

COURSE SYLLABUS

In this course, student will systematically study the fundamental principles of computer system security, including authentication, hardware vulnerabilities, software vulnerabilities, and web security. Most of these principles will be studied within the scope of concrete systems, such as Linux and Windows. The course emphasizes "learning by doing" and requires students to read assigned papers and conduct a series of lab exercises. Through these labs, students can enhance their understanding of the principles, and be able to apply those principles to solve real problems.

COURSE INFORMATION

- Name: CSCI 7120 Advance Topics in Computer Security
- Credits: 3
- Location: Hull McKnight GA Cyber Center Rv1-2400
- Day/time: Tue/Thu 14:30-15:45
- Course Type: In-person

CONTACT

- Name: Hoda Maleki
- Department: School of Computer and Cyber Sciences
- Campus: Riverfront Campus
- Office Location: RV1- 2810
- Email: hmaleki@augusta.edu
- Office phone: 706-721-0553

OFFICE HOURS

Only by appointment. Please email me to set an in-person or virtual meeting.

IMPORTANT DATES

Take note of the following important dates:

- First day of class: 08/12/2021
- Last day to Withdraw without Penalty: 08/17/2021
- Mid-term: No midterm
- Last day of class: 11/30/2021
- Final Exam: 12/03/2021 time: 17-19. No Final Exam. However, the presentations may be held on this date (TBD). ([link to final exam schedule](#))

HOLIDAYS AND CLASS CANCELATION

Conference attending (No class): 09/28/2021- 10/01/2021

Fall Pause: 10/07/2021- 10/08/2021

Thanks giving Pause: 11/24/2021- 11/26/2021

LEARNING OBJECTIVES

After completion of the course, students should be able to:

explain security principles,
explain how various security mechanisms work, and correlate these security mechanisms with security principles,
compare various security mechanisms, and articulate their advantages and limitations,
apply security principles to solve problems,
analyze and evaluate software systems for its security properties,
evaluate risks faced by computer systems,
explain how various attacks work,
detect common vulnerabilities in software,
design and implement basic security mechanisms to protect computer systems,
describe and generalize various software vulnerabilities.

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RELATIVE TOPIC EMPHASIS	TOPIC CLASS HOURS
Introduction and basic principles of Computer Security	3
Software Security	7
Hardware Security	8
Network Security	7
Cryptography	7
Paper Presentation	3

PREREQUISITES

To enroll in this course, you must have the following prerequisite courses, skills, and/or knowledge:

- Must be enrolled in School of Comp & Cyber Science, Graduate level . This means that the student should have the basic knowledge that a B.Sc. in Computer Science/Engineering has.

REQUIRED RESOURCES, MATERIALS, AND TECHNOLOGY

For this course, you must have access to the following resources and/or technologies:

- **D2L:** The assignments will be uploaded in Desire-to-Learn (D2L). Students should submit their homework and project in D2L.
- **Other materials will be provided online at no cost to students.**

To complete work outside of campus labs or in the case course presentation moves from in-person mode to online mode students will need access to a reliable computer running a relatively recent, mainstream operating system; a reliable, moderately speedy internet connection, webcam, and microphone is also required.

If you do not have the required devices (for the transition to online mode), please inform me as soon as possible.

A VM image will be provided to the students for completing lab exercises and completing projects.

Note: A student's personal information technology (IT) infrastructure cannot be used as an excuse for failure to complete work -- if the work can be completed on-campus computers then the instructor has applied due diligence in establishing the technical tractability of the assignments. By all means, contact the instructor if something isn't working but students are responsible for their IT resources.

WHAT I EXPECT FROM YOU

Attendance & Participation:

You are expected to participate in class discussions and activities. Attendance is a prerequisite, not a substitute for class participation. Grades for participation will be based on in-class activities such as participation in the discussions, ask questions, and respond to questions from other students, complete the in-class projects, and be prepared.

Reading Assignments:

Reading assignments relate directly to the material to be covered in class and should be completed prior to the class for which they are assigned.

Assignments:

There will be five to seven projects (that will be periodically assigned to help you improve your understanding of the material). You are expected to complete your projects on time (the deadline will be given in each project assignment). Handwritten project report is not accepted.

Each project is explained in the class first and then the student will use its knowledge to implement it. Each project will be done individually unless it is explicitly mentioned to be done in group. Note that the students can collaborate in solving a problem. However, at the end of the day, each student should implement the project by him/her self and create a unique report.

Midterm And Final Exams:

There will be no midterm exam or final exam. However, there will be a presentation in which the students will write 500 word summary (per each paper) and present a group of papers that they have selected at the beginning of the semester. Based on the time the presentations may be held during the class or on the exam date.

