



Syllabus

COSC 4377 – Introduction to Computer Networks

Prof. Kevin Long, kblong@uh.edu

Spring 2025

Asynchronous Online

Required Prerequisites:

A grade of C- or better in COSC 2320 (Data Structures) or COSC 2436 (Programming and Data Structures)

Recommended prerequisites

COSC 4330 – Fundamentals of Operating Systems. May be taken concurrently.

Please keep in mind that I try to teach everything you need for this course *within* this course. After all, I have not taken these particular prereqs from UH so I try to be inclusive. If I'm assuming you know something that you don't, just let me know.

Content of the Course

The basics of computer networking, from concepts to protocols with an emphasis on the principles and technologies employed on the Internet. Unlike most other networking courses in prior texts, our course covers the Internet stack from the top down, beginning with Applications and working down to the physical infrastructure. Major topics covered are as follows:

- Nuts and bolts of the Internet
- Important measurements of networks
- Protocols and layered service models, particularly TCP/IP
- Principles of Network Applications, and the concepts of state and connections, with examples including HTTP, SMTP, P2P, RSVP, and Socket protocols
- TCP and UDP and transport-layer services
- Software-defined networks
- Routers and routing, Switches and switching, IP datagrams
- Distance-Vector and Link-State routing algorithms
- Network management with ICMP and MIBs
- The link layer, error-detection and correction techniques
- Multiple-access protocols
- Switched LANs, Ethernet, ARP, VLANs
- Link virtualization, such as MPLS
- Large-scale networking

- Mobile and wireless networks, from cellular to WiFi
- Network security

A full table of contents is provided by the author [here](#)¹.

Class Schedule

This course is Asynchronous Online.

That just means we have no scheduled face-to-face classes. However, I need a set time to record the lectures. I'm going to start out trying to do that after my other two classes have ended and I've had a chance to return to my home office. So lectures will be streamed live from 7:30-9:00pm Mondays and Wednesdays. Since that's quite late, I predict I'll be pretty efficient and will finish my material a little earlier. Let's see how that time slot works out for us all.

In any event, you are welcome to attend the live recording, and many of you do. That makes it wonderful for me as an instructor, since I get to gauge how things are going. All class materials are available online at any time. We will have set dates for the midterm and final.

Our lectures have no scheduled face-to-face classes. All class materials are available online at any time.

For virtual learning resources and technology recommendations visit the following websites:

<https://www.uh.edu/power-on/learning>

<https://www.uh.edu/online/students/remote-learning>

Office Hours

See office hours for TA's below. TA office hours show up the Labs and Homework Discussion channel. My lectures show up in the Lectures channel. Both of these are in Teams. For both the TA's and me, you'll see a call start up when the meeting begins and you can join from there.

Teaching Assistants

We have three TA's this semester.

Name	Email	Office Hours
Alireza Ansaripour	aansarip@cougarnet.uh.edu	TBD
Aryo Yarahmadi	ayarahmadi@cougarnet.uh.edu	TBD
Marshad Ahdi	mahdi@cougarnet.uh.edu	TBD
S M Masrur Ahmed	sahmed77@cougarnet.uh.edu	TBD

This class is "Asynchronous Online" meaning we don't have a set schedule but we'll record each week's two lectures live on Mon+Wed from 5:30-7. You are welcome to be part of the live audience.

¹ http://gaia.cs.umass.edu/kurose_ross/Kurose_Ross_TOC_8E.pdf

Lecture and Exam Dates

There are 28 scheduled lectures and two exams: a mid-term and a final. Almost all lectures will be streamed live as I record them in Microsoft Teams, in the Lectures channel.

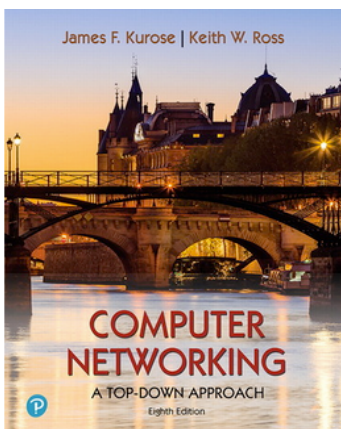
We'll spend part of a lecture before each of the two exams reviewing things. The mid-term will take place on a regular lecture day and will take the place of that day's lecture. But since we're not really scheduled, my current plan is to make it available at any time that day that you like. I'll nail down the date for you soon. Most finals are scheduled by the University [here](#)² but not for an async online course. I want to give the exam either at the beginning or end of the finals period. So far, when I've polled students, they overwhelmingly want their finals at the start of the finals period. We'll ask in our class too and establish a date for the final.

