INTRODUCTION
Lecture 1

COMPSCI 726
Network Defence and Countermeasures

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July 19, 2021

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

TEACHING STAFF

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- Lecturer
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ABOUT YOU

- Name
- Current degree
- Any experience related to this course
- Your expectations from this course
- Your expectations from teaching staff (i.e., me)

CLASS REPRESENTATIVE (CR)

- Who
  - Any volunteer
- Core responsibilities
  - An important link between students and the staff
  - A CR gives the school feedback on different aspects of the course
- Benefit
  - At the end of the semester, a CR can request a Class Rep certificate
- For further information, visit:
  - http://www.ausa.org.nz/support/class-reps

WHEN AND WHERE

Day	Time	Location
Monday	12:00 – 13:00	302-G20
Wednesday	11:00 – 12:00	ClockT018/105-018
Thursday	10:00 – 11:00	ClockT018/105-018

COURSE STRUCTURE

- This course focuses on securing internal and external networks
- It mainly covers communication security technologies
- It is a **research-oriented** course!
- This course is divided into two parts
  - In the first part, lectures cover *'somewhat'* basic topics
  - In the second part, advance topics will be presented in seminars

COURSE STRUCTURE: FIRST PART

- Lectures (Week 1 to Week ~4 by Rizwan)
  - Introduction
  - Cryptography and PKI
  - Network models
  - SSL/TLS
- Lectures (Week ~4 to Week ~8 by Nalin)
  - DNS and DNSSEC
  - DoS and DDoS
  - Firewall and NAT
  - IDS and honeypots
  - IPv4, IPv6, and IPSec
  - Wireless security
  - BGP and SDN

COURSE STRUCTURE: SECOND PART

- Individual seminars by students
  - It might take ~3 weeks (starting from Week ~8)
    - It depends on the number of students
- Guest lecture
  - TBD
- Course recap and exam info

EXPECTED FROM STUDENTS

- Attend lectures and presentations
- Present a research article
- Review a presentation
- Work in a team (of 2) on a group project
  - Come up with novel research ideas
  - Research proposal (1 paragraph)
  - Project report (7-10 pages)
- Encouraged to do active class participation, if possible

RIGHTS AND RESPONSIBILITIES

- Academic integrity (UoA): http://www.auckland.ac.nz/uoa/home/about/teaching-learning/honesty
- Academic integrity (Computer Science): https://drive.google.com/file/d/1-BpovnqoDK0Lc-h7ORpYTqHdsYcmIGSR/view
- Inclusiveness: https://www.auckland.ac.nz/en/about/eo-equity-office/zero-tolerance-for-discrimination.html
- Student learning expectations: https://drive.google.com/file/d/1-3MB1-L0VMVSOsEZbP2o7Ledarn1o1Ny/view

MY TEACHING PHILOSOPHY

- Giving feedback to you
- Sharing my knowledge and experience
- Creating an environment where I can offer you enough learning opportunities
- Inspiring you to learn and making this course intellectually stimulating
- Encouraging inclusiveness

DEADLINES

- Article selection for individual seminar
  - Friday, July 23, 2021 via Canvas: Research Articles
- Research proposal (1 paragraph)
  - Friday, July 30, 2021 via Canvas: Group Projects
- Seminar review (1 page)
  - Within a week after the presentation
- Final report (can also submit through Canvas)
  - Wednesday, October 20, 2021 via Canvas

SUPPORT DURING THIS COURSE

- Help in selecting a research article
  - Thursday, July 22, 2021
- Discussion about your research proposal
  - Thursday, July 29, 2021
- Feedback on interim report
  - From October 1 to October 12, 2021

FUTURE POSSIBILITIES

- Extending report as a research article
- Project
- Dissertation
- Thesis

LEARNING OUTCOMES

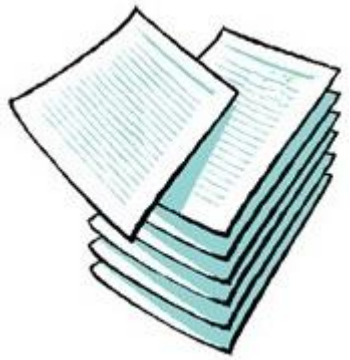
- Give basic advice on securing communication networks (Themes 1-6*)
- Criticise and appreciate technical literature on network security (Themes 1-5*)
- Demonstrate technical skills to increase security of communication networks (Themes 1-6*)
- Prepare and deliver an oral presentation on an advanced topic in network security (Themes 1, 2, 4, and 5*)
- Develop novel problem solving and research-informed ideas (Themes 1-6*)

*All the themes are defined in graduate profiles

ASSESSMENTS

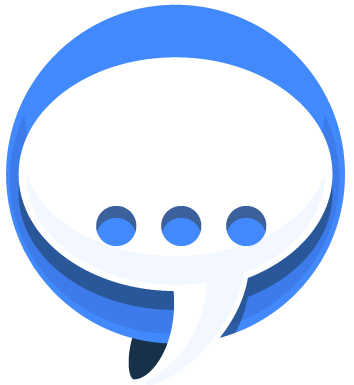
- 15% individual seminar
  - See: https://www.cs.auckland.ac.nz/courses/compsci726s2c/seminars
- 25% group report
  - See: https://www.cs.auckland.ac.nz/courses/compsci726s2c/assignments
- 60% final exam

SEMINAR/REPORT ARTICLES

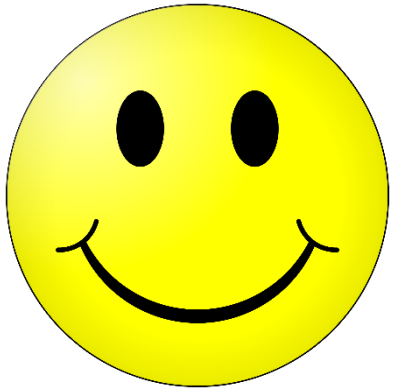


- List of articles
  - https://www.cs.auckland.ac.nz/courses/compsci726s2c/seminars/#articles
- An article for seminar can be chosen by at most 2 students!
- Selected from recent top-notch research venues
- Compiled considering relevancy, background, and interest
- A different article that is not covered in
  - COMPSCI 702
  - COMPSCI 725

TO BE CONTINUED



- See the next lecture



Questions?

Thanks for your attention!