



Winter 2024

Course Number	ARCH694.10 L01	Classroom	CBDL "D"
Course Name	Parametric Composites		
Pre/Co-Requisites			
Instructor	Guy Gardner	Office Hours/Location	By Appointment
	Email: gegardne@ucalgary.ca		Phone: 403 471 0183
Class Dates	Mandatory in-person: Fridays 11:00 AM to 12:30 PM		
Instructor Email Policy	Please note that all course communications must occur through @ucalgary email, and I will respond to emails sent via student's @ucalgary emails within 48 hours.		
Name and Email of Teaching Assistant(s)			

Course Description:

(Please include the paragraph description from the Ucalgary calendar. Also include link to Calendar description, e.g. <https://www.ucalgary.ca/pubs/calendar/current/architectural-studies.html#38564>)

This studio selective focuses on exploiting digital design tools in architecture to amplify creativity and enable context-sensitive and participatory design approaches. Augmented reality, digital fabrication and computational design tools are explored for their potential to engage communities and enrich narratives. The course will balance technical skill building with a critical understanding of how digital tools can be aligned with cultural and environmental stewardship.

Using their own studio designs, and with the support of lectures, tutorials, demos reviews and presentations, students will develop and articulate a parametric design methodology to support their studio research and production.

Each student will produce a term project, Due April 15th in the form of a project poster, describing a methodology for a computationally enabled design research inquiry, formatted for submission in a research conference or publication.

Course Hours: 1.5 units; (1-.5Tutorial)

Course Learning Outcomes:

Upon completion of this course, students will know and be able to:

1. critically engage with contemporary design and fabrication research
2. develop methodologies for digital design research
3. demonstrate the integration of parametric and computational tools in a design workflow
4. coherently articulate a computationally enabled design thesis supported by academic research.

Learning Resources:

<https://papers.cumincad.org/>

<https://discourse.mcneel.com/>

<https://www.grasshopper3d.com/>

Technology requirements (D2L etc.):

A computer with a supported operating system

Broadband internet connection

Rhino 7 or higher

Workshop Safety Training Requirement

If a course requires the use of the SAPL workshop, students must complete all online University of Calgary safety courses, the online Trajectory safety training course, as well as in-person workshop training and a grade of pass on the final evaluation project, to be granted access to the SAPL workshop. This training is offered once a year, around the start of the Fall term and has a completion deadline.

Additional Classroom Conduct and Related Information

Guidelines for Zoom Sessions in Online Classes

Students are expected to participate actively in all Zoom sessions and to turn on their webcam. Please join our class in a quiet space that will allow you to be fully present and engaged in the Zoom sessions. Students must behave in a professional manner during the session. Students, employees, and academic staff are also expected to demonstrate behaviour in class that promotes and maintains a positive and productive learning environment

Assessment Components:

Assessments carried out during the last 14 calendar days of classes in Fall/Winter Terms and the last 7 calendar days in Spring/Summer Intersessions (as defined in the [Academic Schedule](#)) may not total more than 15 per cent of the final grade, except in the case of laboratory or oral testing, presentations or summative projects/papers.

c. The final exam may not count for more than 50 per cent of the final grade, except in: (1) the cases of clinical or professional practice-based courses in academic programs leading to

professional designation, registration and/or licensing (2) or in situations outlined in section [G.1.2 In-Course Assessments and Absences](#).

Assessment Method	Description	Weight	Aligned Course Learning Outcome
Literature review	Review 3 research papers, available on CumInCAD.(Parametric /computational design or fabrication). Explain theses, methodologies and findings in plain language, compare and contrast the different approaches and their results.	25%	1
Illustrated Pseudocode	Use pseudocode diagrams to break down and optimize your studio design approach. Clearly articulate the inputs and outputs of information and materials at various points. Develop a 3-min. presentation to articulate your approach.	25%	2,3
Poster	Create a project poster describing a methodology for a computationally enabled design research inquiry, formatted for submission in a research conference or publication.	40%	1,2,3,4
Participation/attendance	Come to class prepared to participate in discussions including having a strong familiarity with the readings	10%	1,2,3,4

Assessment and Evaluation Information

Attendance and Participation Expectations:

Attendance and participation are mandatory and contribute towards a portion of the final grade.

Guidelines for Submitting Assignments:

Final Examinations: N/A

Expectations for Writing (<https://www.ucalgary.ca/pubs/calendar/current/e-2.html>):

Late Assignments:

Late Assignments: Late submission of the term project will not be accepted

Criteria that must be met to pass: A passing grade in the final assignment is required to pass the course.