Communicating with the Instructor:

- Your first line of defense for homeworks and assignments are the TA's. They have the solutions and can guide you through the assignments. *Please contact them first.*
- If you have a concern that warrants an immediate response, like finding a mistake in the homework, or you've asked a couple of friends and none of you can get into the lecture or hear me), then send me a Teams chat. Sometimes I'm so into it that you'll have to resort to drastic measures like unmuting to interrupt me to tell me that I cannot be heard. Thank you in advance for stepping in.

Textbook

We use the 8th edition of the textbook Computer Networking, by James Kurose & Keith Ross. There is a companion web site online that we will use almost every lecture. I'll share the URLs each time we use it. Our bookstore rep indicates that this text is included as part of CTAP. Unless you opt out of CTAP, you'll have access to this text as part of it.



Title: Computer Networking, 8th edition

Author: James Kurose & Keith Ross

Looks like there's a decently-priced rental deal of < \$20 here:

<https://www.pearson.com/store/en-us/pearsonplus/p/9780135928615.html>

² <https://uh.edu/academics/courses-enrollment/final-exam-schedules/#spring2025> x`



About 10% of our material comes from a second book.

Title: Communication Networks, 3rd ed?

Leon-Garcia and Widjaja

Grading:

Homeworks Includes traditional book homeworks, Wireshark labs and python socket assignments, basically everything except the exams	50%
Midterm Exam	25%
Final Exam	25%

Preparing for Class

This is a 3-credit-hour course, so we do not have separate lab hours. However, based largely on feedback from prior classes, and on the department's desire to incorporate more programming into our curriculum, we will include very modest programming assignments that count as part of your homework.

Regular homeworks: assigned in Canvas and returned by you in Canvas for us to grade (and never in Teams), the TA's grade the homeworks. They have the homework solutions, so can help you if you get stuck. Just attend an office hour.

Wireshark: We will use a program called Wireshark extensively. You should download it now and ensure you can capture packets and see them. If you cannot, you need to find another computer or just plan on borrowing a friend's an hour whenever you have a Wireshark assignment. Wireshark Labs will be assigned as problems in your regular homeworks and we will use it almost every lecture to demonstrate what we're learning.

Python: If you have never used Python, it's a good idea to download and install it now, because you'll need it for the Python Socket Programming Assignments we'll have. They are very lightweight pseudo-code assignments, not real programming, but having Python might be a help to you. They will be problems as part of regular homeworks.

Other Important Notices:

Required Syllabus Language from the Provost of the University follows:

UNIVERSITY OF HOUSTON SYLLABUS LANGUAGE: 2024-2025**Required Language for All Courses**Mental Health and Wellness Resources

The University of Houston has a number of resources to support students' mental health and overall wellness, including [CoogsCARE](#) and the [UH Go App](#). UH [Counseling and Psychological Services \(CAPS\)](#) offers 24/7 mental health support for all students, addressing various concerns like stress, college adjustment and sadness. CAPS provides individual and couples counseling, group therapy, workshops and connections to other support services on and off-campus. For assistance visit uh.edu/caps, call 713-743-5454, or visit a [Let's Talk](#) location in-person or virtually. [Let's Talk](#) are daily, informal confidential consultations with CAPS therapists where no appointment or paperwork is needed.

Need Support Now?

If you or someone you know is struggling or in crisis, help is available. Call CAPS crisis support 24/7 at 713-743-5454, or the National Suicide and Crisis Lifeline: call or text [988](https://988lifeline.org), or chat 988lifeline.org.

Title IX/Sexual Misconduct

Per the UHS Sexual Misconduct Policy, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and state law and must report incidents of sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office. Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the Title IX website at <https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/>.

Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston is committed to providing an academic environment and educational programs that are accessible for its students. Any student with a disability who is experiencing barriers to learning, assessment or participation is encouraged to contact the Justin Dart, Jr. Student Accessibility Center (Dart Center) to learn more about academic accommodations and support that may be available to them. Students seeking academic accommodations will need to register with the Dart Center as soon as possible to ensure timely implementation of approved accommodations. Please contact the Dart Center by visiting the website: <https://uh.edu/accessibility/> calling (713) 743-5400, or emailing jdcenter@Central.UH.EDU.

The [Student Health Center](#) offers a Psychiatry Clinic for enrolled UH students. Call 713-743-5149 during clinic hours, Monday through Friday 8 a.m. - 4:30 p.m. to schedule an appointment.

