

CpSc 327, Systems Administration and Security Syllabus: Spring, 2009

Catalog Description:

Students will learn administration techniques for at least two popular computer operating systems, with special attention to system security. Techniques for managing networking, remote printing, storage allocation, account management, and backup will be discussed. Common techniques for breaching system security, and methods of defense against such attacks, will be emphasized. Prerequisite: CpSc 317. (3 credits)

Meets

| Time | Place |
|-----------------------|--------------------------------------|
| TR D (2:00-3:15 p.m.) | Lectures: ATSH 224 Labs: ATSH 232 |

Instructor:

| Name | Phone | Email | Office |
|-------------------|--------------|------------------------|----------|
| Michael P. Conlon | 724-738-2143 | michael.conlon@sru.edu | ATSH 252 |

Office hours: M 2:00-4:00 p.m., W 2:00-3:00 p.m., R 10:00 a.m.-12:00 m., or by appointment.

Office hours are for you. Please feel free to visit me to discuss any problems. Do not wait until problems become unmanageable. If I am doing other work during my office hours, it is because no student has come to see me. I will gladly drop what I am doing to help you. If my office hours are inconvenient, see me before or after class and we will find a better time to meet.

Exam dates:

| Section | Midterm | Final Exam |
|---------|-------------|------------------------------------|
| 1 | Thu, Feb 26 | Thu, Apr 30, 10:30 a.m.-12:30 p.m. |

Grading:

| Exams | Homework, etc. | Project | Lab |
|-------|----------------|---------|-----|
| 20% | 10% | 20% | 50% |

Texts:

- *Mastering Windows Server 2003* by Minasi. Sybex, ISBN# 0782141307
- *Advanced Guide to Linux Networking and Security* by Sawicki & Wells. Thomson Course Technology, ISBN# 0-619-21743-X

Software:

Debian Etch Gnu/Linux, network-installation version. You will need to get your copy ASAP. You may borrow a copy from me to duplicate. All Debian software is

free open-source software, so there are virtually no restrictions on its use, i.e., you can install it on as many computers as you wish and give away copies, with no license to sign and no activation required.

Windows 2003 Advanced Server, and *Windows XP*. Because of the CS Department's (paid) membership in MSDNAA, these will be supplied free of additional charge. In addition to class use, they may be installed on your own computer, provided they are not used to develop software for sale or used to support a business. You are not permitted to install this software on other peoples' computers or give copies away. You may borrow the master CD's from the reserve desk in the library for personal use. For lab use, use the lab versions, which you can get from me. Product activation may be required.

Grading Policy:

To pass this course you must take all exams, complete and submit the homeworks and project, and earn a passing grade. The project will not be accepted after its due date.

Attendance:

You are expected to attend and participate in class. Do not expect me to reiterate the textbooks in class. Students late for class may expect not to be admitted. If you must be absent for an examination, please see me one week in advance to make alternate arrangements to take the exam.

Labs:

Your lab experience accounts for the half of your credit in this course. Your lab grade will be curved against the other students in the class, with each completed project counting one point. You are expected to spend a minimum of six hours per week in the lab outside of class time. Your grade will be reduced for idleness during lab classes. Hacking and cracking activity in this lab is encouraged, but do not modify anything on others' computers without their permission.

About half of the classes will be labs. It is not practical to postpone lab projects until there is the time to cover the subject in lecture. You are expected to do outside reading to find out how to do the lab projects. Use the Internet and the library! Lecture classes may be substituted for labs whenever the instructor notices many people having a common difficulty.

Please note that some of the assigned projects will be projects that the instructor has not personally done. This is deliberate: there will be many times in a career as a systems administrator that you will need to do things that no one you know has done before. Consider: who wants to hire a computing professional who can do only things that he/she has done before?

Each student will be assigned one desktop computer and three server computers. There will be no one else using your computers this semester; you are responsible for their care. Should there be a problem with any of your

computers, please promptly notify the instructor, and leave a note at your desktop workstation describing the problem and identifying the affected computer.

The Network Administration Lab contains 30 desktop computers and over 90 servers. That makes it noisy and energy intensive. When the weather gets warm, it can be hard for the HVAC system to keep up with the heat generated by all of the computers in the lab. Therefore, you are expected to shut down whichever computers that are assigned to you that you are not using, particularly when you are leaving the lab.

Service and Professional Development:

You will be expected to participate in four service and/or professional development activities outside of class time during the semester. Participation in these activities will be reflected in your "homework, etc." grade. Those who have not yet participated in an Industry Awareness Night or Job Shadow Day will be expected to attend this year's events. Other events will be announced as they come up. Since such events are not under the instructor's control, do not expect me to manufacture such events in the last weeks of the semester.

Each week you are expected to find, read, print, and submit one article on systems administration or security. Your article may come from the Web or from a professional publication or journal. You will be awarded 10% extra credit if the article is particularly good and unique among the class. No article is due during weeks when you are involved in a professional development or service event. No article may come from an out-of-date source, and articles which are essentially press releases, have no technical details, or are not related to systems administration or security, will not be counted.

Email:

You are responsible for checking your email on SRU's server regularly.

Plagiarism policy:

Students determined guilty of plagiarism or collusion will receive a failing grade for the course. While I encourage cooperation, please ensure that all assignments are your own work. You may find out how to do a lab task from another student, but you must do the task by yourself.

Course Competency Plan:

Course Outcomes: This course and its outcomes support the Information Technology Learning Outcomes of *Problem Solving and Critical Thinking* (PS&CT), and *Ethical and Professional Responsibilities* (E&PR). These Information Technology Learning Outcomes are tied directly to the University Wide Outcome of *Critical Thinking and Problem Solving*, and *Values and Ethics*.

Program Objectives Assessed in CpSc 327

| Degree | Program Objective | Assessed Course Objective |
|---------------|--|--|
| IT | I.a. Apply programming and system management techniques to address information technology problems | 1.Set up network servers of various types, such as file servers, Web servers, and print servers. |
| IT | III.d. Plan for and ensure the security, privacy, and integrity of data | 2.Avoid system security problems and deal with new ones that are discovered. |

Additional Course Objectives include:

The student will be able to:

1. Choose an appropriate server operating system, from among several popular ones, for the application at hand.
2. Create, manage, and delete user accounts.
3. Backup and restore the data and programs stored on network disk drives.

Calendar (tentative):

| Date | Topic | Reading |
|-------------|----------------------------|----------------|
| Jan | 13 Lecture | |
| | 15 Lab | |
| | | |
| | 20 Lecture | |
| | 22 Lab | |
| | | |
| | 27 Lecture | |
| | 29 Lab | |
| | | |
| Feb | 3 Lecture | |
| | 5 Lab | |
| | | |
| | 10 Lecture | |
| | 12 Lab | |
| | | |
| | 17 Lecture | |
| | 19 Lab | |
| | | |
| | 24 Lecture | |
| | 26 Midterm exam | |
| | | |
| Mar | 10 Lab | |
| | 13 Lecture | |
| | | |
| | 17 Lab | |
| | 19 Lecture | |
| | | |
| | 24 Lab | |
| | 26 Lecture | |
| | | |
| | 31 Lab | |
| Apr | 2 Lecture | |
| | | |
| | 7 Lab | |
| | 9 Lecture | |
| | | |
| | 14 Lab | |
| | 16 Lecture | |
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| | 21 Lab | |
| | 23 Lecture | |
| | | |
| | 30 Final exam, 10:30-12:30 | |