Grading Scale:

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	95-100	Outstanding - evaluated by instructor
A	4.00	3.85-4.00	90-94.99	Excellent - superior performance showing comprehensive understanding of the subject matter
A-	3.70	3.50-3.84	85-89.99	Very good performance
B+	3.30	3.15-3.49	80-84.99	Good performance
B	3.00	2.85-3.14	75-79.99	Satisfactory performance
B-	2.70	2.50-2.84	70-74.99	Minimum pass for students in the Faculty of Graduate Studies
C+	2.30	2.15-2.49	65-69.99	All final grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
C	2.00	1.85-2.14	60-64.99	
C-	1.70	1.50-1.84	55-59.99	
D+	1.30	1.15-1.49	50-54.99	
D	1.00	0.50-1.14	45-49.99	
F	0.00	0-0.49	0-44.99	

A student who receives a "C+" or lower in any one course will be required to withdraw regardless of their grade point average (GPA) unless the program recommends otherwise. If the program permits the student to retake a failed course, the second grade will replace the initial grade in the calculation of the GPA, and both grades will appear on the transcript

The School of Architecture, Planning and Landscape will not permit the Flexible Grade Option (CG Grade) for any course offered by the School.

<https://www.ucalgary.ca/pubs/calendar/current/f-1-3.html>

CACB Student Performance Criteria (for Architecture courses only)

Example: "The following CACB Student Performance Criteria will be covered in this course at a primary level (other criteria will be covered at a secondary level): A1: Design Theories A2: Design Skills; A3: Design Tools; B1: Critical Thinking and Communication

Topic Areas & Detailed Class Schedule

Include information relevant to the class schedule, such as weekly topics, readings, and assignment due dates. For online, remote or blended courses include whether course activities are synchronous (i.e., real-time/Zoom) and asynchronous (i.e., students complete on their own time such as discussion boards, watching videos, etc.). It is recommended that important dates including the first day of classes, holidays, term breaks and last day of classes also be included.

Course Schedule Date	Topic	Assignments/Due Dates
<i>Examples below, please adjust to fit your course dates.</i>		
Jan 8 – 12	Parametric Design Research precedents	
Jan 15 – 19		
Jan 22 – 26		
Jan 29 – Feb 2	Computationally enabled design methodologies	Assignment 1 Due Feb 2
Feb 5 – 9		
Feb 12 – 16	Winter SAPL Block week	
Feb 19	Family Day Observed	
Feb 19 – 23	Winter Term Break	
Feb 26 – Mar 1		
Mar 4 – 8		
Mar 11 – 15		
Mar 18 – 22	Presentations	Assignment 2 Due March 22
Mar 25 – 28		
Mar 29	Good Friday – University closed	
Apr 1	Easter Monday – University closed	
Apr 2 – 5		
Apr 8 – 9		Final Assignment Due April 10
Apr 15 – 19	Final Review week	
Indicate the following dates:		
<ul style="list-style-type: none"> If applicable, dates, times and locations of all approved class activities scheduled outside of regular course hours 		

Special Budgetary Requirements

N/A

University of Calgary Policies and Supports

ACADEMIC ACCOMMODATION

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-accommodation-policy>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>. Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to their instructor (contact information on first page above).

SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.

ACADEMIC MISCONDUCT

Academic Misconduct refers to student behavior which compromises proper assessment of a student's academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

For information on the Student Academic Misconduct Policy and Procedure please visit: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-academic-misconduct-policy>

Additional information is available on the Academic Integrity Website at <https://ucalgary.ca/student-services/student-success/learning/academic-integrity>.

COPYRIGHT LEGISLATION:

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (<https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy>) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware

of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy (<https://www.ucalgary.ca/pubs/calendar/current/k.html>).

INSTRUCTOR INTELLECTUAL PROPERTY

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.

SEXUAL AND GENDER-BASED VIOLENCE POLICY

The University recognizes that all members of the University Community should be able to learn, work, teach and live in an environment where they are free from harassment, discrimination, and violence. The University of Calgary's sexual violence policy guides us in how we respond to incidents of sexual violence, including supports available to those who have experienced or witnessed sexual violence, or those who are alleged to have committed sexual violence. It provides clear response procedures and timelines, defines complex concepts, and addresses incidents that occur off-campus in certain circumstances. Please see the policy available at <https://www.ucalgary.ca/legal-services/university-policies-procedures/sexual-and-gender-based-violence-policy>.

UNIVERSITY STUDENT APPEALS OFFICE

If a student has a concern about a grade that they have received, they should refer to Section I of the Undergraduate Calendar (<https://www.ucalgary.ca/pubs/calendar/current/i-3.html>) which describes how to have a grade reappraised. In addition, the student should refer to the SAPL's Procedure for reappraisal of grades

OTHER IMPORTANT INFORMATION

Please visit the Registrar's website at: <https://www.ucalgary.ca/registrar/registration/course-outlines> for additional important information on the following:

- Wellness and Mental Health Resources
- Student Success
- Student Ombuds Office
- Student Union (SU) Information

- Graduate Students' Association (GSA) Information
- Emergency Evacuation/Assembly Points
- Safewalk