

Syllabus

COMP 517 – Computer Security

Penn State Harrisburg

Fall 2009

Instructor

Dr. Jeremy Blum

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Office hours (preferred contact method 2):	Tuesday, 2:00-3:00pm Wednesday, 4:00-5:30pm Thursday, 9:45-10:45am And by appointment
Phone:	948-6686
Meeting Time and Place	Wednesday 6:15 - 9:00pm, 264E OLMSTED

Textbook and Other Resources

Computer Security: Principles and Practice, by William Stallings and Lawrie Brown.
Published by Pearson/Prentice Hall, © 2008. ISBN: 0-13-600424-5

Additional Materials as Assigned

Course Objectives

The objectives of this course are to provide an overview of the need for, and the technology, algorithms, and standards used in providing computer and communications security.

Course Description

Comp 517 is aimed mostly at seniors and graduate students. The class is concerned with the fundamentals of computer security. Topics in this class can be divided into three main parts: cryptography (with a focus on single -key and public key), computer system security (database and operating systems issues including authentication, access control, malicious software); as well as network security (including intrusion prevention/firewalls, intrusion detection, Denial of Service attacks, etc.), and writing secure programs.

Prerequisites

MaSc 370 or equivalent. COMP 410 (Data Structures and Algorithms) is also beneficial, as is programming experience.

Methods of Instruction

Comp 517 has lecture, demonstration, reading, and discussion components. The lectures explain the more difficult concepts in the reading and also include information not found in the text. The readings and discussions will help to acquaint the student with the terminology in the field and current issues associated with computer security. This syllabus contains an overview of what will be covered in class; for specific information, students are referred to the ANGEL Course Management System:

<http://cms.psu.edu> (information in ANGEL will be updated frequently so it is a good idea to check it at least once per week).

Grading Information

Homeworks (7)	20%
Class Discussion	10%
Midterm Exam	25%
Final exam (comprehensive)	30%
Term Paper and Presentation (details later)	15%

The following table gives the percentage of points needed to guarantee the associated final grade in the course.

A	90 - 100%	D	60 - 69%
B	80 - 89%	F	below 60%
C	70 - 79%		

PLUS/MINUS GRADES WILL BE ASSIGNED AT THE DISCRETION OF THE INSTRUCTOR. INSTRUCTOR RESERVES THE RIGHT TO ARBITRATE BORDERLINE CASES.

Additional Class Policies

Attendance: You are expected to attend every class. If you must miss a class, it is **YOUR** responsibility to make up the work that you missed. Absences from class, even if excused, may affect your grade in the class. If you are going to be absent from class, the instructor must be notified **IN ADVANCE** if at all possible. Otherwise, you may not be able to make up some types of work.

Late Submissions Policy: An assignment is due at the **BEGINNING** of the class on the specified due date (late arrival to class could result in a loss of points on an assignment). Unless you have a valid excuse or make prior arrangements, you will be docked one letter grade for each day an assignment is late (one day = 24 hours after the start of class). Please contact me as soon as you know you will have a problem.

Help on Writing Assignments: There is a writing assignment for this course. For those who may need assistance with writing, I strongly encourage you to take advantage of the Learning Center at Penn State Harrisburg. The Learning Center provides **free**, confidential tutoring where you can receive additional one-on-one support to help you with your writing. Kathy Brode, the Writing Specialist, can be reached at kbb3 (at) psu (dot) edu or at 948-6469.

Exams and Health Policy: **Students are expected to take exams at the scheduled time.** If you must miss an exam, it is your responsibility to notify the instructor in person **PRIOR** to the exam and to provide the instructor with written verification of the reason for your absence. Make-up exams will **ONLY** be given for valid reasons. Valid reasons include illness, family emergencies, and school-sponsored trips. Oversleeping or simply not feeling well does not constitute emergencies. You may leave a voice-mail message, but it is still your responsibility to get in touch with the instructor personally as soon as possible. Failure to follow these instructions could result in a deduction of points or possibly a grade of zero on the exam.

Calculators: Calculators may **NOT** be used on exams unless specifically stated otherwise.

E-mail: E-mail messages to the instructor's account are welcome where appropriate. Please include your name in the email (particularly if your name will not appear in the "From" header). I answer email on a FCFS basis. Email over the weekend may not get answered until Monday.

Note to students with disabilities: Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Student Assistance Center in Olmsted W-117. For further information regarding ODS, please visit their web site at www.equity.psu.edu/ods/.

Computer Usage Policy: You may end up gaining the knowledge necessary from this class to enable you to mount an unethical attack on a computer system. This is NOT the intent of this class! Please read the Computer Usage Policy at cs.hbg.psu.edu/misc/ethics.html, www.sa.psu.edu/ja/pdf/PoliciesRules.pdf, and guru.psu.edu/policies/AD20.html and make sure you understand what constitutes unethical behavior.

