Course Syllabus - Spring A 2022
CSE 545: Software Security

Contact Information

Instructor:	Connor Nelson
Teaching Assistants:	
	Yirong Wang
Content Questions:	Weekly discussion forums
Project or Assignment Questions:	Designated discussion forums
Slack Channel:	Direct Link: [TBD]
Note:	You must join/access this workspace using your ASURITE credentials.
Content Issues:	Course "Report an Issue" tool
Technical Support:	Coursera Learner Help Center
Note:	Please make sure you are logged in so that support personnel recognize you as an ASU learner.
General Support:	mcsonline@asu.edu
Note:	When sending an email about this class, please include the prefix "CSE 545" in the subject line of your message.
	Please use this email address for questions that are private in nature. If it is a question that would benefit your classmates, and is not private in nature, please post in the discussion forums.

Course Description

This course will provide learners with an understanding of the theories, tools, and techniques to identify, exploit, and mitigate software security vulnerabilities in the network, binary, and web levels. Learners will study, in-depth, vulnerability classes to understand how to protect software and how to secure software. We will also cover the history of software security, and ethical

considerations. This course will focus on a hands-on approach: In addition to understanding vulnerability classes, learners will be required to identify and exploit vulnerabilities.

Specific topics covered include:
- History of Software Security
- Software Security Ethics
- Network Security
- Application Security
- Web Security

Technologies covered include:
- C
- x86-64 Assembly
- HTTP
- HTML
- JavaScript
- SQL
- Scripting languages

Learning Outcomes

Learners completing this course will be able to:

- Explain the history of security vulnerabilities.
- Differentiate between ethical and unethical behavior in regards to identifying and exploiting security vulnerabilities.
- Demonstrate local network-level security attacks.
- Evaluate a local networking situation to determine appropriate attacks and the corresponding defenses.
- Analyze a binary application, describe its behavior, identify security vulnerabilities, and develop an exploit.
- Analyze a web application, describe its behavior, identify security vulnerabilities, and develop an exploit.

Estimated Workload/ Time Commitment Per Week
Average of 18 - 20 hours per week

Required Prior Knowledge and Skills

This course will be very challenging, and learners are expected to learn the necessary technologies on their own time.

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Proficient Mathematical Skills and Theoretical Understanding

- Algebra
- Linear Algebra
- Algorithms
- Data Structures
- Computer Organization and Architecture
- Operating Systems
- Computer networking

Strong Application Skills

- Ability to effectively read C code
- Ability to effectively read Python code
- Confidence executing at least one programming language:
  - Python
  - Java
  - C#
  - C++
  - C

Note: The course project will be completed using the language that the learner chooses. However, the course team will not be able to help the learner if they choose any language that is not Python, Java, or C#.

Proficient Experience

- Clear understanding of theoretical and applied industry-relevant operating systems and computer networks (e.g., Ethernet, ARP, Routing, IP Addresses, Fragmentation, ICMP, UDP, TCP, and x86-64 assembly)
- Experience reading technical specifications and documentation
- Network programming skills: creating raw packets, implementing network protocols, and other foundational networking skills.
- C/C++ Programming
- Scripting language programming (Something similar to Python, Ruby, or PHP)
- Computer Networking
  1. Specifically Ethernet, ARP, Routing, IP Addresses, Fragmentation, ICMP, UDP, and TCP
- Compilers
  1. Linkers
  2. ELF
- Operating Systems
- Computer Architecture
  1. Specifically x86-64 assembly
  2. System calls

- Familiarity with these tools to understand network traffic, binaries and web applications for your coursework:
    1. tcpdump
    2. objdump
    3. gdb
    4. ltrace
    5. strace
    6. pwntools
    7. Ghidra
    8. IDA Free
    9. Chrome Developer Tools
    10. Burp Proxy

Technology Requirements

Hardware

- Personal computer with a major operating system and 8 GB RAM or higher and an x86-64 CPU. Must be able to install virtual machines on this computer.
    - *Computers with ARM processors (or any other architecture) will not work.*
- Reliable, strong Internet connection with unrestricted access to key websites that are commonly used in software development activities (e.g., GitHub and StackOverflow)
- Webcam
- Microphone

