COSC 734-101: Network Security
Spring 2017

Instructor: Prof. Wei Yu **Email:** wyu@towson.edu
Instructor Homepage: http://wp.towson.edu/wyu/
Office: 7800 York Road, Room 467 **Phone:** 410.704.5528

Office Hours: Tuesday: 2pm-3pm, Thursday: 2pm-3pm (Other times by appointment)
Course Hours: Tuesday 7:00-9:40pm, YR 401
Prerequisite: COSC 600 (Adv File & Data Systems), COSC 650 (Network)

All course materials and announcements will be distributed via Blackboard:

Course Description: This course will provide an introduction to concepts of network security principles and applications to understand the tools and principles that detect, prevent, and mitigate such occurrences. Class discussion topics include system security (intrusion detection, malicious software, firewall and others), basis of cryptography, network security applications (key management, transport level security, wireless network security and IP security).

Course Objectives: This is an introductory course that covers the basic issues and principles of network security and applications. This course will introduce the concepts and principles underlying network security, provide an understanding of the relevant techniques, understand the various ways information and network systems and software applications can be compromised and learn ways to prevent detect and mitigate threats and attacks.

Required Textbook:

- William Stallings, Network Security Essentials, Fourth Edition, Prentice Hall, 2011. ISBN-10: 0-13-610805-9 (required)

Optimal References:

- Charlie Kaufman, Radia Perlman and Mike Speciner, Network Security - Private Communication in a Public World, 2/E, 2002, Prentice-Hall. ISBN 0-13-046019-2.
- Charles P. Pfleeger and Shari Lawrence Pfleeger. Security in Computing, Fourth Edition. Prentice Hall, 2007. ISBN 0-13-239077-9.
- Matt Bishop, Introduction to Computer Security, Addison-Wesley, 2004. ISBN 0-321-24744-2.

Course Requirements:

- Assignments: Each student will expect to complete around 3 or 4 assignments. All problem sets are due at the time and date specified on the assignment. No late assignments will be accepted. We encourage students to discuss interpretations of problems and assignments with each other, but we expect that students will construct and write up their own solutions to any assignment. If students are found to have collaborated excessively or to have blatantly cheated (e.g., by copying or sharing answers), all involved ones will at a minimum receive grades of 0 for the first infraction.
- Survey Paper: The students are expected to select a related subject, read over 20 related research papers, and develop a survey paper with 6-8 pages. The survey paper, as the name suggests, surveys the current research work done in a particular subject and provides a critical assessment of the work that has been done. Some good examples of survey papers in networking areas will be distributed during the class. The survey paper shall follow the standard IEEE journal template, which can be found at http://www.ieee.org/publications_standards/publications/authors/author_templates.html.
- Term Project and Presentation: There will be one term project throughout the semester. Students shall work on the project independently and report the project progress regularly by meeting with the instructor.

A tentative list of topics for research projects will be given during the second week of class. Students are expected to deliver one project report with 8 pages based on the standard IEEE transactions template (see above).The term project report shall include a proper introduction with motivation, challenges and key contributions; background and related work; proposed protocols and/or algorithms; and analysis, evaluation plan and results; along with the key observations.

- Final Exams: Final exam will be at the time for the final exam stated in the Towson University Exam Schedule, i.e., May 18 (Thursday), 7:30pm-9:30pm).

Grading Policy: Students will be evaluated on the following basis:

Assignments: 20%
Research project: 25%
Paper survey: 15%
Presentation: 10%
Participation: 10%
Final exam: 20%

Course grades will be assigned as follows:
A=90-100%, B=80-89%, C=70-79%, F=0-69%

Violation of Academic Integrity Policy:
All students are required to honor Towson University's Academic Integrity Policy http://wwwnew.towson.edu/provost/resources/studentacademic.asp, which includes Plagiarism, Fabrication and Falsification, Cheating, Complicity in Academic Dishonesty, Abuse of Academic Materials, and Multiple Submissions. Failure to do so will result in an official notification to the Office of Judicial Affairs and will result in **at least a zero** on the assignment with the possibility of **course failure** depending on the severity. Discussions among students fosters learning however, work must be individually prepared unless otherwise specified. **All assignments must be turned in electronic format**, so that papers can be assessed for academic integrity.

Disability and Other Statements

If you may need an accommodation due to a disability please contact me privately to discuss your specific needs. A memo from Disability Support Services (DSS) authorizing your accommodation will be needed.

Students should not attend classes or other university events from the onset of flu-like symptoms until at least 24 hours after the fever subsides without the use of fever reducing medications. Such absences will be considered excused absences; however, students are responsible for the material covered during the period of their absence.

TU Courseware Account

Towson's BlackBoard courseware application will be used to enhance students' learning experience in this class. Students are required to obtain a BlackBoard account, and self-enroll in the course. All assignments, class handouts, discussion forums and general course information will be managed through this site.

Computer Labs on Campus:

Towson University has a number of computer labs available on campus for student use. A list is provided at the following URL: http://wwwnew.towson.edu/adminfinance/OTS/TULabs.asp

Computer Training

As students, you are eligible for a long list of training courses, including Microsoft Office, Internet/Web, etc., offered free of charge at http://pages.towson.edu/scsc. They also provide one-on-one technical consultation. You can contact help center at (410)704-5151 or email helpcenter@towson.edu.

Posting of Grades

Please note that it is University policy not to post grades in a public place after the semester is completed. If you would like to receive your individual grade at the end of the semester, please make arrangements with me.

Food and Drink

No food or drink is allowed in the labs; no food is allowed in the classrooms.

Electronic Devices in Class

Cellular phones, pagers, CD players, radios, and instant messaging are prohibited in the classroom.

Reservation Statement

The instructor reserves the right to make adjustments to the syllabus as needed.

Tentative Schedule: The following is a tentative schedule. Note that these topics and chapters are subject to change based time and discretion of the instructor.

Week	Date	Topic	Chapter
1	2/2	Course Introduction	
2	2/9	Overview	Ch. 1
3	2/16	Intrusion Detection	Ch. 9
4	2/23	Malicious Software	Ch. 10
5	3/2	Internet Global Threats and Defense	
6	3/9	Firewall	Ch. 11
7	3/16	Symmetric Encryption/ Public-key Cryptograph	Ch. 2/3
8	3/23 (No class)	Spring Break (No class)	
9	3/30	Key Distribution & Authentication	Ch. 4
10	4/6	Advanced Topic	
11	4/13	Advanced Topic	
12	4/20	Advanced Topic	
13	4/27	Student project presentation	
14	5/4	Student project presentation	
15	5/11	Student project presentation	
		Student project report due on 5/19 Final Exam (May 18, 7:30pm-9:30pm)	