Collaboration: Students can learn a great deal by working with others, sharing information and ideas. The ability to work with others is an important skill that will be useful upon entering a career. Students may collaborate in study groups for the solutions to homework, provided that the methods used promote a learning environment for all involved. There is a distinct difference between collaboration and cheating. Rules for collaboration include:

1. You may discuss assignments with your classmates. The key word is "discuss." To ensure that you adhere to this rule, no written or recorded notes of any kind should be taken away from a class discussion meeting with anyone else. In these meetings you may discuss concepts covered in class or those necessary for the assignment, but you *should not discuss detailed solutions* to the assignment. You may NOT submit the work of a group as your own work.
2. When it comes time to do your assignment, *you must write your own solutions and turn in your own homework. Include with your homework the names of the people you collaborated with in discussing the assignment and their roles.* Looking at, modifying, or copying any or all of another person's work is *strictly forbidden*. These rules apply to program code as well as written homework. In the case of programming assignments, your instructor runs all programs through a software similarity engine that looks for reordered code modules, changed variable names, etc. Cutting and pasting sections of code from other sources is also forbidden unless specifically stated as acceptable (such as when your instructor provides you with a function or procedure).
3. If you use information found on the Internet or elsewhere, you **MUST** cite the source. You may not simply copy material and turn it in. You may use it as a reference but you must provide your own solution.
4. You may **NOT** copy in part or in totality another person's work and submit it as your own. Doing so will result in a 0 for the assignment for all willingly involved for the first offense; subsequent offenses could result in a failing grade in the class.
5. You may **NOT** get someone else to do part or all of the work for you.

Homework Documentation Requirements: All papers handed in must contain the student's first and last names and the name of the course as well as the names of any individuals the student collaborated with on the assignment. If external sources are used in finding solutions, those should be listed as well.

Academic Dishonesty: Note Penn State's statement regarding academic integrity in Senate Policy 49-20 at <http://www.psu.edu/dept/ufs/policies/47-00.html#49-20> as well as the policy for Capital College at <http://www.hbg.psu.edu/hbg/acadint.html>. Acquaint yourself with the definition of academic integrity and understand what constitutes academic dishonesty. Academic dishonesty includes, but is not limited to: cheating, plagiarizing, fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Academic dishonesty could result in a grade of "XF" on your transcript.

Plagiarism: Plagiarism is stealing or passing off the ideas or words of another as one's own - using material without crediting the source. If you use other people or sources as references, you **MUST** site these sources – you must give credit where credit is due. The instructor reads papers very carefully and does check sources. **NOTE: Plagiarism is prohibited behavior and will not be tolerated.** You must properly cite material written by someone else. This means you must include references, you must put verbatim quotes in quotation marks, you cannot use someone else's code, and you cannot paraphrase excessively. If you have questions about this, ask me. You should visit the Penn State page on *Cyberplagiarism: Detection and Prevention* at <http://tlt.its.psu.edu/plagiarism>.

If, after reviewing this link, you still do not understand what constitutes plagiarism, please see your instructor. Under no circumstances will your instructor accept "I didn't know it was plagiarism" as an excuse!

Class Cancellation and Weather Policy: In the case of class cancellation, a message will be sent to via ANGEL. *Note that you must set your “Forwarding Mode” to “Forward my course mail and keep as new in course” in ANGEL, in order to receive ANGEL messages in your email account.* In the case of inclement weather, please read the information about Penn State Harrisburg weather policy at: <http://www.hbg.psu.edu/hbg/weather.html>

TENTATIVE COURSE OUTLINE -- Comp 517, Fall 2009

I anticipate that we will follow the schedule I've outlined here, but I may make adjustments based on what actually happens in class. Be sure to check with a classmate after an absence to see if assignments have changed. Remaining in the course after reading this syllabus will signal that you accept the possibility of changes and responsibility for being aware of them.

Please note that after the first week, there may be a homework assignment due at the beginning of a class, except when an exam is given or the project is due.

Date	TOPIC	TO READ
8/26	Introduction to Course & Computer Security Overview	Ch. 1
9/2	Classical Cryptography Homework #1 Due	Ch. 2
9/9	Modern Symmetric Cryptography Homework #2 Due	Ch. 19
9/16	Public Key Cryptography Homework #3 Due	Ch. 20
9/23	User Authentication Term Paper Topics Due	Ch. 3
9/30	Access Control Homework #4 Due	Ch. 4
10/7	Database Security Homework #5 Due	Ch. 5
10/14	Midterm Exam (Chapters 1-5, 19, 20)	
10/21	Malicious Software Term Paper Status Report Due	Ch. 7
10/28	Denial of Service Intrusion Prevention/Firewalls Homework #6 Due	Ch. 8 Ch. 6
11/11	Intrusion Detection Nothing Due – Keep Working on Your Term Papers	Ch. 9
11/18	Secure Software Development Homework #7 Due <i>Late drop deadline, Nov. 16th</i>	Ch. 11- 12
11/25	No Class – Thanksgiving Break	
12/2	Computer Security Laboratory Term Paper Due	
12/9	Term Paper Presentations	
12/16	Final Exam	