

CGRA409 (2017) - Three-Dimensional Modelling for Computer Graphics

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)

zohar.levi@vuw.ac.nz 04 463 5233 ext 7045

338 Cotton, Kelburn

Teaching Format

Weekly lectures, with students undertaking significant project work.

Dates (trimester, teaching & break dates)

- Teaching: 17 July 2017 - 20 October 2017
- Break: 28 August 2017 - 08 September 2017
- Study period: 24 October 2017 - 26 October 2017
- Exam period: 27 October 2017 - 18 November 2017

Class Times and Room Numbers

17 July 2017 - 27 August 2017

- **Thursday** 14:10 - 16:00 – 509, Von Zedlitz, Kelburn

11 September 2017 - 22 October 2017

- **Thursday** 14:10 - 16:00 – 509, 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.
Passing CGRA 409
To pass CGRA 409, a student must satisfy mandatory requirements and gain at least a **C-** grade overall.

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.

Workload

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

Teaching Plan

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

Restrictions: COMP 409

Duration: 17 July 2017 - 19 November 2017

Starts: Trimester 2

Campus: Kelburn