



Land Acknowledgement: <https://www.ucalgary.ca/indigenous/cultural-teachings/territorial-land-acknowledgement>

Course Number: DSGN 311

Course Name: Geometry and Simulation

Section Number: B01 and B02

Classroom: [REDACTED] (for B01) & [REDACTED] (for B02)

Instructor: Teegan Heinrichs (B01) & Dashiell Maxwell (B02)

- Email: teegan.heinrichs@ucalgary.ca (B01), dashiell.maxwell@ucalgary.ca (B02)
- Phone: N/A – please contact us via email
- Office Hours and Location: By appointment via email
- Instructor Email Policy: Please note that all course communications must occur through your @ucalgary email, and I will respond to emails sent via students' @ucalgary emails within 48 hours excluding weekends and statutory holidays.

Teaching Assistants: Vignesh Anand (B01), Yunhao Yang (B01), and Kiana Rasti (B02), Hossein Jamili (B02)

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Class Dates: Mandatory in-person classes: Mondays and Thursdays, September 4 – December 5, 3:00pm to 4:50pm

- September 2: Classes begin
- September 11: Last day to drop Fall term courses without financial penalty
- October 13: University Closed (Thanksgiving holiday)
- November 9 – 15: Term break, no classes
- December 5: Fall term classes end
- December 5: Last day to withdraw from a course

Course Description

- The basis of this course is understanding digital 3D modeling and its utility as a tool for design and narrative expression through spatial manipulation, environment simulation, and critically analyzing geometric assemblies. Students will develop skills in various digital software to create, alter, and engage with geometric form in a way that challenges exploration of the relationship between assembly and perceived function. Students will begin utilizing multiple software in a hybridized production process, blending the use of two- and three-dimensional tools to produce static and dynamic imagery.
- Academic Calendar description: <https://calendar.ucalgary.ca/courses/1656101>
- Course Hours: 3 units; (0-4)

Requisites: See [Section 3.3.5](#) of the Academic Calendar for more information regarding School of Architecture, Planning and Landscape courses.

- Prerequisite(s): Design 213 and admission to the Bachelor of Design in City Innovation program
- Corequisite(s): One of Design 301, 302 or 303

Course Delivery

All classes will be delivered in person. It is expected that students will attend all classes as attendance is mandatory. If the need arises, classes may be delivered virtually via Zoom. Students will be notified in advance of any class sessions that will be delivered virtually.

Course Learning Outcomes

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

- Negotiate digital modeling software (primarily Rhinoceros 3D) to produce two- and three-dimensional forms
- Understand various means of creating and manipulating geometric assemblies to communicate formal complexity
- Produce high-quality graphics and simple animations using multiple design software
- Begin to understand parametric modelling (Grasshopper) and its intricacies
- Trouble shoot and resolve typical digital modeling issues
- Manage modeling complexity and level of detail in response to time constraints

Future Skills in this Course

As you progress through the Bachelor of Design in City Innovation (BDCl) program, Future Skills will empower you to thrive in your studies, careers, and as leaders in city innovation. These tools prepare you for today's workforce and equip you to shape tomorrow's cities with empathy, impact, and innovation. This course includes a Future Skills module.

- **Extra credit Assignment: Future Skills**
 - Grading: Pass/Fail | Weight: 2% of final grade

- This course has an extra-credit Future Skills module. To pass, students must complete all workbook sections with thoughtful, clearly articulated responses that demonstrate applied learning and meet all rubric criteria. No partial credit is given. Full instructions and materials are available on D2L.
- The **Digital Literacy** module helps you critically engage with digital content, communicate effectively online, and navigate digital platforms safely and responsibly. You will learn to assess information quality, manage your digital footprint, and apply inclusive and ethical practices in digital environments.

Learning Resources

- Recommended readings, textbooks, and learning materials:
 - Mcneel Command List: https://docs.mcneel.com/rhino/5/help/en-us/commandlist/command_list.htm
 - The Grasshopper Primer: <http://grasshopperprimer.com/en/index.html>

Technology requirements

To successfully engage in their learning experiences at the University of Calgary and Design 311, students are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- A computer with sufficient hardware capabilities to manage the various design software required of this course
- To complete coursework in DSGN 311, students will require current versions of the following design software: Rhinoceros 3D (Version 7 or higher), Grasshopper (comes with Rhino 3D), the Adobe Create Suite (Adobe photoshop, Illustrator, Indesign, Premiere Pro)
- Webcam (built-in or external)
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Broadband internet connection
- Most current laptops will have a built-in webcam, speaker and microphone.
- [Student IT Resources](#)

Note: distance learning hardware (webcam, microphone, speaker, etc.) requirements are intended for use during office hours conducted via Zoom. It should not be inferred by these requirements that classes will be conducted remotely.