Lab Exercise:

All the students are required to participate in the in-class lab exercise and accomplish the required lab assignment.

Quizzes:

No quizzes.

Announcements:

I will post important class information in announcements. Please edit your notifications so that you receive an email when I post an announcement. Failing to make this edit can result in you not receiving important information in a timely manner.

GRADE CALCULATIONS

Here is how I calculate your grade

ACTIVITY	POINTS	PERCENTAGE OF FINAL GRADE
Attendance & Participation	5	5%
In-class labs	10	10%
Project	70	70%
Final Presentation/500 word summary	15	15%

FINAL GRADE DISTRIBUTION

Here is how I calculate your grade

FINAL GRADE	FINAL SCORE
A (Excellent)	91-100
A-	89-90
B+ (Very good)	87-88
B (Good)	81-86
B-	77-80

COVID-19 REQUIREMENTS

The University has implemented specific requirements to minimize exposure to COVID-19 and support the safety of all during the pandemic. These requirements apply to all persons on campus (faculty, staff, students, and visitors). These requirements are subject to change. Visit <https://jagwire.augusta.edu/coronavirus/> and <https://www.augusta.edu/reopening/> for the latest details.

Where To Go For More Information About COVID-19?

- Augusta University COVID-19 resources
 - Campus Reopening: www.augusta.edu/reopening
 - Welcome Back information for students: www.augusta.edu/welcome-back
 - COVID-19 resources on Jagwire <https://jagwire.augusta.edu/coronavirus/>
 - Frequently Asked Questions for students: <https://my.augusta.edu/reopening/faq>
- Guidance on symptoms and getting tested:
 - Free virtual screenings: www.augustahealth.org/expresscare/covid-19-virtual-screening
 - AU Health System COVID-19 Hotline: **706-721-1852**
 - Student Health Clinic: 706-721-3448 or www.augusta.edu/shs/

POLICIES

Attendance Policy

You are expected to be on time, to attend class regularly. Attendance will be recorded throughout the term. After two free absences, each tardy or missed class will degrade your attendance points. Excessive absences (>10%) are grounds for withdrawal from the course without warning.

Late Work Policy

All assignments are due on the assigned due date by 11:59 p.m. No late assignments will be accepted for any of the assignments in this course. There will be plenty of time to complete these assignments, so plan ahead for illness and other extenuating circumstances to avoid negative consequences.

Academic Integrity

In an academic community, honesty and integrity must prevail if the work is done and the honors awarded are to receive their respect. The erosion of honesty is the academic community's ultimate loss. The responsibility for the practice and preservation of honesty must be equally assumed by all of its members. Any type of dishonesty in securing those credentials, therefore, invites serious sanctions, up to and including, a "WF" or "F" in the course, and expulsion from the institution. Please reference the [AU Academic Honesty](#) for further details and specific definitions of cheating and plagiarism. Unethical behavior of students in any form is not acceptable and will not be tolerated in the School of Computer and Cyber Sciences. Academic dishonesty (see definitions in the following sections) - cheating on exams, plagiarism of the work of others, unapproved collaboration on graded work, and the like - will be dealt with immediately and with clear consequences. Depending on the nature and severity of the problem, a student who is guilty of any such violation may be: 1) withdrawn from the course with a grade of WF (counted as an F in the GPA); 2) given a grade of zero on the assignment; 3) given a grade of F in the course; or 4) otherwise penalized, at the discretion of the faculty member. Two occurrences of a WF grade for academic dishonesty will result in the recommendation of the student being expelled from the University, per current University policy as described in the University Catalog. Please reference [AU Student Academic Grievances](#) for further details on student academic grievances.

Student Conduct

If you want more information on conduct expectations, read the Augusta University [Student Code of Conduct](#).

SUPPORT

Technical Support

Your professor may not be able to help you with technical issues. If you need assistance, please contact our IT Help Desk at (706) 721-4000.

Disability Services & Accommodations

Augusta University abides by the Americans with Disabilities Act – Amended (equal and timely access) and Section 504 of the Rehabilitation Act of 1973 (nondiscrimination on the basis of disability). If you have a disability and are in need of academic accommodations but have not yet registered with [Testing & Disability Services](#) (TDS) (Galloway Hall; 706-737-1469) please contact the office as soon as possible for more information and/or to initiate the process for accessing academic accommodations. We also encourage students with disabilities receiving accommodations through TDS to discuss these with us, after class or during office hours, so that we may be better informed on how to assist you during the semester.

Student Resources

As a student, you have access to free resources that will help you get the most of your college experience. For more information, go back to the "Content" tab, visit the "Student Resources" page.