



Prescription

The course provides a broad introduction to computer networks and a basic understanding of network application programming, with an emphasis on the working principles and application of computer networks. It covers a range of topics including basic data communication and computer network concepts, protocols, networked computing concepts and principles, network applications development and network security. The course features an interactive laboratory component with projects examining modern networking technologies such as, GPS enabled mobile phone applications, multimedia and distributed applications. Students are recommended, but not required, to have some familiarity with C programming prior to taking this course.

Course learning objectives

Students who pass this course will be able to:

1. Explain the basics of networks and the design of their associated protocols (GA 3(a), 3(b), 3(d), 3(e), 3(f))
2. Explain how networks are utilised for various roles (GA 3(a), 3(b), 3(d), 3(e), 3(f)).
3. Explain the role of the application layer, the socket API and the basics of building networked or distributed applications and the design of their associated protocols (GA 3(a), 3(b), 3(d), 3(e), 3(f)).
4. Implement applications that make use of the Socket API, Webservices (SOAP and REST), and Networked Applications (Android).

Course content

This course introduces protocols and algorithms for networked and distributed systems. Specific emphasis will be placed on security, application layer protocols, and distributed algorithms.

Topics will include:

1. Security, Public Key Cryptography, Authentication and Digital Signatures.
2. Introduction to Networking, Lans, Protocols, the protocol Stack.
3. TCP/IP and the socket API
4. Models of Networked Applications.
5. Media and Application requirements for Networked applications.
6. Application layer case studies: including the Domain Name System (DNS) and Hypertext Transport Protocol (HTTP)
7. Webservices, SOAP, REST .

Withdrawal from Course

Withdrawal dates and process:

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

Lecturers

Qiang Fu (Coordinator)

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414 Alan MacDiarmid Building, Kelburn

Kris Bubendorfer

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129 Cotton, Kelburn

Teaching Format

During the trimester there will be two lectures per week and tutorials will be scheduled as needed.

Student feedback

Student feedback on University courses may be found at: www.cad.vuw.ac.nz/feedback/feedback_display.php

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

- **Monday** 11:00 - 11:50 – LT1, Te Toki a Rata, Kelburn
- **Tuesday** 11:00 - 11:50 – LT1, Te Toki a Rata, Kelburn
- **Thursday** 11:00 - 11:50 – LT1, Te Toki a Rata, Kelburn

02 September 2019 - 13 October 2019

- **Monday** 11:00 - 11:50 – LT1, Te Toki a Rata, Kelburn
- **Tuesday** 11:00 - 11:50 – LT1, Te Toki a Rata, Kelburn
- **Thursday** 11:00 - 11:50 – LT1, Te Toki a Rata, Kelburn

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

Recommended

- Andrew Tanenbaum, Computer Networks, 5th edition.
- James Kurose and Keith Ross, Computer Networks: A top down approach featuring the Internet, Fifth Edition.
- William Stallings, Data and Computer Communications, ninth edition.

Mandatory Course Requirements

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

- achieve at least a **D** grade in the final examination.

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 assessed through the following:

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
Assignments (x4)	Week 3, 6, 9, 12	CLO: 1,2,3	10%
Laboratory reports (x3)	Week 4, 8, 11	CLO: 1,2,3,4	30%
Final examination (2 hours)		CLO: 1,2,3	60%

Penalties

Late Labs and Assignments will be penalised at a rate of 10% per calendar day late, up to a maximum of 5 days late, at which time the work will not be accepted for marking.

Extensions

Individual extensions will only be granted in exceptional personal circumstances, and should be negotiated with the course coordinator before the deadline whenever possible. Documentation (eg, medical certificate) may be required.

Submission & Return

All work is submitted through the ECS submission system, accessible through the course web pages. Marks and comments will be returned through the ECS marking system, also available through the course web pages.

Workload

In order to maintain satisfactory progress in NWEN 243, 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:

- Lectures and tutorials: 3
- Laboratory: 2
- Assignments and practical work: 5

Teaching Plan

See https://ecs.victoria.ac.nz/Courses/NWEN243_2019T2/LectureSchedule

Communication of Additional Information

All online material for this course can be accessed at https://ecs.victoria.ac.nz/Courses/NWEN243_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/
- 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: [19863](#)

Points: 15

Prerequisites: COMP 103

Duration: 08 July 2019 - 10 November 2019

Starts: Trimester 2

Campus: Kelburn