Software/Other

- Linux Operating System, Ubuntu 18.04 64-bit with administrator capability (ability to install new software).
- You can run this OS in a virtual machine, if it is not your main machine.
- SSH Client (PuTTY for Windows, built-in SSH client for MacOS or Linux)
- gcc compiler (build-essential package on Ubuntu).
- Access to external websites: overthewire.org, wikipedia, etc.
- Python 3 with a pip installation of swpag-client and the scapy (`scapy-python3==0.23`) module.
- Network traffic capture tools: tcpdump and wireshark.
- Reverse engineering tools such as objdump, Ghidra, or IDA Free.
- VMware
- A browser to access the web hacking server.
- Access to these tools for your coursework:
    1. gcc
    2. objdump
    3. gdb
    4. ltrace

5. strace
6. pwntools
7. Ghidra
8. IDA Free
9. [Chrome Developer Tools](#)
10. [Burp Proxy](#)

Textbook and Readings

At the graduate level, inquiry, research, and critical reading are part of the learning experience; however, this course does not have a required textbook. Any required readings are provided within or are accessible through the course.

Course Content

Instruction

- Video lectures
- Other videos
- Discussion forums
- Virtual office hours hosted by course team members
- Live events hosted by the instructor

Assessments

Feedback Descriptions

- Limited: you will be able to see your Total Score, which includes the overall total percent (%) and the number (#) of points
- Partial: you will be able to see your Question Score, which includes the correct or incorrect status and the total points for each question
- Full: you will be able to see your Options and Feedback, which includes any itemized additional feedback

Assessment Types

- Knowledge Check Questions: individual, ungraded, full auto-feedback, untimed, unlimited attempts
- Assignments: individual, graded, untimed, unlimited attempts
- PCTF Team Project Proposal: team, ungraded, course team feedback, untimed, 1 attempt
- PCTF Team Project Update: team, ungraded, course team feedback, untimed, 1 attempt

- PCTF Team Project Report: team, graded, human-graded and full feedback, untimed, 1 attempt
- Practice Exams: individual, ungraded, full auto-feedback, untimed, unlimited attempts
- Midterm Exam and Final Exam: individual, graded, limited feedback, auto-graded, 120 minutes (2 hours) timed, proctored, 1 attempt

Details of the main instructional and assessment elements in this course:

Each course in the MCS program is uniquely designed by expert faculty, so learners can best master the learning outcomes. As a result, course features and experiences are not the same across all MCS courses. Learners are expected to plan accordingly to accommodate for these differences.

Lecture videos: The concepts you need to know will be presented through a collection of video lectures. You may stream these videos for playback within the browser by clicking on their titles or download the videos. Each week has a media guide, which is designed to provide a snapshot description of media components, so you can plan your learning and quickly go back and review material to prepare for coursework and a variety of assessments. To help you develop your own notes, the media guides include some essential questions for learners to think about and be able to answer after viewing. This is intended to model how to think about key concepts. To further support learning, all of the videos include transcripts and most include PDF lecture slides. Weekly overview videos, assignment videos, and project-related videos do not have PDF lecture slides because they are not lectures and have associated documents specific to them. The interview videos build context for the course and do not have PDF slides.

Discussion forums: Discussion forums are present each week in the course and include designated forums for each project. Although the course team is engaged in these discussions, the forums are spaces to clarify, support, and enrich learner-to-learner communication and learning. *If you have specific questions that you would like to be considered to be addressed in the weekly Live Event hosted by the instructor, please indicate your request in your post.*

In-video questions and knowledge checks (KCs): Designed to support your learning, these are short, ungraded quizzes to test your knowledge of the concepts presented in the lecture videos. You may take your time, review your notes, and learn at your own pace because knowledge checks are untimed. With unlimited attempts, you may retake these as often as you would like at any point in the course. Full feedback is provided. You are encouraged to read the feedback, review your answer choices, and compare them to the correct answers. With the feedback as your guide, you may use these as opportunities to study for other assessments and tasks in the course. *There are no late penalties. In-video questions and knowledge checks are not counted towards your overall course grade.*

Assignments: This course includes six (6) individual assignments and one (1) optional assignments. Optional means you do not have to do it if you choose not to and it is not part of your overall grade in this course. All assignments are provided in the first week of the course in the *Welcome and Start Here* section, so you can preview what is expected and design your own

learning schedules to complete these on time. The assignments have a submission space at the end of the week it is due. *If you have specific questions that you would like to be considered to be addressed in the weekly Live Event hosted by the instructor, please indicate your request in your post. There are no late penalties for the assignments. Assignments count toward your final grade in the class.*

