

NWEN406 (2017) - Distributed Computing in Grids and Clouds

Prescription

The course focuses on the design and use of distributed systems for high end computing. In particular we look at the aggregation of geographically distributed computing resources to form massive distributed computing platforms. These platforms can then be applied to solve large problems in science and industry - protein docking, seismology medicine, astronomy, particle physics, climate prediction etc. Topics in this course typically include: e-Science, clusters, grids and clouds, service oriented architectures, workflow management, utility computing and grid economies.

Course learning objectives

Students who pass this course will be able to:

1. What a large scale distributed computing system is, what it does, and how it is designed and constructed,
2. eScience, how large scale distributed systems are leveraged to enable science in a range of fields,
3. alternative management paradigms for large scale distributed systems,
4. alternative programming models for large scale distributed systems,
5. basic mechanisms for protection and system security.

Withdrawal from Course

Withdrawal dates and process:

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

Lecturers



Ian Welch (Coordinator)

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403 Alan MacDiarmid Building, Kelburn
Kevin Buckley (<https://ecs.victoria.ac.nz/Main/KevinBuckley>) will be helping with the labs related to Hadoop on the ECS systems.

Teaching Format

During the trimester there will be two class meetings per week and establish a seminar schedule in week 1.

Student feedback

Student feedback on previous iterations of the courses is available via the NWEN 406 web site at http://ecs.victoria.ac.nz/Courses/NWEN406_2017T2/.

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

- **Monday** 12:00 - 13:50 – 118, Easterfield, Kelburn
- **Tuesday** 12:00 - 12:50 – 118, Easterfield, Kelburn

11 September 2017 - 22 October 2017

- **Monday** 12:00 - 13:50 – 118, Easterfield, Kelburn
- **Tuesday** 12:00 - 12:50 – 118, Easterfield, Kelburn

Other Classes

We will arrange a lab slot (1 hour) during the first week of lectures in discussion with the rest of the class.

Set Texts and Recommended Readings

Required

All readings will be made available via the ECS course web page.

Mandatory Course Requirements

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

- Make a reasonable attempt at least one of the two security projects so that they are exposed to the practical aspects of security.

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 two seminar reports, two projects and a final examination.

2 x seminar reports.	Due one week after assigned seminar. A schedule for seminar reports will be developed in conjunction with the class during the first week of teaching.	CLO: 1,2,3,4	20%
Report on Hadoop project using ECS systems.	27th August	CLO: 4	25%
Report on distributed systems project using Amazon cloud.	22nd October	CLO: 4,5	25%
Final examination (3 hours).	Scheduled during trimester 2 examination period.	CLO: 1,2,3,4,5	30%

Penalties

In fairness to other students, work submitted after any deadline will incur a penalty for lateness. The penalty is 10% of the marks available, for example if an assignment is out of 20 and the assignment receives 50% then one day late means the mark will be out of 18 and the student will receive 50% of 18.

Extensions

The cutoff for on-time submission is midnight on the due date. Late days are counted in 24-hour periods. Submitting between 5:01pm on the due date and 5pm the next day is one day late, and so on.

You are given a total of 5 “grace days” (self-granted extensions) which you can use to give yourself extra time without penalty.

Late work handed in when you have run out of grace is discounted 10% per day late.

Submission & Return

Submission and return of work will be done via the ECS online submission system. Please refer to the ECS Wiki page for NWEN 406 at https://ecs.victoria.ac.nz/Courses/NWEN406_2017T2/.

Marking Criteria

Details about the assessment requirements and marking criteria will be posted on the ECS course website.

Group Work

There is no group work in this course.

Required Equipment

N/A.

Other Activities

N/A.

Workload

In order to maintain satisfactory progress in NWEN 406, you should plan to spend an average of 10 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Class meetings: 3
- Seminar preparation: 2
- Project and assignment work: 5

Teaching Plan

See the lecture schedule available via the ECS course web page.

Communication of Additional Information

The primary means of communication outside of lectures is the NWEN 406 web site at http://ecs.victoria.ac.nz/Courses/NWEN406_2017T2/. There you will find, among other things, more details about course requirements, the course schedule (with links to copies of the lecture slides), details and resources for the project work, the NWEN 406 Forum, ways of getting help, and the assignment submission system. The forum is a web-based bulletin board system. Questions, comments, and responses can be posted to the forum.

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: [18592](#)

Points: 15

Prerequisites: NWEN 301; NWEN 302 or 303;

Restrictions: COMP 415 (2009) and ECSE 433 (2009)

Duration: 17 July 2017 - 19 November 2017

Starts: Trimester 2

Campus: Kelburn