



## Prescription

This course introduces the algorithmic and mathematical foundations of three-dimensional modelling. Topics include representations such as polygons, splines, implicit surfaces, point models, particle systems and volumetric models; concepts such as parameterisation, curvature and discrete differential geometry; algorithmic approaches such as gradient domain processing, spectral processing and example-based deformation. It does not address content creation.

## Course learning objectives

Students who pass this course should be able to:

1. understand the characteristics and trade-offs of various geometric representations. (BE 3(a); BSc COMP 4);
2. program simple modelling operations using a common graphics framework such as Maya.(BE 3(a), 3(b), 3(f); BSc COMP 1, 2, 3, 4).
3. understand several general approaches to geometry processing including some familiarity with underlying mathematical concepts. (BE 3(a); BSc COMP 4);

## Withdrawal from Course

Withdrawal dates and process:

<https://www.victoria.ac.nz/students/study/course-additions-withdrawals>

## Lecturers

**Zohar Levi (Coordinator)**

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338 Cotton, Kelburn

## Teaching Format

Weekly lectures, with students undertaking significant project work.

## Student feedback

Student feedback on University courses may be found at:

## Dates (trimester, teaching & break dates)

- Teaching: 08 July 2019 - 13 October 2019
- Break: 19 August 2019 - 01 September 2019
- Study period: 14 October 2019 - 17 October 2019
- Exam period: 18 October 2019 - 09 November 2019

## Class Times and Room Numbers

### 08 July 2019 - 18 August 2019

- Friday 11:00 - 12:50 – 105, Von Zedlitz, Kelburn

### 02 September 2019 - 13 October 2019

- Friday 11:00 - 12:50 – 105, Von Zedlitz, Kelburn

## Set Texts and Recommended Readings

### Required

There are no required texts for this offering.

## Mandatory Course Requirements

In addition to achieving an overall pass mark of at least 50%, students must:

- Both the practical work and an understanding of the concepts and principles of modelling are essential to the course. Therefore, all the course tasks are mandatory.

*If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.*

## Assessment

The course will be assessed entirely through programming assignments, which vary in size and which may require students to give presentations.

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
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## Workload

In order to maintain satisfactory progress in CGRA 409, you should plan to spend an average of 10 hours per week on this paper.

## Teaching Plan

See [https://ecs.victoria.ac.nz/Courses/CGRA409\\_2019T2/LectureSchedule](https://ecs.victoria.ac.nz/Courses/CGRA409_2019T2/LectureSchedule)

# Communication of Additional Information

All online material for this course can be accessed at [https://ecs.victoria.ac.nz/Courses/CGRA409\\_2019T2/](https://ecs.victoria.ac.nz/Courses/CGRA409_2019T2/)

## Links to General Course Information

- Academic Integrity and Plagiarism: <https://www.victoria.ac.nz/students/study/exams/integrity-plagiarism>
- Academic Progress: <https://www.victoria.ac.nz/students/study/progress/academic-progress> (including restrictions and non-engagement)
- Dates and deadlines: <https://www.victoria.ac.nz/students/study/dates>
- Grades: <https://www.victoria.ac.nz/students/study/progress/grades>
- Special passes: Refer to the Assessment Handbook, at <https://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>
- Statutes and policies, e.g. Student Conduct Statute: <https://www.victoria.ac.nz/about/governance/strategy>
- Student support: <https://www.victoria.ac.nz/students/support>
- Students with disabilities: [https://www.victoria.ac.nz/st\\_services/disability/](https://www.victoria.ac.nz/st_services/disability/)
- Student Charter: <https://www.victoria.ac.nz/learning-teaching/learning-partnerships/student-charter>
- Terms and Conditions: <https://www.victoria.ac.nz/study/apply-enrol/terms-conditions/student-contract>
- Turnitin: <http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin>
- University structure: <https://www.victoria.ac.nz/about/governance/structure>
- VUWSA: <http://www.vuwsa.org.nz>

**Offering CRN:** [28328](#)

**Points:** 15

**Prerequisites:** CGRA 350 or COMP 308 or at least B- in CGRA 401 and 402 (or COMP 471 and 472 in 2014-15);

**Restrictions:** COMP 409

**Duration:** 08 July 2019 - 10 November 2019

**Starts:** Trimester 2

**Campus:** Kelburn