- Optional Makefile Assignment - due at the end of Week 1 on Sunday, January 16, 2022 at 11:59 PM AZ Time.
  - This assignment is optional. Optional means you do not have to do it if you choose not to and it is not part of your overall grade in this course.
- Bandit Assignment - due at the end of Week 1 on Sunday, January 16, 2022 at 11:59 PM AZ Time.
- Backdoor Web Server Assignment - due at the end of Week 2 on Sunday, January 23, 2022 at 11:59 PM AZ Time.
- Reflector Assignment- due at the end of Week 3 on Sunday, January 30, 2022 at 11:59 PM AZ Time.
- Crack the Password Assignment - due at the end of Week 3 on Sunday, January 30, 2022 at 11:59 PM AZ Time.
- Binary Hacking Assignment- due at the end of Week 5 on Sunday, February 13, 2022 at 11:59 PM AZ Time.
- Web Hacking Assignment - due at the end of Week 7 on Sunday, February 27, 2022 at 11:59PM AZ Time.

Project: This course includes one (1) team project. The project is provided in the first week of the course in the *Welcome and Start Here* section, so you can preview what is expected and design your own learning schedules to complete it on time. CSE 545: Software Security prepares students for a cybersecurity career by teaching ethical hacking concepts. The purpose of the project and the Project Capture the Flag (PCTF) is to reinforce these concepts with hands-on, team-based exercises, where students will demonstrate their cybersecurity knowledge and skills by first building a project (software) to help them win the PCTF. In the PCTF, in addition to their project, the students will use the skills that they have developed in the class of analyzing software for vulnerabilities and developing exploits. There are three (3) project components associated with this team project and live PCTF game play. The Final Team Report is what you will be using for the Request for Faculty Review: MCS Project Portfolio submission (optional).

- PCTF Project Proposal (ungraded) - due at the end of Week 3 on Sunday, January 30th, 2022 at 11:59PM AZ Time.
- PCTF Status Update (ungraded) - due at the end of Week 4 on Sunday, February 6th, 2022 at 11:59PM AZ Time.
- PCTF Final Team Report (graded, 30% of your overall course grade) - due at the end of Week 7 on Sunday, February 27th, 2022 at 11:59PM AZ Time. *There is an automatic 20% grade penalty for each day late past the deadline. The PCTF Final Team Report counts towards your overall course grade.*

Request for Faculty Review: MCS Project Portfolio: This is an optional task for degree learners wanting to use this course's project as part of their portfolio degree requirement/specialization requirements. Review your onboarding course and the Welcome and Start Here section of your course for more details. The submission space is towards the end of the course. *Although there are no late penalties, these requests must be submitted by the designated deadline. The Request for Faculty Review: MCS Project Portfolio does not count toward your final grade in the class.*

- The PCTF Final Team Report is what you will be using for the Request for Faculty Review: MCS Project Portfolio submission (optional)
- Request for Faculty Review: MCS Project Portfolio submission (optional) due - March 16, 2022 at 11:59PM AZ Time
- Faculty will review and approve or deny the Faculty Review: MCS Project Portfolio submission (optional) by - March 30, 2022 at 11:59PM AZ Time.

Practice exams: To help you prepare for your proctored exams, you will have practice exams. Since they are intended to be practice opportunities and to help you learn, they are untimed, ungraded, and include feedback. You may engage with your peers in the discussion forums to address questions, share resources and strategies, and provide feedback to help one another learn. You are encouraged to submit questions in the discussion forum for the course team to address during live sessions. Use the feedback to guide your learning and to study for the proctored exam. *There are no late penalties. Practice exams are not counted toward your final grade in the class.*

Proctored exams: You have two (2) proctored, timed exams. These consist of a Midterm Exam and a Final Exam. For academic integrity purposes, once grades are made available, learners will see their overall total scores. Correct and incorrect answers and feedback to each question will **not** be provided. Read the Graded Quiz and Exam Policy for more information. *An automatic late penalty of 100% is applied to exams after the scheduled due date and time. No late exams will be permitted or accepted and will result in a score of zero points (0). This does not include established accommodations for learners with disabilities. Proctored exams count toward your final grade in the class.*

Midterm Exam
Details

- **Content covered:** Weeks 1, 2, 3, and 4
- **Question type:** single-answer multiple choice questions
- **Number of questions:** 25 content questions + 1 academic integrity question = 26 total questions
- **Availability:** February 9, 2022 at 12:01 AM AZ Time - February 13, 2022 at 11:59 PM AZ time
- **Duration:** Plan for 15 minutes for proctoring set up and 2 hours (120 minutes) for the exam

Final Exam

    Details

- **Content covered:** Weeks 1, 2, 3, 4, 5, 6, and 7
- **Question type:** single-answer multiple choice questions
- **Number of questions:** 25 content questions + 1 academic integrity question = 26 total questions
- **Availability:** February 25, 2022 at 12:01 AM AZ Time - March 2, 2022 at 11:59 PM AZ time
- **Duration:** Plan for 15 minutes for proctoring set up and 2 hours (120 minutes) for the exam

Midterm and Final Exam Allowances

Both exams are closed resource exams. No materials, resources, technologies, or communication is permitted during the exam.

