IT 6833 – Wireless Security
Syllabus: Fall 2010

Instructor

Name: Edward Jung
E-mail: SPSU VIESTA Email
Phone: 678.915.5546
Office Location: Atrium J-385, Southern Polytechnic State University
Office Hours: TBD
Virtual Office Hours: TBD

Please use GeorgiaVIEW Vista email to communicate with the instructor. I will respond as quickly as possible, most of time within 24 hours, but during the weekend or holidays, it may take longer. I am not available online on weekends or holidays.

Course Description

This course covers methods and techniques to secure wireless networks against threats and attacks. Topics include: Encrypt wireless traffic for privacy and authenticity, implement WPA and the 802.11i security standards to protect Wi-Fi networks, wireless network intrusion detection and prevention, and security troubleshooting WLANs. (Note: this is a graduate level course.)

Objectives:

By the end of this course, you should be able to:

1. Describe the differences between wireless security and wired security,
2. Build or reinforce the working knowledge of security building blocks so that it can be applied to solve the problems of designing security solutions in wireless network systems,
3. Acquire the fundamental understanding of two main-stream approaches (i.e., data-oriented and voice-oriented) taken by wireless security systems,
4. Master to learn at least one of advanced wireless network security systems in depth, and
5. Enhance the skills of enabling and configuring a wireless network system.


Pre-requisite: IT 6823 Information Security Concepts and Administration, and IT 5103 or equivalent.
Technical Requirements: You will need a headphone and microphone for presentations in Wimba Classroom.

<table>
<thead>
<tr>
<th>Grading</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests (Midterm, Final Exam)</td>
<td>40% - Midterm (15%), Final (25%)</td>
</tr>
<tr>
<td>Quizzes (9) – Best of Seven</td>
<td>20%</td>
</tr>
<tr>
<td>Hands-on Lab / Discussion</td>
<td>15%</td>
</tr>
<tr>
<td>Term Paper (1) – See (*)</td>
<td>15%</td>
</tr>
<tr>
<td>Presentation (1) – See (*)</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

(*) Depending upon the size of class, these activities can be done either in a group or individually.

This is a graduate level course. Accordingly, there will be requirements for writing a term paper and for giving a presentation. There will be two tests (one midterm and one final). There will be nine short quizzes with two lowest scores that can be dropped. Working on quizzes should help automatically prepare for midterm and final exam. All tests and quizzes are “closed books” and “closed notes”. There will be one hands-on lab. Detailed grading criteria are available in GeorgiaVIEW Vista for how a term paper and a presentation will be graded. (Specify where Rubrics can be found in GeorgiaVIEW Vista: TBA)

Grading Criteria: Grades will be based on the activities described in the table above.

90 - 100: A
80 - 89: B
60 - 79: C
Below 60: F

Important Note: The instructor reserves the right to change the grading system as the course progresses and various circumstances encountered.

Course Outline

This course has a total of eleven units (or learning modules). The first six modules, including learning module 1, will be covered during the first half of semester. Topics covered in the first half of semester will be building blocks of security components. In the second half of semester, wireless network “systems” will be addressed where those building blocks studied in the first half can be integrated to design the security solutions. Also, at least one emerging network system (not shown in the textbook) will be studied. The corresponding reading materials for this emerging subject will be provided. All due dates for activities are in Eastern Standard Time and in the GeorgiaVIEW Vista Calendar. (For weekly schedules, please refer to “Course Schedule” in the course website.)
<table>
<thead>
<tr>
<th><strong>Unit (12)</strong></th>
<th><strong>Content/Activities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Wireless Security</td>
<td>Read syllabus; Syllabus Quiz (Quiz 0), Quiz 1</td>
</tr>
<tr>
<td>Building Block I: Cryptographic Tools</td>
<td>Quiz 2</td>
</tr>
<tr>
<td>Building Block II-A: Security Protocols - Key Establishment Protocols (A)</td>
<td>Quiz 3</td>
</tr>
<tr>
<td>Building Block II-B: Security Protocols - Authentication Protocols (B)</td>
<td>Quiz 4</td>
</tr>
<tr>
<td>Building Block III: Layered Security Architecture</td>
<td>Quiz 5</td>
</tr>
<tr>
<td>Domain Knowledge: Data-oriented Wireless Networks</td>
<td>Midterm</td>
</tr>
<tr>
<td>Real System I: Security in Data-oriented Wireless Networks</td>
<td>Quiz 6</td>
</tr>
<tr>
<td>Domain Knowledge: Voice-oriented Wireless Networks</td>
<td>Quiz 7; Hands-on Lab Due</td>
</tr>
<tr>
<td>Real System II-A: Security Voice-oriented Wireless Networks (AMPS/GSM) (A)</td>
<td>Quiz 8</td>
</tr>
<tr>
<td>Real System II-B: Security in Voice-oriented Wireless Networks (UMTS) (B)</td>
<td>Quiz 9</td>
</tr>
<tr>
<td>Real System III: Emerging Systems</td>
<td>Term Paper Due; Presentations in Wimba Classroom</td>
</tr>
<tr>
<td>Review and Reflection</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

