ITIS 6200/8200: Principles of Information Security and Privacy
Fall 2017

UNC-CHARLOTTE
DEPARTMENT OF SOFTWARE AND INFORMATION SYSTEMS

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ITIS6200/8200)

DESCRIPTION:

ITIS 6200/8200: Principles of Information Security and Privacy (3)

This course provides a comprehensive overview of key contents and solutions for
information security and privacy. Topics include: introduction to computer security,
building blocks of cryptography, symmetric and asymmetric encryption, one way
functions, key distribution and establishment, zero knowledge proof, information theory
for security, web security, network security, and software security. We will also introduce
the state of the art research in this direction such as IoT (Internet of Things) and CPS
(Cyber-Physical Systems) security, data security, and block-chains.

USEFUL BOOK: (These are not required textbooks, but just good security books for beginners.)

1. Bruce Schneier, *Applied Cryptography: Protocols, Algorithms, and Source Code in C*, John Wiley and Sons, second edition. The author maintains a website at http://www.schneier.com/.
2. Tobias Klein, *A Bug Hunter's Diary: A Guided Tour Through the Wilds of Software Security*.
3. C. Kaufman, R. Perlman, and M. Speciner, *Network Security: private communication in a public world,* Prentice Hall.
4. Matt Bishop, *Introduction to Computer Security*, Addision-Wesley.

Class Webpage:

All materials will be posted in Canvas. This is an online course, which means you need to
accomplish all tasks we post in Canvas on time. The midterm and final exams will be
held on campus (you need to come and sit down and write down your answers).

Contents:

Basics of information security and privacy: security policies; access control; cryptography; key distribution and management; authentication; secret sharing; commitment and freshness of information; vulnerability analysis; advanced protocols such as zero knowledge proof and secure multi-party computation;

State-of-the-art topics such as: data privacy, cloud security, network security, web security, IoT and CPS security, BitCoin;

GRADING POLICY:

Grades are based on one midterm 25%, homework 20%, project 15%, final exam 30%, and 10% class participation. Break-down of several issues in grade:

(1) The class participation includes the following requirements:
   a. Make sure that you finish the in-week class contents by Sunday midnight of that week. Here the in-week contents include watching the videos of that week, finishing the exercises/quiz after the video sessions, and any other tasks that need to be done by that Sunday. At Sunday midnight (11:59 pm), we will examine the record. If you have any missing items in that week, 0.5 (a half point) will be removed from your final overall score.
   b. Every student is required to add one entry into the "Course Glossary" category by the midterm exam. This is worth 1 point in your overall score. The entry you add into the glossary should be closely related to information security and privacy. You have the responsibility to maintain and answer any questions that are raised for that entry. You cannot just copy and paste an entry from the WiKi page or other sources from Internet.
   c. Students need to form groups not larger than 4 people. Each group needs to generate a video clip longer than 3 minutes. The topic of the video clip should focus on one security topic of your choice. All video clips should be uploaded to Youtube and we will have a vote for the best videos. The top three groups will each receive a $20 Starbucks gift card. This is worth 2 points for each student in the group.
(2) All homework and projects are due at the specified time. If you submit the homework or project within 24 hours after the deadline, you may earn at most 50% of the grade. After that, no point.
(3) No cheating or copying from previous semesters, other students who are taking the course or took the course in previous semesters, or the Internet will be tolerated. You will receive 0 point in that task and I will report the case to the University.

Scale: Based on curves.

ACADEMIC INTEGRITY:

Students have the responsibility to know and follow the requirements of The UNC Charlotte University Policy 407: The Code of Student Academic Integrity. This code forbids cheating, fabrication, or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. There are no special requirements regarding academic integrity in this course. The code will be strictly enforced and is binding on the students. Grade and academic evaluations in this course include a judgment that the student's work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected by academic dishonesty. Students who violate the code can be expelled from UNC Charlotte. In almost all cases the course grade is reduced to an F. Copies of the Code can be found at http://legal.uncc.edu/policies/up-407. Students are expected to report cases of academic dishonesty to the instructor immediately.

STATEMENT OF DIVERSITY:

No student will be discriminated against in this class based on age, race, nationality, religion, sexual orientation, gender identity/expression, veteran's status, country of origin, or group affiliation. Any student who does not behave in a respectful manner may be asked to leave the classroom/online forum. Continuous or repeated disrespectful behavior will be considered to be creating a hostile environment, which constitutes a violation to the University Policy 406, Code of Student Responsibility. Such a student will be referred to the Office of Student Conduct or the Title IX Office. Based on such referral, the Director or designee will determine whether a Formal Charge(s) shall be pursued and whether the Formal Charge(s) constitutes a Minor Violation or a Serious Violation, based on the Student's prior record or facts and circumstances related to the case. We are all here to learn knowledge and skills. So let us focus on the objective.

ACCESS TO EDUCATION:

UNC Charlotte is committed to access to education. If you have a disability and need academic accommodations, please provide a letter of accommodation from Disability Services early in the semester. For more information on accommodations, contact the Office of Disability Services at 704-687-0040 or visit their office in Fretwell 230.