- **Hardcopy and/or digital books and/or reference materials (all)**: None
- **Calculators (all)**: None
- **Notes in any format of any kind (all)**: None
- **Web (all)**: None
- **Software (all)**: None
- **Other technologies, devices, and means of communication (all)**: None
- **Whiteboard, scratch paper, writing utensils, erasing resources**: Learners are *strongly* encouraged to use the whiteboard option instead of scratch paper.

  - If using a whiteboard, learners may have erasable whiteboard markers and what is needed to erase writing on the whiteboard; please have extra whiteboard markers and eraser resources in your testing area.
  - If using scratch paper, learners may have an unlimited amount of blank scratch paper of any size, writing utensils (e.g., pens, pencils, markers, and/or highlighters) and erasers; please have extra ones in your testing area should you run out of ink, the pencil breaks, etc.
  - Before the exam concludes and the proctoring session ends, all scratch paper must be destroyed and all whiteboard markings must be erased. The last question in the exam will be a confirmation of learners executing these ASU academic integrity actions.

- **Other**: Learners are to independently take the exam in a single session without leaving the testing space (e.g., no bathroom breaks) to ensure proctoring of the entire session. Once you open the exam, your testing session begins. You will be allowed one (1) attempt to take and complete each exam. Learners are to stay within a clear view of the proctor throughout the duration of the proctored exam session. You will be unable to open the exam until the exam proctor enters the password during the date and time you scheduled to take your exam with ProctorU.
- **Note**: All virtual machines must be closed *prior* to starting proctoring.

Proctoring

ProctorU is an online proctoring service that allows learners to take exams online while ensuring the integrity of the exam for the institution.

- You are expected to scan your testing space using your webcam for the proctor. Proctoring also requires you to have sound and a microphone. Please plan accordingly.
- You are strongly encouraged to schedule your exam(s) within the first two weeks of the course to ensure you find a day and time that works best for your schedule. Time slots can fill up quickly, especially during high volume time periods.
  - You *must* set up your proctoring at least 72 hours prior to the exam.
- **The exam proctor will input the exam password**.
- Additional information and instructions are provided in the *Welcome and Start Here* section of the course.
- **When you are going to schedule exams, you *must* pick "Coursera" as your institution.**
- Learners with exam accommodations through SAILS (Student Accessibility and Inclusive Learning Services) should not schedule exams until they receive an invitation specifically for them from ProctorU.
- Your ID needs to be in English. See your MCS Onboarding Course for more information.

Course Grade Breakdown

Course Work	Quantity	Team or Individual	Percentage of Grade
Auto-Graded Assignments	6	Individual	50%
Team Course Project*	1	Team	30%
Midterm Exam	1	Individual	10%
Final Exam	1	Individual	10%

*The project(s) count for 30% or more of the overall course grade, so this is a portfolio eligible course. See the MCS Graduate Handbook for more information about the portfolio requirement if you are a degree learner.

Grade Scale

You must earn a cumulative grade of 70% or above to earn a "C" in this course. You must earn at least a "C" to receive graduate credit. This course has no grade curving. All graded coursework will be included to calculate grades (i.e. no graded items will be dropped). Grades will not be rounded. Grades in this course will include pluses and minuses.

The instructor reserves the right to award extra credit. Any earned extra credit will be added to your overall grade at the end of the course.

The instructor reserves the right to adjust individual grades based on, but not limited to: violations of academic integrity.

A+	99% - 100%
A	94% - 98.99%
A-	90% - 93.99%
B+	86% - 89.99%
B	83% - 85.99%
B-	80% - 82.99%
C+	76% - 79.99%
C	70% - 75.99%
E	<70%

Course Schedule

Course teams will not be working on ASU's days off* and those are listed by name in the Course Schedule. Please review the ASU Days Off for more details.

