

CGRA408 (2017) - Computer Graphics Rendering

Prescription

This course will introduce a physically based photo-realistic rendering pipeline including radiometry, reflectance models, lighting, scene acceleration structures, ray tracing, path tracing and other global illumination algorithms.

Course learning objectives

Students who pass this course should be able to:

1. Understand and use the computer graphics pipeline to generate photo realistic rendering images
2. understand core structures of photo-realistic renderer for implementing rendering algorithms
3. understand important concepts and theory of physically based rendering algorithms and be able to construct programs that use the algorithms

Course content

This course will introduce a physically based photo-realistic rendering pipeline including radiometry, reflectance models, lighting, scene acceleration structures, ray tracing, path tracing and other global illumination algorithms.

Withdrawal from Course

Withdrawal dates and process:

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

Lecturers

Taehyun Rhee (Coordinator)

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330 Cotton, Kelburn

Andrew Chalmers

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Teaching Format

During the trimester there will be three lectures per week. Some lecture time may be used for tutorials, presentations and guest lectures.

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

- **Tuesday** 11:00 - 11:50 – 109A, 14 Kelburn Pde, Kelburn
- **Friday** 11:00 - 12:50 – 109A, 14 Kelburn Pde, Kelburn

11 September 2017 - 22 October 2017

- **Tuesday** 11:00 - 11:50 – 109A, 14 Kelburn Pde, Kelburn
- **Friday** 11:00 - 12:50 – 109A, 14 Kelburn Pde, 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 rendering are essential to the course. Therefore, there is a mandatory requirement that you obtain at least 40% on the total of the three projects.
Passing CGRA 408
To pass CGRA 408, you must satisfy the 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

This course will be internally and externally assessed through project assignments, final project and paper presentation.

Workload

In order to maintain satisfactory progress in CGRA 408, you should plan to spend an average of at least 10 hours per week on this paper. A plausible and approximate weekly breakdown for these hours would be:

- Lectures and tutorials: 2.5 hours
- Readings and presentations: 3.5 hours
- Projects: 4 hours

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: [28327](#)

Points: 15

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

Restrictions: COMP 408

Duration: 17 July 2017 - 19 November 2017

Starts: Trimester 2

Campus: Kelburn