**Course Expectations and GeorgiaVIEW Vista**

**Expectations/Class Participation:** For this online course, you should expect to spend seven to eight hours each week on coursework. Logging in at least three times a week is minimally necessary to be productive and to interact with your peers. My role will be one of facilitators for this interaction, so I will not be responding to every comment. However, I will be looking in frequently during the week. Discussion posts will be graded primarily for quality and timeliness. Posting to the discussion forums at the last hour of the deadline does not give your classmates ample times to respond. The more effort exerted by all to complete readings, meet the due dates and participates in the online discussions, the more productive and dynamic the learning experience for all.

**Late Submission of Term Paper:** Term paper will be submitted in GeorgiaVIEW Vista by the due date. Please do not submit any work via email. The due date is in Eastern Standard Time and in the GeorgiaVIEW Vista Calendar. Late submission will not be accepted.

**Plagiarism:** Students agree that by taking this course all required papers such as Term Paper may be subject to submission for textual similarity review to Turnitin.com for the
detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Terms and Conditions of Use posted on the site.

**Student Responsibility:** Distance learning requires more individual discipline than traditional classes, and requires that you have at least some control over your time and schedule. It is not easier or less time than face-to-face courses.

For other expectations, please note the following:
1. All quizzes and tests will be “CLOSED” book and “CLOSED” notes.
2. There will be rather a large number of short quizzes in this course. Two lowest scores can be dropped. Note that working on quizzes should help to prepare the midterm and the final exam.
3. The lectures and handouts provide the general framework for the course. **However, the instructor reserves the right to make any modifications or changes to the course contents, depending on the student’s progress, or on any special circumstances that may arise during the semester.**
4. In principle, the course final grade will be based on the curve. However, if the students in a particular semester are doing well, some flexibility can be applied.
5. All due dates are in Eastern Standard Time.
6. No “make-up” quizzes/tests will be made except for emergencies with proof (e.g., doctor’s slip)
7. No “Incomplete” or “Late Withdrawal” grade will be allowed without special and legitimate reasons.
8. No “extra credit” work will be given to improve one’s grade.

**Contacts to get Help:**
For Vista Technical Support, go to [http://help8.view.usg.edu](http://help8.view.usg.edu) or call 678-915-HELP
For Wimba Technical Support, go to [http://www.wimba.com/services/support/](http://www.wimba.com/services/support/)
If there is an emergency and you can’t reach me via phone or email, call Ms. Marilee McClure in the office of department of IT (678-915-4292)

**Resources:**

---

**University Policies**

**Academic Honesty:**
“A faculty member reserves the right to remove any student from his or her course if the student’s behavior is of a disruptive nature or if there is evidence of academic dishonesty.” *(SPSU Catalog)*

**Disability Statement:**
“A student at Southern Polytechnic State University who has a disabling condition and needs academic accommodations has a responsibility to voluntarily identify him/herself as having a disability by scheduling an appointment with the Disability Services Coordinator as soon as possible.” (SPSU Catalog). The coordinator can be contacted at 678-915-7244