Week/Title	Begins at 12:01 AM Arizona (AZ) Time	Ends at 11:59 PM Arizona (AZ) Time
Week 1: Introduction to Software Security	January 10, 2022	January 16, 2022

Week 2: Network Security Part 1 *Martin Luther King Jr. Day	January 17, 2022 January 17, 2022	January 23, 2022
Week 3: Network Security Part 2	January 24, 2022	January 30, 2022
Week 4: Application Security Part 1	January 31, 2022	February 6, 2022
Midterm Exam	February 9, 2022	February 13, 2022
Week 5: Application Security Part 2	February 7, 2022	February 13, 2022
Week 6: Web Security Part 1	February 14, 2022	February 20, 2022
Week 7: Web Security Part 2	February 21, 2022	February 27, 2022
Final Exam	February 25, 2022	March 2, 2022
Request for Faculty Review: MCS Project Portfolio submission (optional)	February 27, 2022	March 16, 2022
Faculty Feedback for the Review: MCS Project Portfolio submission (optional)	March 16, 2022	March 30, 2022

Grades are due March 4, 2022. (Please see the [ASU Academic Calendar](#) for additional information.)

Live Events

This course has two types of live events: **live sessions** and **virtual office hours**. Check the Live Events page in your course for your local time and access details. Although we try to be consistent for our learners' planning purposes, the Live Event schedule is subject to change throughout the course, so stay up-to-date on Live Event details by checking your Course Announcements and the Live Events page in your course.

Read about the specific policies related to Live Events in the Policy section of this syllabus: Live Events, Policy Regarding Expected Classroom Behavior, and the Student Code of Conduct for more detailed information.

Live Sessions - Weekly
Live Sessions are a valuable part of the learning experience because learners can meet with the course instructor and fellow classmates to learn more about course topics, special topics within the field, and discuss coursework. If you are able to attend these Live Sessions, you are

strongly encouraged to do so. If you have specific questions or topics of interest to be discussed during the live events, please indicate your request in your discussion forum post. Although it may not be possible to address all requests live, the instructor is interested in tailoring the live events to your questions and interests. The instructor will be following a set agenda, so please be mindful of that when engaging in the live session.

Live Sessions hosted by the faculty will be recorded and uploaded to the course. These will be located towards the end of each week.

Please refer to your course's Live Events tab for dates and times.

Virtual Office Hours - Weekly
Virtual Office Hours offer a chance for learners to get their questions answered from the course team. Although the course team is responsive to trends in the discussion forums and mcsonline@asu.edu emails, virtual office hours focus on addressing learners' specific questions related to content: clarifications, reteaching, assessment review, etc. These sessions are not intended to address program or course design questions or feedback. Assistants do not have the authority to weigh in or make decisions regarding those items, so please do not include those at this time. These sessions are specific to helping learners learn materials and understand various course assessments. Feedback of that nature is best addressed in the communication channel: mcsonline@asu.edu and please include it in your course survey.

Virtual office hours are recorded, but as a general practice are not uploaded into the course. Uploading valuable parts of these sessions is at the discretion of the faculty. Due to the nature of the PCTF (a competition) private team questions related to the PCTF will never be posted.

Please refer to your course's Live Events tab for dates and times.

Assignment Deadlines and Late Penalties
Unless otherwise noted, all graded work is due on **Sundays at 11:59 PM Arizona (AZ) time**.

There are no late penalties for the assignments.

There is an automatic 20% grade penalty for each day late past the deadline for the PCTF Final Team Report.

An automatic late penalty of 100% is applied to exams after the scheduled due date and time. No late exams will be permitted or accepted and will result in a score of zero points (0). This does not include established accommodations for learners with disabilities.

Course Outline with Assignments

Week 1: Introduction to Software Security (January 10, 2022 - January 16, 2022)

Content
- [ ] Introduction to Software Security
- [ ] History of Software Security
- [ ] Ethics of Software Security

Other Tasks
- [ ] Schedule your proctoring with [ProctorU](#) for your proctored exam(s)
- [ ] For learners needing accommodations, submit requests through [Connect](#) and review the [ASU Student Accessibility and Inclusive Learning Services](#) website.
- [ ] Team Formation Survey due by January 12th
- [ ] ZeeMap: Where are you located?
- [ ] Makefile Assignment (optional)
- [ ] Knowledge Checks

Graded Coursework
- [ ] Bandit Assignment

Week 2: Network Security Part 1 (January 17, 2022 - January 23, 2022)

