

CSC 680 Class Information and Syllabus

COURSE NUMBER: CSC 680
COURSE TITLE: Advanced Topics in Computer Security
CREDITS: 3:3
PREREQUISITES: CSC 339 and CSC 580

FOR WHOM PLANNED: Masters students who want to learn about the latest topics in computer security research.

INSTRUCTOR: Name: Steve Tate
Office: Petty 166
Office Hours: Monday and Tuesday, 1:30 – 3:30, or by appointment
Phone: 336-256-1033
E-mail: srtate@uncg.edu

CLASS WEB SITE: <http://www.uncg.edu/cmp/faculty/srtate/680/>

COURSE DESCRIPTION: This class will introduce students to current state-of-the-art research in computer security. This will be a research-oriented, seminar-style class, so expectations of students will consist of in-class presentations and written summaries of current research. There will be no exams.

The class will begin with a fast-paced but high-level tour through papers in the last year of the leading computer security conferences. Each of the first four days of class will focus on a different conference. Students will be assigned approximately 5 papers each, and will give a quick overview of those papers in class. At this level, students are not expected to read the paper — just the abstract and perhaps part or all of the introduction is all that should be required. The in-class overview will be very brief — about 3 minutes per paper, answering two basic questions: (1) what problem was examined, and (2) what is the main result. At this stage we don't consider *how* the researchers approached the problem.

The conferences we will review, and the day of the review for each, is given below along with some additional information.

- *ISOC Network and Distributed System Security* (“NDSS”)
On August 26 we will be reviewing the 2009 conference, with 20 papers
Papers are at <http://www.isoc.org/isoc/conferences/ndss/09/proceedings.shtml>
This is the leading conference focusing on network security.

- *Usenix Security Symposium*
On August 31 we will be reviewing the 2009 conference, with 26 papers
Papers are at <http://www.usenix.org/events/sec09/tech/>
This is the leading applied security conference — papers here almost always describe new security software, tools, or experimental results.
- *IEEE Symposium on Security and Privacy* (“Oakland”)
On September 2 we will be reviewing the 2009 conference, with 22 papers
These papers can be accessed by going through the UNCG library web site although it’s a little involved — we will go through how to access these papers in class.
This is one of the two top general security conferences, covering a wide variety of topics.
- *ACM Conference on Computer and Communications Security* (“CCS”)
On September 9 we will be reviewing part of the 2008 conference, with 51 papers
Papers are at <http://portal.acm.org/toc.cfm?id=1455770>, which is accessible from any on-campus computer, or from off campus by going through the UNCG library web site.
This is the other top general security conference, with a variety of topics, similar to Oakland. This paper accepts more papers, so we will be looking at it last — after getting a feel for active areas of research, and based on interests of the class, we will look at only a subset of these papers.

Following this very fast familiarization with topics in recent conferences, we will spend September 14 discussing topics of interest, and select two topics that are of most interest to the class. The remainder of the semester will be spent reading papers in the selected areas, as well as in the instructor’s area of trusted computing. The schedule will be roughly as follows, which is subject to change depending on the topics and number of papers covered in each topic.

- *September 16 – October 7*: Class-selected topic 1
- *October 14 – November 4*: Class-selected topic 2
- *November 9 – December 2*: Trusted computing
- *December 7*: Class wrap-up

For each of the three topics, papers will be selected for discussion (not limited to the conferences above). Each student will be assigned one paper for which they will do a presentation and lead the in-class discussion (all students will read all papers and are expected to participate in discussions). One week after the conclusion of each topic, students will turn in a written summary of research in that area — a 4–5 page paper that surveys the key research questions in the area, what the main results are, and a description of open problems and ongoing challenges.

EVALUATION AND GRADING: Each student activity will contribute to the final grade in the class according to the following percentages.

Initial overview presentations	10 points
Presentations (10 points each)	30 points
Written summaries (20 points each)	60 points

ACADEMIC INTEGRITY POLICY: Students are expected to abide by the UNCG Academic Integrity Policy, which is online at <http://academicintegrity.uncg.edu/>

As a seminar-style course, students are encouraged to work together in understanding the papers and during in-class discussions. However, written summaries are to be done individually and students are expected to abide by the highest standards of academic integrity in citing sources and avoiding plagiarism. Issues of scientific attribution and plagiarism will be discussed in class, and if a student has any uncertainty about proper standards he or she should consult the instructor.

ATTENDANCE POLICY: The most important activities of this class are the in-class discussions, so attendance is vital and students are expected to attend all classes. If a student cannot attend class due to illness or other emergency, please contact the instructor in advance if possible. A student missing the in-class discussion of a paper will be expected to turn in a 1-page written summary of that paper.

ADDITIONAL REQUIREMENTS:

Laptop/Cellphone Policy: Laptops can be both a benefit and a distraction in a classroom. While many students benefit from taking notes using a laptop, or having access to outside class-related resources during class, other students cannot resist the temptation of checking e-mail, chatting, or even playing games during class time. This class has a strict “no non-class related use” rule for laptops — if you are found violating this policy, then your in-class laptop privileges will be taken away. Cellphones are a distraction for everyone, and should be turned off during class. If there is a special situation where you need to have your phone on for a particular day, please let the instructor know the situation before class.

ADA STATEMENT: UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Office of Disability Services located in 215 Elliott University Center: (336) 334-5440.

UNIVERSITY CLOSINGS: If university facilities are closed due to flu outbreak or other emergencies, it does not mean that classes are cancelled. In such an event, please check the class web page and Blackboard site for information about if and how the class will proceed.