BDCI Makerspace Training Requirement

- If a course requires the use of the BDCI Makerspace, students must complete all relevant online University of Calgary safety courses and the online Trajectory Safety training course to be granted access to the BDCI Makerspace.

Special Budgetary Requirements

- Students will be required to print their course material for intermediate and/or final review. Printing requirements will be indicated in individual assignment briefs.

Additional Classroom Conduct and Related Information

- **Code of Conduct:** The SAPL Studio spaces and other SAPL/University-provided facilities and equipment are governed by the [University's Student Non-Academic Misconduct Policy](#). Professional and courteous behavior is expected at all times. For more information, please refer to [Appendix 1: Prohibited Conduct](#), including the following categories: 1. Protection of Individuals; 2. Protection of Property; 3. Protection of University Functions, Activities and Services; 4. False Information and Identification; 5. Possession or Use of Dangerous Objects, Drugs or Alcohol; 6. Aiding in the Commission of an Offence; 7. Contravention of Other Laws and University Policies; and 8. Failure to Comply with a Sanction.
- Zoom is a video conferencing program that will allow us to meet at specific times for a “live” video conference, so that we can have the opportunity to meet each other virtually and discuss relevant course topics as a learning community.

To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor’s permission.

The use of video conferencing programs relies on participants to act ethically, honestly and with integrity; and in accordance with the principles of fairness, good faith, and respect (as per the [Code of Conduct](#)).

When entering Zoom or other video conferencing sessions (such as Microsoft Teams), you play a role in helping create an effective, safe and respectful learning environment. Please be mindful of how your behaviour in these sessions may affect others. Participants are required to use names officially associated with their UCID (legal or preferred names listed in the Student

Centre) when engaging in these activities. Instructors/moderators can remove those whose names do not appear on class rosters. Non-compliance may be investigated under relevant [University of Calgary conduct policies](#) (e.g., [Student Non-Academic Misconduct Policy](#)).

If participants have difficulties complying with this requirement, they should email the instructor of the class explaining why, so the instructor may consider whether to grant an exception, and on what terms. For more information on how to get the most out of your zoom sessions visit: <https://elearn.ucalgary.ca/guidelines-for-zoom/>

If you are unable to attend a Zoom session, please contact your instructor in advance to arrange an alternative activity for the missed session (e.g., to review the recorded session). Please be prepared, as best as you are able, to join class in a quiet space that will allow you to be fully present and engaged in Zoom sessions. Students will be advised by their instructor when they are expected to turn on their webcam (for group work, presentations, etc.).

The instructor may record online Zoom class sessions for the purposes of supporting student learning in this class – such as making the recording available for review of the session or for students who miss a session. Students will be advised before the instructor initiates a recording of a Zoom session. These recordings will be used to support student learning only and will not be shared or used for any other purpose.

Assessment Components

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the Academic Calendar. In determining the overall grade in the course, the following weights will be used:

Assessment Method	Description	Weight	Aligned Course Learning Outcome
Assignment 01	Rhino basics & 2D drafting	15%	1, 3 & 5
Assignment 02	Grasshopper Primitives	15%	4
Assignment 03	Parametric form creation & editing	25%	1,2,3 & 5
Assignment 04	Object editing & scene development	20%	2,3,4 & 5
Assignment 05	Context creation & simulation and Course Portfolio	15%	2,3,4 & 5
Professionalism	Engagement + participation	10%	6
Future Skills	Bonus Credit: Pass/Fail component - to pass, students must complete all workbook sections with thoughtful, clearly articulated responses that demonstrate applied learning and meet all rubric criteria. No partial credit is given.	2%	

Assessment and Evaluation Information

- If a student misses (or is late for) a required component of the course for a valid excuse or absence, they must contact the instructor in writing within 24 hours to discuss applicable options to submit and/or make-up for that component.
- Alternate arrangements for missed in-person assessments with a valid excuse will be made on a case-by-case basis at the discretion of the Instructor and upon review of the student's class participation and attendance record.
- For example, students who have missed an in-person assessment (e.g., oral presentation) as a result of an excused absence may be asked—*if applicable to the assessment*—to submit a self-recorded video (via Zoom's auto-record feature) in lieu of an in-person engagement.
- For assessments submitted online (e.g., D2L), late assignments *with a valid excuse may* be considered for grading without penalty at the discretion of the Instructor and upon review of the student's class participation and attendance record. Otherwise, the course's standard grade penalties (indicated below) will apply.
- For assessments submitted online (e.g., D2L), all late assignments *without a valid excuse* will lose a letter grade (e.g., A- to B-) every 24 hours after the submission date/time. Late assignments submitted more than four days late constitute an automatic zero (0).
- Missed in-person assessments (e.g., oral presentation, exam, etc.) as a result of an *unexcused* absence will receive an automatic zero (0).

