CMPT 786 - G100 Cloud and Network Security

Calendar Objective/Description:
Cloud and Network Security

Instructor's Objectives:
Many of the most dangerous attacks on computer systems involve exploitation of the network infrastructure. In this course, we will explore different network attacks as well as techniques to defend against them. This course covers protocol-specific attacks (e.g., BGP) and generic attacks (e.g., Denial of Service); infrastructure topics such as centralized control, Software Defined Networking (SDN), virtualization, Network Function Virtualization (NFV), intrusion detection; and new technologies related to cloud, containers, IoT, access, 5G, and blockchain security.
We will discuss various network attacks and vulnerable traffic flows, and reason about the security guarantees of the network, and design of secure networked systems.

Prerequisites:
see go.sfu.ca

Topics:
- Brief review of network infrastructure, layers and applications, software-defined networking
- Network Security and Possible Attacks
- Operational Network Security
- Cloud Security
- Special Topics: Blockchain, Network Forensics

Grading:
Assignments: 25% Mid-term: 10% Final Exam: 25% Final Project: 40%
Students must attain an overall passing grade on the weighted average of exams in the course in order to obtain a clear pass (C- or better).

Reference Books:

Academic Honesty Statement:
Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student Conduct Policies (http://www.sfu.ca/policies/gazette/student.html).