The [A.D. Bruce Religion Center](#) offers spiritual support and a variety of programs centered on well-being.

The [Center for Student Advocacy and Community \(CSAC\)](#) is where you can go if you need help but don't know where to start. CSAC is a "home away from home" and serves as a [resource hub](#) to help you get the resources needed to support academic and personal success. Through our [Cougar Cupboard](#), all students can get up to 30 lbs of FREE groceries a week. Additionally, we provide 1:1 appointments to get you connected to on- and off-campus resources related to essential needs, safety and advocacy, and more. The [Cougar Closet](#) is a registered student organization advised by our office and offers free clothes to students so that all Coogs can feel good in their fit. We also host a series of cultural and community-based events that fosters social connection and helps the cougar community come closer together. Visit the CSAC homepage or follow us on Instagram: @uh_CSAC and @uhcupbrd. YOU belong here.

Women and Gender Resource Center

The mission of the [WGRC](#) is to advance the University of Houston and promote the success of all students, faculty, and staff through educating, empowering, and supporting the UH community. The WGRC suite is open to you. Stop by the office for a study space, to take a break, grab a snack, or check out one of the WGRC programs or resources. Stop by Student Center South room B12 (Basement floor near Starbucks and down the hall from Creation Station) from 9 am to 5 pm Monday through Friday.

Academic Honesty Policy

High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees. All UH community members are expected to contribute to an atmosphere of the highest possible ethical standards. Maintaining such an atmosphere requires that any instances of academic dishonesty be recognized and addressed. The [UH Academic Honesty Policy](#) is designed to handle those instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy.

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](#) and [Graduate 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. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

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 [Justin Dart, Jr. Student Accessibility Center](#). 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.

Recommended Language and Guidance (use as appropriate for class content and format)

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, Blackboard, and Canvas; 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. Faculty use the CougarNet email to respond to course-related inquiries such as grade queries or progress reports for reasons of FERPA. To access your CougarNet email, [login](#) to your Microsoft 365 account with your CougarNet credentials. Visit [University Information Technology \(UIT\)](#) for instructions on how to connect your CougarNet e-mail on a mobile device.

Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (*state when webcams are required to be on and the academic basis for requiring them to be on*). (Example: *Webcams must be turned on during exams to ensure the academic integrity of exam administration.*)

Security Escorts and Cougar Ride

UHPD continually works with the University community to make the campus a safe place to learn, work, and live. The security escort service is designed for the community members who have safety concerns and would like to have a Security Officer walk with them, for their safety, as they make their way across campus. Based on availability either a UHPD Security Officer or Police Officer will escort students, faculty, and staff to locations beginning and ending on campus. If you feel that you need a Security Officer to walk with you for your safety, please call [713-743-3333](tel:713-743-3333). Arrangements may be made for special needs.

Parking and Transportation Services also offers a late-night, on-demand shuttle service called “Cougar Ride” that provides rides to and from all on-campus shuttle stops, as well as the MD Anderson Library, Cougar Village/Moody Towers and the UH Technology Bridge. Rides can be requested through the UH Go app. Days and hours of operation can be found at <https://uh.edu/af-university-services/parking/cougar-ride/>.

Syllabus Changes

Please note that the instructor may need to make modifications to the course syllabus. Notice of such changes will be announced as quickly as possible through {*specify how students will be notified of changes*}.

Artificial Intelligence

Instructors are recommended to develop language that will guide students in their use or prohibition of use of AI related tools. If an instructor allows the use of AI tools, they should clearly indicate in what ways they can be used, how they should be cited/reported, and for which assignments they are allowed. Note that Turnitin currently has a filter for ChatGPT, although there is approximately 2% rate of false positives. The following is a collection of classroom policies from a variety of universities for AI generative tools: [Classroom Policies for AI Generative Tools \(google.com\)](https://www.google.com/policies/classroom-policies-for-ai-generative-tools/).

Online Exams & Proctoring

If you are going to use online proctoring applications that require an environmental scan, you should make sure students are made aware in advance that an environmental scan may be conducted as a part of an online exam and also made aware that:

(1) students are permitted to take their online tests or quizzes in a computer lab or other available space; (2) students need to be aware if you are using online proctoring software, and the student should

consequently choose an environment with as little background noise and additional movement as possible to avoid the software flagging their exam for potential academic dishonesty; and (3) there is no requirement that a student use their own personal computer or that they complete exams and quizzes in any specific location (e.g., their home).