Content
- [ ] Local Area Network Attacks

Other Tasks
- [ ] Schedule your proctoring with [ProctorU](#) for your proctored exam(s), if you have not already done so
- [ ] Knowledge Checks
- [ ] Work with your PCTF team

Graded Coursework
- [ ] C Backdoor Web Server Assignment

Week 3: Network Security Part 2 (January 24, 2022 - January 30, 2022)

Content
- [ ] Wide Area Network Attacks

Other Tasks
- [ ] Knowledge Checks
- [ ] Work with your PCTF team
- [ ] PCTF Team Project Proposal
- [ ] Plan to review for the Midterm Exam

Graded Coursework
- [ ] Reflector Assignment
- [ ] Crack the Password Assignment

Week 4: Application Security Part 1 (January 31, 2022 - February 6, 2022)

Content
- [ ] Overview of Application Security
- [ ] UNIX Security
- [ ] Reverse Engineering

Other Tasks

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- [ ] Knowledge Checks
- [ ] Work with your PCTF team
- [ ] PCTF Team Status Update
- [ ] Review for the Midterm Exam

Graded Coursework
- [ ] None

Midterm Exam (February 9, 2022 - February 13, 2022)
Reminders
- [ ] Schedule your proctoring with [ProctorU](#) for your proctored exam(s), if you have not already done, *at least* 72 hours prior to your desired exam date and within the availability window
- [ ] Ensure you have a reliable, strong Internet connection for the exam and you have reviewed the technology requirements for taking an exam using ProctorU. Run a systems check, if needed. Make sure your webcam and microphone/audio are working properly.
- [ ] Covers content from weeks 1, 2, 3, and 4
- [ ] Review the details and allowances information for this exam
- [ ] Prepare for the exam and complete the practice exam

Week 5: Application Security Part 2 (February 7, 2022 - February 13, 2022)
Content
- [ ] Application Vulnerabilities

Other Tasks
- [ ] Knowledge Checks
- [ ] Work with your PCTF team/Prepare for game play in Week 6

Graded Coursework
- [ ] Binary Hacking Assignment

Week 6: Web Security Part 1 (February 14, 2022 - February 20, 2022)
Content
- [ ] Design of the Web
- [ ] Web Applications

Other Tasks
- [ ] Knowledge Checks
- [ ] Complete the course survey before your final exam (*strongly encouraged, appreciated, and used by the course team*)

Graded Coursework
- [ ] PCTF Competition (Game Play)

Week 7: Web Security Part 2 (February 21, 2022 - February 27, 2022)
Content
- [ ] Web Applications

Other Tasks
- [ ] Knowledge Checks
- [ ] Debrief with your team for the Final Report

☐ Work on your Request for Faculty Review: MCS Project Portfolio Submission (*optional - for degree learners wanting to use this course's projects as part of their portfolio degree requirement/specialization requirements*)

☐ Complete the course survey before your final exam (*strongly encouraged, appreciated, and used by the course team*)

Graded Coursework

☐ Web Hacking Assignment

☐ PCTF Team Final Report

Final Exam (February 25, 2022 - March 2, 2022)

Reminders

☐ Complete the course survey before your final exam (*strongly encouraged, appreciated, and used by the course team*)

☐ Schedule your proctoring with ProctorU for your proctored exam(s), if you have not already done, *at least* 72 hours prior to your desired exam date and within the availability window.

☐ Ensure you have a reliable, strong Internet connection for the exam and you have reviewed the technology requirements for taking an exam using ProctorU. Run a systems check, if needed. Make sure your webcam and microphone/audio are working properly.

☐ Covers content from weeks 1, 2, 3, 4, 5, 6, and 7

☐ Review the details and allowances information for this exam

☐ Prepare for the exam and complete the practice exam

Request for Faculty Review: MCS Project Portfolio Submission (February 27, 2022 - March 16, 2022)

Reminders

☐ Submit your Request for Faculty Review: MCS Project Portfolio Submission (*optional - for degree learners wanting to use this course's projects as part of their portfolio degree requirement/specialization requirements*)

  ● Faculty will review and provide feedback and an approval or denial of approval by March 30, 2022

Slack Channel

This course will have a unique Slack workspace where you can communicate with your classmates.

Note: You must join/access this workspace using your ASURITE credentials.

Slack is intended to provide a space to create community with your classmates. Please remember to follow the communication protocol pinned in your Slack channel to ensure that any questions or concerns you have are addressed in a timely manner. Also, please remember ASU's Academic Integrity policy, and please refrain from sharing assessment questions, answers or solutions.

