieli School of Architecture and Urbanism 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 Department of Equity and Inclusive Communities (EIC). EIC can be reached by emailing equity@carleton.ca. More information on the functions and services of the EIC can be found here: <https://carleton.ca/equity/focus/>.

Academic Accommodations

Carleton is committed to providing academic accessibility for all individuals. Please review the [processes for academic accommodation requests](#) and ensure the link to this information is included in all course outlines/syllabi for courses you are teaching this academic year.

Exam Information

e-Proctoring

[Scheduling and Examination Services \(SES\)](#) is offering e-proctoring for online and in-person digital exams this Fall. If you wish to use this service, apply via the [e-Proctoring application form](#) by September 20, and [mention or include a note about e-Proctoring in your course outlines](#). For more details, visit the SES [e-Proctoring overview page](#).

SES administration of in-person tests/exams outside of class time

Scheduling and Examination Services (SES) offers in-person exam administration for online courses without a fixed class time, or multi-section courses that require synchronized testing. Please specify in your course outline that assessments will occur on campus and outside of regular class time (which can include Friday evening, Saturday or Sunday). Services provided include conflict-free scheduling, space reservation, online exam creation if applicable, accommodation for PMC students, and proctoring. To use this service, [submit a request](#) by September 19. Scheduling and Examination Services will reach out to you with finalized exam scheduling information by September 29. We strongly encourage those who are opting for assessments outside of class time to have them scheduled by SES in order to reduce conflicts and overloads for students.

For students studying remotely, varsity athletes, or those with extenuating circumstances, the flexibility of distance exams is available. Students interested should [apply by](#) September 22. More details can be found on the [Distance Exams overview page](#). If you have questions, contact OnlineExams@carleton.ca.

Important Dates for 2023-24

A [full list of important dates](#) is available on the Calendar website. Please note that the academic withdrawal dates have changed recently. Consult the [Calendar website](#) for the most up to date information.

Fall Term 2023

Course Outlines: Course outlines must be made available no later than August 29 to students registered in Full Fall, Early Fall and Fall/Winter courses, and no later than October 23 to students registered in Late Fall courses.

Deferred Exams: Full Summer and Late Summer term deferred final examinations will be held September 22 to 24; Early Fall undergraduate deferred final examinations will be held November 17 to 19.

Fall Break: Carleton students will have a week-long break from October 23-27. No classes will take place during this time. Students cannot be required to attend class or submit coursework from Sunday, October 22 to Sunday, October 29.

The following exceptions may apply:

- If it is necessary to hold a test after Friday, October 20 due to exceptional circumstances, it can only be scheduled on Saturday, October 21. This timing must be announced on the course outline that is distributed at the beginning of the term.
- Final exams for Early Fall undergraduate courses may be held on October 28 and 29.

Class Transition Time

Please respect the start and end times of courses in order to ensure a smooth transition between classes. In general, course instructors have five minutes to set up course materials before beginning teaching and five minutes to wrap up course materials before the next class commences. If you have questions, please contact timetabling@carleton.ca.