Attendance and Participation Expectations

- Students are expected to attend and come prepared to meaningfully engage in all class sessions. This includes producing or preparing content necessary for discussion and contributing to individual and class-wide discussions and/or conversations/assessments with the Course Instructor.
- **Excused Absences:** In the event of an exceptional circumstance (e.g., illness, bereavement, etc.) or an exceptional opportunity (e.g., varsity athletic competition, national conference or awards ceremony, pow wow, etc.) up to four excused absences (for courses that meet twice or more per week) and up to two excused absences (for courses that meet once per week) are allowable per semester before jeopardizing one's own course grade and ability to pass the course. However, any such arrangements must be approved by the Instructor with advance notice by the student.
- **Unexcused Absences:** Attendance at all class sessions and participation in all assessments is mandatory. Unexcused absences in excess of two per semester (for courses that meet twice per week) and one per semester (for courses that meet once per week) are grounds for failure in the course.

- **Total Number of Absences:** The combined total number of excused AND unexcused absences per semester cannot exceed four per semester (for courses that meet twice per week) or two per semester (for courses that meet once per week). Any number in excess are grounds for failure in the course.

Guidelines for Submitting Assignments

All assignments (e.g., projects, papers, presentations, etc.) must be turned in on time.

- Please submit all assignments electronically through Dropbox in D2L. Assignments may be submitted in PDF format (unless otherwise stated). Assignments should have a file name as follows: "Coursenumber_semester_Lastname-Firstname_assignment-title" (e.g., DSGN311_F24_Smith-Alex_Plan-Drawings). Assignments must be submitted by 11:59pm on their due date. It is the student's responsibility to keep a copy of each submitted assignment and to ensure that the proper version is submitted.
- **Late Assignments:** Please see above for the course's policy on late assignments/assessments.

Final Examinations

There is no final examination in DSGN 311.

Expectations for Writing

- Please see the "Copyright and Legislation" Section of the University of Calgary Policies and Supports for information on the use of AI in this course.
- Section E.2 Writing Across the Curriculum:
<https://calendar.ucalgary.ca/pages/2c2d1ce47b8c4d008aec9cc3da49876e>
- All written components of assignments must use proper grammar and correct spelling. Formatting requirements, as specified by the instructors, must be followed. Citations and references must be consistent and follow guidelines as noted by instructors

Criteria that must be met to pass

All assignments are required to be completed and passed with a minimum grade of 55% (C-) in order to successfully complete the course. In cases where an assignment receives a failing grade, the instructors may offer the opportunity to revise the assignment for re-evaluation purposes. This will be dealt with on a case-by-case basis.

Flexible Grade Option (CG Grade)

As per [Section 3.5.1](#) of the Academic Calendar, the School of Architecture, Planning and Landscape will not permit the Flexible Grade Option (CG Grade) for any course offered by the School, with the exception of the following courses:

- Architecture 201

- Landscape Architecture 201
- Planning 201

Grading Scale:

Based on [Section F.1.1](#) of the Academic Calendar

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	95-100	Outstanding performance
A	4.00	3.85-4.00	90-94.99	Excellent performance
A-	3.70	3.50-3.84	85-89.99	Approaching excellent performance
B+	3.30	3.15-3.49	80-84.99	Exceeding good performance
B	3.00	2.85-3.14	75-79.99	Good performance
B-	2.70	2.50-2.84	70-74.99	Approaching good performance
C+	2.30	2.15-2.49	65-69.99	Exceeding satisfactory performance
C	2.00	1.85-2.14	60-64.99	Satisfactory performance
C-	1.70	1.50-1.84	55-59.99	Approaching satisfactory performance. Minimum grade requirement for SAPL prerequisite courses.
D+	1.30	1.15-1.49	50-54.99	Minimal pass. Insufficient preparation for subsequent courses in the same subject.
D	1.00	0.50-1.14	45-49.99	Failure. Did not meet course requirements.
F	0.00	0-0.49	0-44.99	Failure. Did not meet course requirements.

