



COSC 366

Introduction to Cybersecurity

Tue/Thurs 11:10 - 12:25, Min Kao 406



Instructor: Dr. Max Schuchard

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Office Location: Min Kao 345

Office Hours: 10:00 - 11:00 Tue and 12:30 - 1:30 Thurs

*This syllabus is a living document, and subject to change as needed. Any changes made after the first day of class will be announced publicly at the start of the class following the change.*

**Course Description:** This course presents a broad introduction to cybersecurity concepts. The class will introduce basic topics core to understanding computer security including: security goals, threat modeling, software security, operating system security, cryptography, network security, and human factors.

**Prerequisite(s):** COSC 360 or 367.

**Credit Hours:** 3

**Text(s):** *None required - see week 1 slides.*

**Course Objectives:**

At the completion of this course, students will be able to:

1. Understand how to model both security goals and adversarial threats.
2. Understand design choices which lead to secure systems.
3. Understand the modern threat ecosystem.
4. Understand the basics of cryptographic tools.
5. Understand the role human factors play in securing systems.

## Grade Distribution:

Exercises (6 in total)	30% (5% per)
Programming Assignments (2 in total)	30% (15% per)
Midterm Exam	15%
Final Exam	25%

## Letter Grade Distribution:

These are *ceilings* of the grade cut offs.

$\geq 93.00$	A
90.00 - 92.99	A-
87.00 - 89.99	B+
83.00 - 86.99	B
80.00 - 82.99	B-
77.00 - 79.99	C+
73.00 - 76.99	C
70.00 - 72.99	C-
$\leq 69.99$	F

## Course Policies:

- **Exams**

- **Exams** are open book, open notes, and closed devices.
- **No makeup exams given.**

- **Exercises and Assignments**

- Students are allowed to work on exercises in groups of up to TWO students and programming assignments in groups of up to THREE. Only one submission must be handed in for a group. Please ensure that all student's names are on the work, even if done individually.
- Exercises are expected to be turned in (typeset hard copy) at the start of class the day they are due.
- Programming assignments are turned in via `git` at 23:59:59 the night they are due.
- No late assignments will be accepted under any circumstances.
- It is **not acceptable for you to copy code from the Internet and pass it off as yours**. The first time you are caught doing this you will receive a zero on that assignment, if it happens again you will receive an F in the class. If the copied code is from prior years of the class I will pursue disciplinary action via the university immediately.

- **Attendance and Absences**

Attendance is encouraged, but you are an adult, and allowed to make decisions about how you spend your time. That being said, no matter what, students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes or materials.

## **Academic Honesty Policy Summary:**

### **Introduction**

Academic integrity is defined as not cheating and not plagiarizing; honesty and trust among students and between students and faculty are essential for a strong, functioning academic community. Consequently, students are expected to do their own work on all academic assignments, tests, projects and research/term papers. Academic dishonesty, whether cheating, plagiarism or some other form of dishonest conduct related to academic course work will automatically result in failure for the work involved. But academic dishonesty could also result in failure for the course and, in extremis, suspension from the University.

### **Here are the common ways to violate the academic integrity code:**

**Cheating** - Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise. The term academic exercise includes all forms of work submitted for credit.

**Fabrication** - Intentional and unauthorized falsification or invention of any information or citation in an academic exercise.

**Facilitating Academic Dishonesty** - Intentionally or knowingly helping or attempting to help another to violate a provision of the institutional code of academic integrity.

**Plagiarism** - The deliberate adoption or reproduction of ideas or words or statements of another person as one's own without acknowledgment. You commit plagiarism whenever you use a source in any way without indicating that you have used it.

**Cheating** In cases of cheating, the instructor will impose a minimum sanction of failure of work involved. The instructor will inform the student and the program director in writing of:

- The nature of the offense
- The penalty imposed within the course
- The recommendation of the instructor as to whether further disciplinary action by the director is warranted

**When academic dishonesty occurs, the following procedures will be followed.** The instructor will impose a minimum sanction of failure for the work involved. The instructor will notify the student and the appropriate academic dean/director in writing of the nature of the offense and that the minimum sanction has been imposed. The instructor may recommend to the dean that further penalties should be imposed. If further penalties are imposed, the dean/director will notify the student immediately and the student will have five working days to respond to the intention to impose additional penalties. The student has the right to respond to the charge of academic dishonesty and may request in writing that the dean review the charge of academic dishonesty as fully as possible. If the dean/director determines that no further sanctions will be applied, the instructor's sanction will stand.

### **Disability Resources:**

I want to ensure that the classroom environment is conducive to your learning and ask that you discuss with me any concerns that are interfering with your learning as they arise. Classroom accommodations will be provided for students with documented disabilities. Students must contact the Office of Disability Services about accommodations for this course as early in the semester as possible. Appointments can be made by calling 865-974-6087, or email [ods@utk.edu](mailto:ods@utk.edu). Further information is available at: <http://ods.utk.edu/>.

<b>Week</b>	<b>Content</b>
Jan 9	<ul style="list-style-type: none"> <li>• Introduction, Security Concepts</li> </ul>
Jan 14, 16	<ul style="list-style-type: none"> <li>• Thinking Like an Adversary//Thinking Like a Defender</li> </ul>
Jan 21, 23	<ul style="list-style-type: none"> <li>• Software Security</li> </ul>
Jan 29, 30	<ul style="list-style-type: none"> <li>• Operating System Security</li> </ul>
Feb 4, 6	<ul style="list-style-type: none"> <li>• Human Factors</li> </ul>
Feb 11, 13	<ul style="list-style-type: none"> <li>• Networking Crash Course</li> </ul>
Feb 19, 21	<ul style="list-style-type: none"> <li>• Distributed System Security</li> </ul>
Feb 26, 28	<ul style="list-style-type: none"> <li>• Midterm/Flex day</li> <li>• MIDTERM Feb 26</li> </ul>
Mar 3, 5	<ul style="list-style-type: none"> <li>• Crypto Basics</li> </ul>
Mar 10, 12	<ul style="list-style-type: none"> <li>• PKI and Authentication</li> </ul>
Mar 17, 19	<ul style="list-style-type: none"> <li>• No Class. (Spring Break)</li> </ul>
Mar 24, 26	<ul style="list-style-type: none"> <li>• Routing Security</li> </ul>
Mar 31, Apr 2	<ul style="list-style-type: none"> <li>• Privacy</li> </ul>
Apr 7, 9	<ul style="list-style-type: none"> <li>• Malware/DDoS</li> <li>• No class April 9th.</li> </ul>
Apr 14, 16	<ul style="list-style-type: none"> <li>• Firewalls and Antivirus</li> </ul>
Apr 21, 23	<ul style="list-style-type: none"> <li>• FLEX week</li> </ul>
May 1	<ul style="list-style-type: none"> <li>• Final Exam: 10:15 - 12:15</li> </ul>