Policies

All ASU and Coursera policies will be enforced during this course. For policy details, please consult the MCS Graduate Handbook and the MCS Onboarding Course.

Graded Quiz and Exam Policy

Each course in the MCS program is uniquely designed by expert faculty so that learners can best master the learning outcomes specific to each course. By design, course features and experiences are different across all MCS courses.

In the MCS program, we strive to provide learners with exercises and applied practice beyond quizzes and exams that align with the hands-on nature of the computer science industry. Ungraded practice opportunities *may* include, but are not limited to: in-video-questions (IVQs), knowledge check quizzes (KCs), weekly (i.e., unit) practice quizzes, practice exams, and other assignments or exercises. For all these learning activities, the questions and correct answers are provided to learners. When available, auto-generated typed feedback is built into the course to further help learners learn in real-time. Please thoroughly review your course to ensure that you are aware of the types of practice opportunities available to you.

For academic integrity purposes, once grades are made available, learners will see their overall total scores. Like other standardized tests, such as the GRE and SAT, learners will receive a singular grade for the graded quizzes and exams, but the questions, correct and incorrect answers, and feedback to each question will **not** be provided.

If learners desire 1:1 feedback for their questions on graded assessments, please submit questions to mcsonline@asu.edu. Rather than receiving the exact questions learners had correct and incorrect and the answers to those questions, learners will likely receive the concepts that were covered in the assessment questions so they will know what they need to review prior to other assessments and how to apply this information in their professional environments.

Absence Policies

There are no required or mandatory attendance events in this online course. Live Events, both Live Sessions hosted by the instructor and Virtual Office Hours hosted by the course team do not take attendance. Absence from teamwork and group work are not tolerated: it is expected that every group member will participate in the group work. The instructor reserves the right to adjust individual grades based on, but not limited to: workload imbalance, inappropriate behavior, lack of productivity, etc.

Learners are to complete all graded coursework (e.g., projects and exams). If exceptions for graded coursework deadlines need to be made for excused absences, please reach out to the course team by the end of the second week of the course using the mcsonline@asu.edu email address. Review the exam availability windows and schedule accordingly. The exam availability windows allow for your own flexibility and you are expected to plan ahead. Personal travel does not qualify as an excused absence and does not guarantee an exception.

Review the resources for what qualifies as an excused absence and review the late penalties in the Assignment Deadlines and Late Penalties section of the syllabus and the course:

    a. Excused absences related to religious observances/practices that are in accord with ACD 304–04, "Accommodation for Religious Practices" (please see Religious Holidays and Observances)

    b. Excused absences related to university sanctioned events/activities that are in accord with ACD 304–02, "Missed Classes Due to University-Sanctioned Activities"

    c. Excused absences related to missed class due to military line-of-duty activities that are in accord with ACD 304–11, "Missed Class Due to Military Line-of-Duty Activities," and SSM 201–18, "Accommodating Active Duty Military"

Live Event Expectations

The environment should remain professional at all times. Inappropriate content/visuals, language, tone, feedback, etc. will not be tolerated, reported and subject to disciplinary action. Review the Policy Regarding Expected Classroom Behavior section of the syllabus and the Student Code of Conduct for more detailed information.

Policy Regarding Expected Classroom Behavior

The aim of education is the intellectual, personal, social, and ethical development of the individual. The educational process is ideally conducted in an environment that encourages reasoned discourse, intellectual honesty, openness to constructive change, and respect for the rights of all individuals. Self-discipline and a respect for the rights of others in the university community are necessary for the fulfillment of such goals. An instructor may withdraw a learner from a course with a mark of "W" or "E" or employ other interventions when the learner's behavior disrupts the educational process. For more information, review SSM 201–10.

If you identify something as unacceptable classroom behavior on the class platform (e.g., Coursera discussion forum) or communication channels (e.g., Zoom, virtual live session, virtual office hours, Slack, etc.), please notify the course team using the mcsonline@asu.edu email. In the discussion forums, you can also flag the post for our attention. For more specifics on appropriate participation, please review our Netiquette infographic.

