**Syllabus**

**CNA 432: OSI Layer Security**

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| **Location:** ECC 116 | **Days:** Monday |
| **Semester:** Fall 2014 | **Times:** 5:00 – 7:50 PM |
| **Professor:** Dr. Tirthankar Ghosh | **E-mail:** tghosh@stcloudstate.edu |
| **Office:** ECC 248 | **Phone:** (320) 308-2213 |
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**Office hours:**

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| Monday | 1:00 – 4:00 pm |
| Tuesday | 11:00 – noon  2:00 - 3:00 pm­ |
| Wednesday | 1:00 – 3:00 pm |
| Thursday | 11:00 – noon  2:00 - 3:00 pm­ |

**D2L will be used for the uploading lecture slides, reading materials, grades, and other course materials.**

**Description:** Security models and protocols for each OSI layer. Network and Web security implementation, monitoring, intrusion, recovery, and countermeasures. Prerequisites: CNA 426, or consent of instructor.

**Objectives:**

* Identify the threats to the security of network devices and services and learn the purpose of security protocols
* Obtain an in-depth understanding of the principles and functioning of security protocols for system authentication, email, web, electronic transactions, and wireless networks
* Learn the properties of the principal security protocols
* Design, analyze, and evaluate principal security protocols
* Evaluate the security standards and develop the ability to securing TCP/IP-based networks and applications

**Course Learning Outcomes:**

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| **Students will….** | **Assessment** |
| Identify threats to networked devices and services | Exam, Quizzes, Project |
| Obtain in-depth understanding of the principles and functioning of security protocols for system authentication, email, web, electronic transactions, and wireless networks | Exam, Labs, Project |
| Design, analyze, and evaluate principal security protocols | Project, Quizzes, Labs |
| Evaluate various security standards | Exam, Quizzes |

**No textbook will be used for the class. Students will be provided with handouts as necessary.**

**Tests/Quizzes/Homeworks/Project:** There will be approximately 8 labs and homeworks, 6 unannounced quizzes, a midterm exam, a final exam, and one final project.

**Grading:** Grades will be distributed as follows:

95% to 100% ----- A 70% to 74% ------ C+

90% to 94% ----- A- 65% to 69% ------ C

85% to 89% ----- B+ 60% to 64% ------ C-

80% to 84% ----- B 55% to 59% ------ D+

75% to 79% ----- B- 50% to 54% ------ D

45% to 49% ------ D-

**Grade Composition:**

Homeworks & Labs: 120 points

Quizzes: 60 points

Midterm Exam: 50 points

Final Exam: 100 points

Project: 50 points

Attendance: 40 points

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Total: 420 points

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**Schedule:** The tentative schedule for the class is given below. In case the schedule is to be changed, students will be given as much advanced notice as possible.

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| **Week** | **Topics covered** |
| 1 | Course outline, course policies,  Discussion on Protocols and their vulnerabilities |
| 2 | Labor Day Holiday |
| 3 | Security vulnerabilities cont’d  MAC layer security overview |
| 4 | Discussion on MACSec |
| 5 | Network layer security vulnerabilities |
| 6 | IPSec, BGP Security |
| 7 | DNS Security |
| 8 | Transport layer vulnerabilities |
| 9 | Transport layer vulnerabilities cont’d |
| 10 | Wireless security |
| 11 | Application layer, SSL/TLS |
| 12 | Introduction to Cryptography |
| 13 | Secure shell (SSH) |
| 14 | Kerberos |
| 15 | Final Project |
| 16 | Final Project Presentation in class |

**Policies:**

**Attendance to every class is required. There are 15 sessions, out of which one excused absence will not be counted towards attendance grade. Out of the remaining 14, each absence (unless there is an emergency) will result in loss of 10 percentage points of the total attendance grade.**

**No quizzes will be made up except in certain unavoidable circumstances including family and medical emergencies and SCSU-sponsored events. If a student must miss a scheduled test, it is imperative that he/she calls or e-mail me as soon as possible before the test.**

**No academic dishonesty, including but not limited to, cheating, plagiarism, misrepresentation of student status, and resume falsification (as per the definition in the SCSU Student Handbook), will be tolerated for the assignments and exams.**