Syllabus
COSC 4590 Selected Topics: Firewall and IDS Systems
Fall 2012 - Section 001

- Meeting Times: MW 2:00 - 3:15
- Meeting Place: CI 344
- Instructor: Steve Alves
- Office: CI 344
- Office Hrs:
  - E-mail: steve.alves@tamucc.edu

Course Description:
This course is a laboratory-based course that focuses on the standards and technologies used to establish inter-network structures that will support a TCP/IP data stream for higher-level services to operate over. This course introduces firewalls, IPS, and IDS technology. Topics include Windows, Linux and Cisco firewalls, TCP/IP and open system interconnection (OSI) models, attack traffic analysis, and network based and host based hardware and software. Device configuration will be examined and evaluated with appropriate laboratory exercises.

Pre-requisite:
COSC 2365 System Administration I, COSC 2366 Network Administration I, and COSC 4365 Systems Administration II

Student Learning Outcomes:
Upon completion of this course, students will be able to:
- Understand the basic knowledge and skills of effective firewalls.
- Understand the basic knowledge and skills of effective Intrusion Prevention Systems (IPS) and Intrusion Detection System (IDS) systems.
- Understand the basic knowledge and skills of packet analysis
- Understand how to effectively apply and deploy technologies and administrative tools in an organizational environment.

Course Text:
- Required:
  - Linux Firewalls

Grading Policy:
Your course grade will be decided on your performance in the homework assignments, quizzes, two mid-term exams, and the final exam. The distribution of points is as follows:

1. Homework assignments and quizzes worth 40%.
2. Two mid-term exams worth 40% (exam 1 worth 20% & exam 2 worth 20%).
3. Final exam worth 20%.
Grading scale: A: 100-90, B: 89-80, C: 79-70, D: 69-60, and F: 59-0.

Course Organization and Policies:

Course Syllabus: We will meet in lecture on Monday and Wednesday, when new material will be presented. Non-text material may also be included in the lectures. The assignments, quizzes, and exams will be given during the class hours. You are responsible for all the material presented during the lecture.

Exams: Exams will cover all lecture, assignments, quizzes and reading material. Exams must be taken on the hour they are scheduled - see Tentative Schedule below. In the event, if you cannot attend the class to take the exam due to some emergency or some unavoidable situation (such as serious illness, death in the family, participation in university sports, religious observations, and so on) you must notify me as soon as possible before the exam and also you must validate your absence by providing me a document (e.g., with a letter from your doctor).

Homework Assignments and Quizzes: Approximately 6 homework assignments will be given. Partial credit will be given for incomplete assignments. In addition, there may be a quiz from time-to-time. They will significantly be based on the material from the lectures and other material considered essential for the successful completion of this course. They will be handed out in the class during the lecture. The submission details will be provided to you along with the assignment. All the homework assignments are due at the beginning of the class on the due date. If the student is absent on the due date, it is the student’s responsibility to see to it that the assignment is submitted on the designated date. An assignment that is turned in after the class on the due date is considered one day late. There is a penalty for late submissions. 10% penalty for 1-2 days late. 25% penalty for 3-4 days late. 75% penalty for 5 days late. 100% penalty (i.e. no credit) if submitted after 5 days. If you have not completed your assignment by the due date, you should submit the work you have done for partial credit. No work will be accepted once the graded work has been returned or the solution has been disclosed to the class, except for unusual circumstances which the instructor feels reasonable. Be sure to backup your work. Note that any kind of hardware or software failure or machine unavailability in the lab does not merit an extension on the assignment. Diskettes upon which major examinations, assignments, projects or papers submitted may be retained by the instructor as a permanent record of the student’s work.

Grading Error: All questions concerning a test score or grading of a returned test or assignment must be resolved within one week. It is always a good idea to keep all of your work until the end of the semester. In case of any recording errors or doubts, you may produce them for correction or verification.

Academic Honesty Policy: You are expected to avoid all forms of academic dishonesty as defined in Catalog. In addition, students are expected to behave in an ethical manner in all class and lab activities. If you feel uncertain about a particular activity, please speak to me BEFORE problems arise. Ethical behavior is a requirement for passing this course. All work submitted for grading must be the student’s own work. Plagiarism will result in a score of 0 (zero) for the work or dismissal from the course and the Dean of Students office will be notified. No copying from another student’s work, of any class, is allowed. It is the student’s duty to allow no one to copy his or her work. Anyone found cheating and/or copying, in the exams or assignments, in the instructor’s opinion, will receive an automatic F for the course.
**Attendance:** You must attend all classes. In class attendance will affect your grade. You are responsible for any materials covered or handed out or announcements made for the tests, homework assignments in your absence. Records of your attendance will be maintained and reported to the university. Students found missing classes without the instructor’s permission will be automatically withdrawn from the course.

**Absence from class:** Students are responsible for all materials covered in class and assigned. Should a student be absent from class, it is his/her responsibility to get the notes, etc. for that missed class. More important, should there be assignments, it is the student responsibility to obtain such assignments. No excuse will be accepted for assignments not turned in because the student was absent when it was due.

**Other Policies:** Cell phones and pagers must be turned off during class. First violation receives a warning. All succeeding violations result in a ten point deduction off the final exam. Any violation during a quiz or exam results in a ten percent deduction off the corresponding paper. No warnings for quizzes or exams.

**Student Security Statement:** Please read the [Student Security Statement](http://www.tamucc.edu/provost/university_rules/index.html).

**Students with Disabilities:** Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office, located in Driftwood 101, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

**Academic Advising:** The College of Science and Technology requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. The College’s Academic Advising Center is located in Faculty Center 178, and can be reached at 825-6094.

**Grade Appeal Process:** As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.
Tentative Course Schedule (Subject to change)

08/22/12: Introduction – Host Based & Network Based Firewalls
08/27/12: Windows Firewalls
08/29/12: Windows Firewalls - HW1
09/3/12: Linux – iptables
09/10/12: Linux - Network Layer, Transport Layer and Application Layer Attacks - HW2
09/12/12: Linux - Port Scan Attack Detector, Exam 1 Review
09/16/12: Exam 1
09/24/12: Linux - Port Scan Attack Detector
09/26/12: Linux - Port Scan Attack Detector
10/1/12: Linux – snort configuration - HW3
10/3/12: Linux - Translating Snort Rules into iptables Rules
10/8/12: Cisco ASA – Configuration
10/10/12: Cisco ASA – Configuration - HW4
10/15/12: Thanksgiving Holiday
10/22/12: Cisco ASA – Intrusion Prevention System (IPS)
10/24/12: Exam 2 Review
10/29/12: Attack Analysis – Wireshark
10/31/12: Attack Analysis - Lower Layer Protocols – arp, ip, tcp - HW5
11/12/12: Exam 2
11/14/12: Thanksgiving Holiday
11/26/12: Final Exam on xx, December 10, 2012 at 1:45 – 4:15

Note: This syllabus represents a general plan for the course. Deviations from this syllabus may be necessary during the semester and changes will be announced in class.