Topic Areas and Detailed Class Schedule:

Course Schedule Date	Topic**	Learning Activity	Assessments and Due Dates
Sep 4	<i>Dissected</i>	Assignment 01	Miro Submission: In class progress discussion
Sep 9-12	<i>Dissected Grasshopper Primitives</i>	Assignment 01 Assignment 02	Online submission – D2L (Sept. 11)
Sep 15-19	<i>Grasshopper Primitives</i>	Assignment 02	In-class assessment (Sept. 18)
Sep 22-26	<i>Parametric Form Creation</i>	Assignment 03a	Miro Submission: In class progress discussion
Sep 29	<i>Parametric Form Creation</i>	Assignment 03a	Miro Submission: In class progress discussion
Tuesday, September 30	National Day for Truth and Reconciliation, University closed		
Oct 1-3	<i>Parametric Form Creation</i>	Assignment 03b	Miro Submission: In class progress discussion
Oct 6-10	<i>Parametric Form Creation</i>	Assignment 03c	Miro Submission: In class progress discussion
Monday, October 13	Thanksgiving Day, University closed		
Oct 14-17	<i>Parametric Form Creation</i>	Assignment 03c	Miro Submission: In class progress discussion
Oct 20-24	<i>Parametric Form Creation</i>	Assignment 03d	Miro Submission: In class progress discussion
Oct 27-31	<i>Parametric Form Creation Value Discovered</i>	Assignment 03d Assignment 04	Online Submission – D2L (Oct. 27)
Nov 3-7	<i>Value Discovered Experience Fabrication</i>	Assignment 04 Assignment 05	Miro Submission: In class progress discussion
Nov 9-15	Term Break, no classes		
Nov 17-21	<i>Value Discovered Experience Fabrication</i>	Assignment 04 Assignment 05	Online Submission – D2L (Nov. 20)
Nov 24-28	<i>Experience Fabrication</i>	Assignment 05	Online Submission – D2L (Nov. 28)
Dec 1-4	<i>Experience Fabrication</i>	Assignment 05	In Class Presentation (Dec. 1)
Friday, December 5	Last day of classes		
Friday, December 5	Final Reviews + Reception (full day): second-year BDCI		
Tuesday, December 9	Start of exams		
Friday, December 12	Future Skills Extra Credit Due		
Monday, December 15	Course Portfolio due – Online Submission, D2L		
Friday, December 19	End of exams		

Scheduled Out-of-Class Activities

DSGN 311 does not have any out-of-class activities.

University of Calgary Policies and Supports:

UNIVERSITY OF CALGARY COVID-19 UPDATES AND PROCEDURES

<https://www.ucalgary.ca/risk/emergency-management/covid-19-response/covidsafe-campus>

ACADEMIC ACCOMMODATION

<https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations>

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).

[Student Accessibility Services](#) 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 Procedures please visit:

- Student Academic Misconduct Policy: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-academic-misconduct-policy>
- Student Academic Misconduct Procedure: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-academic-misconduct-procedure>

Additional information is available on the Academic Integrity Website at

<https://www.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/legal-services/university-policies-procedures/student-non-academic-misconduct-policy>).

Notice to Students Regarding Use of Generative Artificial Intelligence (AI) Applications and Tools in Learning Environments

- **Some Use Permitted:** Students may use generative AI tools in this course in accordance with the instructions and guidelines outlined for each course assignment or assessment. The use of generative AI tools must be referenced and cited following citation instructions outlined by the course instructor. Use of generative AI outside assessment or assignment guidelines or without citation will constitute academic misconduct. It is the student's responsibility to be clear on the limitations on the use of generative AI tools for each assessment or assessment, on the expectations for citation and referencing, and on fact checking statements created by generative AI tools. If you are in doubt as to the use of generative AI tools in this course, please discuss your situation with the course instructor.

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.

PROTECTION OF PRIVACY ACT

The University of Calgary (University) respects your privacy and is committed to ensuring the privacy of all students, staff, and community members. UCalgary's collection, use, and disclosure of your personal information is authorized under section 4(c) of the Alberta [Protection of Privacy Act](#) (POPA). It will be collected, used and disclosed as permitted under POPA and in accordance with the University's [Privacy Policy](#) and [Notice of Collection, Use and Disclosure of Student Personal Information](#). All student assignments and personal information provided to your course instructor will remain confidential unless otherwise stated before submission. It will not be disclosed to anyone else without your permission unless permitted under POPA.

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 and Gender-Based Violence Policy guides us in how we respond to incidents of sexual and/or gender-based violence, including supports available to those who have experienced or witnessed sexual/gender-based violence, or those who are alleged to have committed sexual/gender-based 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://calendar.ucalgary.ca/uofcregs/university-regulations/reappraisal-term-work>) which describes how to have a grade reappraised.

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