Our classroom community rules are to:
- Be professional
- Be positive
- Be polite
- Be proactive

Academic Integrity

Students in this class must adhere to ASU's academic integrity policy, which can be found at https://provost.asu.edu/academic-integrity/policy). Students are responsible for reviewing this policy and understanding each of the areas in which academic dishonesty can occur. In addition, all engineering students are expected to adhere to both the ASU Academic Integrity Honor Code and the Fulton Schools of Engineering Honor Code. All academic integrity

violations will be reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). The AIO maintains a record of all violations and has access to academic integrity violations committed in all other ASU colleges/schools.

Specific academic integrity announcements for this class are...

Plagiarism and Cheating

Plagiarism or any form of cheating in assignments, projects, or exams is subject to serious academic penalty. To understand your responsibilities as a student read: ASU Student Code of Conduct and ASU Student Academic Integrity Policy.

You are allowed to use code snippets that you find online (StackOverflow or otherwise) provided that you provide, as part of a comment in your source code, the source of the code. These snippets should not constitute a significant part of your code. Using another student's code, past or present, even with a citation is a violation of the academic integrity policy.

There is a zero tolerance policy in this class: any violation of the academic integrity policies will result in a zero on the assignment and the violation will be reported.

Examples of academic integrity violations include (but are not limited to):

- Sharing code with a fellow student (even if it is only a few lines).
- Collaborating on code with a fellow student.
- Submitting another student's and/or other students' code as your own.
- Submitting a prior student's code and/or other students' code as your own.

Posting your projects online is expressly forbidden, and will be considered a violation of the academic integrity policy. Note that this includes working out of a public Github repo. The Github Student Developer Pack provides unlimited private repositories while you are a student. If you want to impress employers with your coding abilities, create an open-source project that is done outside of class.

Copyright

The contents of this course, including lectures (Zoom recorded lectures included) and other instructional materials, are copyrighted materials. learners may not share outside the class, including uploading, selling or distributing course content or notes taken during the conduct of the course. Any recording of class sessions is authorized only for the use of learners enrolled in this course during their enrollment in this course. Recordings and excerpts of recordings may not be distributed to others. (see ACD 304–06, "Commercial Note Taking Services" and ABOR Policy 5-308 F.14 for more information).

You must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the learner's/learner's original work, unless the student/learner first complies with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

Policy Against Threatening Behavior, per the Student Services Manual, ([SSM 104-02](#))

Students, faculty, staff, and other individuals do not have an unqualified right of access to university grounds, property, or services (see [SSM 104-02](#)). Interfering with the peaceful conduct of university-related business or activities or remaining on campus grounds after a request to leave may be considered a crime. All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off-campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students.

Disability Accommodations

Suitable accommodations will be made for students having disabilities. Students needing accommodations must register with [ASU Student Accessibility and Inclusive Learning Services](#). Students should communicate the need for an accommodation at the beginning of each course so there is sufficient time for it to be properly arranged. These requests should be submitted through the [online portal](#). See [ACD 304-08](#) Classroom and Testing Accommodations for Students with Disabilities. ASU Student Accessibility and Inclusive Learning Services will send the instructor of record a notification of approved accommodations and students are copied on these letters. It is recommended that students reply to the faculty notification letters, introduce themselves to their instructor, and share anything they might want to disclose.

Harassment and Sexual Discrimination

Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all learners, faculty members, staff employees, and guests. ASU expressly prohibits discrimination, harassment, and retaliation by employees, learners, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information.

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at https://sexualviolenceprevention.asu.edu/faqs.

Mandated sexual harassment reporter: As a mandated reporter, I am obligated to report any

information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, https://eoss.asu.edu/counseling, is available if you wish to discuss any concerns confidentially and privately.

Disclaimer

The information in this syllabus may be subject to change without advance notice. Stay informed by checking course announcements and the syllabus section of your course.

Course Creator

Adam Doupé, PhD designed this course.

Dr. Adam Doupé is an Associate Professor in the School of Computing and Augmented Intelligence (SCAI) at Arizona State University (ASU) and is the Director of the Center for Cybersecurity and Trusted Foundations (CTF) in the Global Security Initiative at ASU. Dr. Doupé was awarded the Top 5% Faculty Teaching Award for the Fulton Schools of Engineering at ASU for 2016, the Fulton Schools of Engineering Best Teacher Award in 2017 and 2018, the Fulton Schools of Engineering Outstanding Assistant Professor Award in 2017, and the NSF CAREER award in 2017. Dr. Doupé has co-authored over 40 peer-reviewed scholarly publications and served on program committees of well-known international security conferences. As a founding member of the Order of the Overflow, Dr. Doupé organized the DEF CON Capture The Flag competition from 2018–2021.