

CS 564 - Computer Security

Syllabus Spring 2020

Instructor: Dr. D. Manivannan (Mani)

Office: Room 231, Hardyman Building

Course Description

This course starts with an overview of security issues in computer systems and then covers various aspects of computer security in some detail. Topics covered in the course include the following: cryptographic tools for implementing security, authentication and access control, database and data center security, intrusion detection and prevention, operating systems security. Some aspects of network security are discussed, as well. Successful completion of the course will prepare the student to work in Information Technology divisions of businesses.

Prerequisites: CS 270 or EE 287 or the consent of the instructor.

Required Textbook

Computer Security Principles and Practice - by William Stallings and Lawrie Brown, published by Pearson,
ISBN-13: 978-0-13-479410-5

References:

1. Computer Security Art and science (2nd edition) - by Matt Bishop, published by Addison-Wesley, ISBN-13: 978-0321712332.
2. Security in Computing - by Charles P. Pfleeger and Shari Lawrence Pfleeger, published by Prentice Hall, ISBN-13:978-0134085043
3. Introduction to Computer Security - by Michael Goodrich and Roberto Tamassia, published by Pearson, ISBN-13: 978-0-321-51294-9

Learning Outcomes

Upon completion of the course, students

1. would be able to list the important security issues related to computer systems
2. would have learned about various threats to computer systems and methods used for handling such threats
3. would have understood various methods used for authentication and access control in computer systems
4. would have understood issues related to database and data center security as well as methods for handling such issues
5. would have acquired the tools and techniques for intrusion detection in networked systems
6. would have understood various cryptographic tools available for solving some of the security problems

Evaluation Criteria

Assignments 40% ; Midterm Exam 30%; Final Exam 30%

Expected Grading Scale

For graduate students: If $\geq 90\%$ **A**; else if $\geq 80\%$ **B**; else if $\geq 70\%$ **C**; else **E**.

For undergrads: If $\geq 87\%$ **A**; else if $\geq 77\%$ **B**; else if $\geq 67\%$ **C**; else if $\geq 57\%$ **D**; else if $< 57\%$ **E**.

The lower limits for the various grades may be lowered if necessary but will not be raised.

Assignments and Exams Policy

All assignments are due on the due date. A penalty of 25% is assessed for the the first three days an assignment is late. An assignment that is more than 3 days but less than one week late will be penalized at 50%. Assignments that are more than one week late will not be accepted. The last Assignment is due on the due date (i.e., no late assignments will be accepted). Students are required to take the examinations on the dates and at the times they are scheduled. **No makeup examinations will be given** without a doctor's excuse or the equivalent. If you foresee something that would prevent you from taking an exam on the scheduled date and time, it *is your responsibility* to contact the instructor for making alternative arrangements. Depending on the circumstances, alternate arrangements *may* be made.

Assignments will be more or less uniformly spread over the semester. Assignments may not be equally weighed. All assignments are due on the date announced when they are distributed. All non-programming assignments **must be typed** using a word processor. Handwritten assignments **will not** be accepted.

Attendance

Students are expected to attend class *regularly*. From time to time, appropriate handouts may be given in class to supplement the text book and/or posted on the class website. In the event that a student must miss a class, the student is responsible for finding out what assignments were made, what due dates were announced, what handouts were given, and what material was covered. Assignments, presentation slides and other materials will be posted on Canvas. The solutions to the written assignments will be discussed in class after they are handed back after grading.

Cheating and Plagiarism

Students are allowed to discuss the material of the course with each other. In fact, discussion of the material with each other will help understand the material better. However, students must work independently on all assignments unless otherwise indicated. **Plagiarism and other forms of cheating will not be tolerated.** If you have not already read, please read the document <http://www.uky.edu/StudentAffairs/Code/> for complete details about punishments for plagiarism. As a student of the University of Kentucky, you are expected to have read and understood this document. Any suspected case of plagiarism will be pursued as per the procedures laid down in this and related documents.

Disability

If you have a disability, in order to receive special accommodations for exams you should provide the instructor with a Letter of Accommodation from the Disability Resource Center. If you have not already done so, please visit the Disability Resource Center <https://www.uky.edu/DisabilityResourceCenter/> or call (859) 257-2754 to find out how to get the accommodation letter.

Tentative Week by Week Schedule of Topics to be Covered

Following is only a tentative schedule.

Week of	Topic	Assigned reading
1/13	Overview of security issues	Chapter 1
1/20	Cryptographic Tools	Chapter 2
1/27	Authentication and Access Control	Chapters 3 and 4
2/3	Database and Data Center security	Chapter 5
2/10	Database and Data Center security	Chapter 5
2/17	Malicious Software, DoS attacks	Chapters 6 and 7
2/24	Intrusion Detection and Prevention	Chapters 8 and 9
3/2	Intrusion Detection and Prevention	Chapters 8 and 9
3/9	Midterm Exam on March 10, 2019	
3/16	Have a nice Spring Break	
3/23	OS, Cloud and IoT security	Chapters 12 and 13
3/30	Security management	Chapters 14 and 15
4/6	Physical and Infrastructure security Human Resources security	Chapters 16 Chapter 17
4/13	Auditing, Legal and Ethical issues	Chapters 18 and 19
4/20	Cryptographic Algorithms	Chapter 20
4/27	Cryptographic Algorithms	Chapter 21
5/4	Final exam on ????	