# CMSC5726 Computer and Network Security

## 2016-2017 Term 2

### Date, Time, and Venue

Date: 13 Jan – 7 Apr, 2016 (Fri)  
Time: 7:00pm – 10:00pm  
Venue: WMY 306

### Lecturer

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### Introduction

This course will cover various issues of computer and network security including both practical and theoretical aspects, including system security threats, weaknesses of network protocols, security protocols, firewalls, computer viruses, and applications of Cryptography.

You will need to conduct experiments individually and in groups. All experiments can only be conducted in those machines assigned for this class.

In this course, you will learn some hacking techniques and get access to some tools that may bring down a computer system. However, you should bear in mind that all these techniques, tools, and links that you are exposed are for educational purpose only. As a sophisticated user or future network or system administrator, you may need to get familiar with these techniques and tools, but you cannot apply these techniques in any illegal activity including but not limited to unauthorized break-ins, cracking or denial of service attacks. You are allowed to apply these techniques in legitimate form of hacking (ethical hacking) for security audits only.

### Prerequisites

1. Knowledge about Linux and Unix
2. C language
3. Familiar with TCP/IP and Ethernet

### Topics

1. Buffer Overflow
2. Sniffing and Wireless Sniffing
3. TCP Exploits
4. ARP Spoofing
5. ICMP Redirection
6. Port Scanning
7. Packet Filtering and Firewall
8. Passwords
9. Computer Viruses, Trojan Horses, and Worms
10. Cryptography
11. Quantum Cryptanalysis and Cryptography

### Teaching Schedule

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| **Date** | **Lecture** |
| Jan 13 | 1 |
| Jan 20 | 2 |
| Jan 27 | University holiday – Lunar New Year Vacation |
| Feb 3 | 3 |
| Feb 10 | 4 |
| Feb 17 | 5 |
| Feb 24 | 6 |
| Mar 3 | 7 |
| Mar 10 | 8 |
| Mar 17 | 9 |
| Mar 24 | 10 |
| Mar 31 | 11 |
| Apr 7 | 12 |
| Apr 14 | Public holiday – Easter |
| Apr 21 | Make-up class (in case one of the above classes is cancelled) |

### Assessment

Assignments 40%  
Final Examination 60% (Note: The date of the Final Examination will be announced later.)

### Online Resources

Course materials will be placed on CU eLearning System (Blackboard Learn) <https://elearn.cuhk.edu.hk>.