

COURSE SYLLABUS

YEAR COURSE OFFERED: 2022

SEMESTER COURSE OFFERED: Fall

DEPARTMENT: Engineering Technology and Cybersecurity

COURSE NUMBER: CIS 6325 (also ELET 6313 Network Security)

NAME OF COURSE: Network Security

NAME OF INSTRUCTOR: Deniz Gurkan, dgurkan@uh.edu

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Learning Objectives

Guided by NSA CAE (National Security Agency, Center of Academic Excellence):

1. Describe the layer 2 and layer3 communications and data networks through protocol behavior.
2. Analyze and reason about trust mechanisms in network layer 2 and layer 3 protocols.
3. Experiment and observe how network protocols work on a basic network architecture with set of hosts/clients.
4. Track, identify, and display network packets, and utilize network monitoring and troubleshooting tools (e.g., WireShark). Track and identify packets involved in a simple TCP connection (or a trace of such a connection).
5. Apply knowledge of network technologies on the design and construction of a working network.

The objectives of this course are for the student to learn the principles and protocols of computer networks, especially with observations. The student will learn bridges and routers along with associated layer 2 and 3 protocols. Observations will be conducted in the labs on protocol working mechanisms and design principles. In addition, the course includes extensive experimental practices, troubleshooting principles, and protocol trust point demonstrations. The general evaluation in the course will be on testing the knowledge and understanding of network protocol behavior in various network scenarios. In addition, general design principles related to what trust mechanisms each protocol implements will be evaluated.

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. Also, there is no appointment necessary for the “Let's Talk” program, which is a drop-in consultation service at convenient locations and hours around campus. http://www.uh.edu/caps/outreach/lets_talk.html.

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Major Assignments/Exams and Evaluation (sample – not final)

60% homework assignments
10% evaluation exams
30% network analysis over mini projects

Homework assignment due dates will not be extended.

Content (flipped classroom and hands-on labs)

Lectures are going to be in the classroom on Wednesdays at 5:30 pm – 8:30 pm (while also being streamed live and being recorded on Teams). All content material for lectures will be provided by the instructor. Course is conducted in a flipped fashion, [1], where material for the following week will be made available every week on Wednesday. During the following Wednesday, students will utilize the lecture hours to bring questions for the discussion. Please take an active role in your learning experiences in this class by following the weekly material and engaging in the discussions during the lecture times by coming prepared with questions.

[1] <https://bokcenter.harvard.edu/flipped-classrooms>

Office hours are by appointment only: dgurkan@uh.edu.

Class Discussion	Week	Review Homework for the Week
Code of conduct, lab environment, evaluation exam (8/25)	1	Ethernet MAC learning
Ethernet MAC learning	2	Ethernet MAC learning HW 1 due
Packet trace analysis, Wireshark and scripting	3	Packet trace analysis, wireshark, and scripting HW 2 due
STP and SDN	4-5	STP and SDN - HW 3 due
IP routes and ARP	6	IP routes and ARP - HW 4 due
Routers	7	Routers - HW 5 due
VLANs	8	VLANs - HW 6 due
DHCP	9	DHCP - HW 7 due
DNS	10	DNS – HW 8 due
Mini project – 1, evaluation exam	11-12	
Mini project - 2	13-15	

Class Communication Policy:

No CHAT with the professor or the TA is available on Teams.

The forms of acceptable communication options are:

- 1. Write your questions to the Teams designated channel for Q/A** for a prompt response by the instructional team.
- 2. Email directly using your UH cougar email address.** We cannot reply to emails received from personal email addresses per UH policy. Please limit your emails to only personal requests and strive to write any course content related questions/issues into the Teams Q/A channel for a peer-to-peer learning opportunity and a faster response.

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COVID-19 Information

Students are encouraged to visit the University's [COVID-19](#) website for important information including on-campus testing, vaccines, diagnosis and symptom protocols, campus cleaning and safety practices, report forms, and positive cases on campus. Please check the website throughout the semester for updates.

Vaccinations

Data suggests that vaccination remains the best intervention for reliable protection against COVID-19. Students are asked to familiarize themselves with pertinent [vaccine information](#), consult with their health care provider. The University strongly encourages all students, faculty and staff to be vaccinated.

Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact [the Justin Dart Jr. Student Accessibility Center](#) (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Undergraduate Excused Absence Policy](#) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

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Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Center for Students with DisABILITIES](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with *anyone* without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Syllabus Changes

Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through email.

Resources for Online Learning

The University of Houston is [committed](#) to student success, and provides information to optimize the online learning experience through our [Power-On](#) website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

UH Email

Please check and use your Cougarnet email for communications related to this course. To access this email, [login](#) to your Microsoft 365 account with your Cougarnet credentials.

Webcams

Access to a webcam is *not* required for students participating remotely in this course.

Honor Code Statement

Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: "*I understand and agree to abide by the provisions in the [University of Houston Undergraduate Academic Honesty Policy](#). I understand that academic honesty is taken very seriously and in the cases of violations, penalties may include suspension or expulsion from the University of Houston.*"

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Face Covering Policy

To reduce the spread of COVID-19, the University strongly encourages everyone (vaccinated or not) to wear face coverings indoors on campus including classrooms for both faculty and students.

Presence in Class

Your presence in class each session means that you:

- Are NOT exhibiting any [Coronavirus Symptoms](#) that makes you think that you may have COVID-19
- Have NOT tested positive or been diagnosed for COVID-19
- Have NOT knowingly been exposed to someone with COVID-19 or suspected/presumed COVID-19

If you are experiencing any COVID-19 symptoms that are not clearly related to a pre-existing medical condition, do not come to class. Please see [Student Protocols](#) for what to do if you experience symptoms and [Potential Exposure to Coronavirus](#) for what to do if you have potentially been exposed to COVID-19. Consult the (select: [Undergraduate Excused Absence Policy](#) or [Graduate Excused Absence Policy](#)) for information regarding excused absences due to medical reasons.

This course will not have a final exam at the course conclusion. There are lab homework assignments and a project component that makes up the total grade.

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Helpful Information

COVID-19 Updates: <https://uh.edu/covid-19/>

Coogs Care: <https://www.uh.edu/dsaes/coogscare/>

Laptop Checkout Requests: <https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop>

Health FAQs: <https://uh.edu/covid-19/faq/students-faqs/>

Student Health Center: <https://uh.edu/class/english/lcc/current-students/student-health-center/index.php>