# Master Course Syllabus

*For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/*

**Semester:** Spring
**Year:** 2025
**Course Prefix:** CS
**Course and Section #:** 3100-X02
**Course Title:** Data Privacy and Security
**Credits:** 3

## *Course Description*

Covers the fundamental theory, concepts and practical applications of computer security. Includes networking fundamentals, cryptography, authentication and authorization, access control, malware, physical security, computing systems hardening, threat detection and response, secure code, and secure applications development. Emphasizes developing, deploying, and maintaining a secure computing infrastructure with a hands-on approach.

Prerequisite(s): CS 2420 and University Advanced Standing

## *Course Attributes*

This course has the following attributes:

☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective

Other: *Click here to enter text.*

## *Instructor Information*

**Instructor Name:** Dr. Sayeed Sajal

## *Student Learning Outcomes*

| | |
|---|---|
| 1 | Explain fundamental theories and concepts of cybersecurity. |
| 2 | Use modern tools to identify threats, assess risk and respond appropriately to harden systems. |
| 3 | Design cryptographic algorithms. |
| 4 | Implement cryptographic algorithms that meet specific design criteria. |
| 5 | Identify insecure code in a chosen programming language. |
| 6 | Fix insecure code in a chosen programming language. |

## *Course Materials and Texts*

Required materials, fees, and technology

Textbook:
Computer Security: Principles and Practice 4th Edition
Authors: William Stallings and Lawrie Brown
Publisher: Pearson
ISBN-10: 0-13-479410-9
ISBN-13: 978-0-13-479410-5
Optional materials, fees, and technology: All other materials are posted on Canvas for further learning.

### Technology Expectations

- Access to the Internet, Teams, and Canvas
- Use a code editor of your choice, but all code must run from a terminal window command line interface.
- Computer with reasonable graphics display capability

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## *Course Requirements*

**Course Assignments, Assessments, and Grading Policy**

**Assignments & CTF:**
There will be 3 assignments in the whole course. The CTFs are designed to reinforce hands-on exercise and learning.

**Discussions:**
Discussions will be opportunities to explore topics together. Posts to the discussion should add significantly to the conversation and support your point of view. Comments that do not add significantly to a discussion will receive no credit. It is okay to disagree in a discussion. In fact, much learning happens when we disagree. However, we need to be respectful and keep our online classroom a safe place to learn.
Due dates for discussions correspond with the initial postdate, usually a Friday. Follow-up comments are due by Monday. Follow-up posts are expected to be after the due date and are not marked as late. Discussions conclude by the Monday following the due date. After this, posts will be marked late. Only the best 10 scores will be considered for your grade.

**Assessments:**
A midterm exam will be given in Canvas. Proctorio will not be used. They are timed, open handwritten notes, but not open internet. There is a final project the students will work on to demonstrate their learning throughout the semester. Assessment will be done based on the rubric on each deliverable.

**Grading Scale:**
The following grading standards will be used in this class:

| **Grade** | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent** | 93+ | 90+ | 87+ | 83+ | 80+ | 77+ | 73+ | 70+ | 67+ | 63+ | 60+ | 0+ |

**Assignment Categories**

| **Activity** | **Percent** |
|---|---|
| **Assignments** | 20% |
| **Discussions** | 15% |
| **CTF** | 15% |
| **Midterm Exam** | 20% |
| **Project** | 30% |

**Late Work Statement:**
Late work will be penalized 0.4% of the full credit of the assignment **per hour** for up to ten calendar days. No submission after ten days without prior approval.

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**Required or Recommended Reading Assignments**
See the schedule below

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**General Description of the Subject Matter of Each Lecture or Discussion**

| **Week** | **Topics** | **Book Chapter** |
|---|---|---|
| 1 | Introduction & Security Overview | Ch 1 |
| 2 | Cryptographic Tools | Ch 2 |
| 3 | Cryptographic tools | Ch 2, 20 |
| 4 | Cryptographic tools | Ch 2, 21 |
| 5 | Message /User authentication | Ch 2,3 |

| | | |
|---|---|---|
| 6 | Password-based and Biometric Authentication | Ch 3 |
| 7 | Access Control | Ch 4 |
| 8 | Types of Access Control | Ch 4 |
| 9 | Midterm Exam | N/A |
| 10 | Spring Break | N/A |
| 11 | Database Security | Ch 5 |
| 12 | SQL Injections & Data Center Security | Ch 5 |
| 13 | Social Engineering | N/A |
| 14 | Privacy | N/A |
| 15 | Malware | Ch 6 |
| 16 | Other Threats | N/A |
| 17 | Final Project Presentation | |

## *Required Course Syllabus Statements*

**Generative AI**

**ChatGPT (and similar Tools) in This Course:** Use ChatGPT as a learning assistant, not as a crutch. If you use it, cite it at the top of your code, note in presentations and acknowledge in written papers. **You** are responsible to make sure that any code or content does what it is supposed to do and says what you want it to say. Don't accept anything it generates at face value without checking it critically. These days potential employers will expect you to know how to use tools like ChatGPT to generate code and content, so it is a skill we need to teach you. If it helps you learn some things faster, GREAT. Just remember: If you REALLY want to be good, work for it.

Does your instructor REALLY expect you to use GEN AI in this class? REALLY? Yes!

Suggestions for using it responsibly:

1. **Concept Clarification:** If you're stuck on a concept like Bayes Nets, or multivariate gradient descent, GenAI can explain it in simpler terms or provide examples to help you understand better.

2. **Practice Problems:** GenAI can generate practice problems for you to solve on your own. After you attempt them, it can help you check your answers and understand any mistakes.

3. **Study Tips:** GenAI can offer strategies for studying various AI algorithms effectively, such as how to break down complex problems or how to organize your study sessions.

4. **Resource Recommendations:** GenAI can suggest other textbooks, online courses, or websites that provide additional explanations and practice problems.

5. **Homework Guidance:** While GenAI could but should not do your homework for you, it can help you understand the questions and guide you on how to approach solving them.

6. **Exams:** GenAI is not to be used on Exams. For remote exams such as in Canvas, your instructor leaves people on their honor not to cheat in any form. We note that the only exam in this course is the final project.

7. **Debugging and Understanding Code:** GenAI should not be used to write blanket write code for you with no work on your part--the goal is to train **you**, not it--but it can help you get started, find and fix problems and suggest improvements.

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**Using Remote Testing Software**

☐ This course does not use remote testing software.

☒ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

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## *Required University Syllabus Statements*

**Accommodations/Students with Disabilities**

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

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**Academic Integrity**

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions

of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

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**Equity and Title IX**

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

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**Religious Accommodation**

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.
To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.