# CSCI 434.01W Computer Networks

COURSE SYLLABUS: Spring 2024

## INSTRUCTOR INFORMATION

| | |
|---|---|
| **Instructor:** | Amy Hays M.S., Computer Science |
| **Office Location:** | RELLIS ACB1 335 |
| https://tamuc.zoom.us/j/92711096337?pwd=cS9UZlIXb2xIc2V1dGtoNnArcDZ5UT09 | |
| **Office Hours:** | Mondays, Wednesdays, and Thursdays 10 am to 12 pm<br>Other times by appointment only via email |
| **University Email Address:** | amy.hays@tamuc.edu |
| **Preferred Form of Communication:** | For all emails, make sure the email the subject line reads: “CSCI 434.01W~~”. |
| **Communication Response Time:** | 48 hours |

## TEACHING ASSISTANT

| | |
|---|---|
| **Teaching Assistant:** | TBA |
| **TA Email:** | TBA |

## COMPUTER LAB

| | |
|---|---|
| **Locations:** | Journalism Rm. 101 & 200 |
| **Hours:** | 9 am to 9 pm, Monday – Friday |

## COURSE INFORMATION

**Lecture:** Online web based through D2L.

**Class Textbook:**

- Computer Networking: A Top-Down Approach, 8th edition, James Kurose and Keith Ross, ISBN: 9780136681557 or eBook ISBN: 9780135928615, Pearson, 2021 (required).

The *syllabus/schedule are subject to change.*

**Recommended Textbook(s), References, & Resources:**

- An Introduction to Computer Networks. https://open.umn.edu/opentextbooks/textbooks/353
- Cisco network academy: https://www.netacad.com/

The professor will make other supplementary information for the course available online. These include class notes, assignments, PowerPoint slides, class announcements, the course syllabus, test dates, etc. The professor will announce in class when such information becomes available electronically. It is the student's responsibility to follow these announcements.

## Course Description

This course covers the basic principles and operations of modern computer networks. Topics include basic data communications, the layered architecture and reference model, protocols and topologies, and network service models and applications. TCP/IP networking and protocols are covered to understand the Internet core functions.

## Student Learning Outcomes

Upon completion of this course, students will be able to:

1. To define basic terms and concepts associated with data communications and computer networks.
2. To understand the basic principles of network applications and protocols such as web and DNS.
3. To state transport services and the underlying functions of the standard TCP/UDP protocols.
4. To gain the concepts and practical experience with subnetting, the use of IP addresses, and the fundamentals of IP routing.
5. To understand the principles behind link layer services and the standard local area network technologies.

## COURSE REQUIREMENTS

### Minimal Technical Skills Needed

Prerequisites: CSCI 241 (Min Grade C) or COSC 2325 (Min Grade C) and CSCI 270 (Min Grade C) or COSC 2336 (Min Grade C)

## Instructional Methods

D2L and lecture will be the method of presentation for the entire course. Please go to myLeo and find D2L in Apps. All course materials will be found in D2L.

## Student Responsibilities or Tips for Success in the Course

It is the students' responsibility to keep up with the schedule. Makeup work (exams, quizzes, discussions, or assignments) will only be permitted in cases of emergency with proper documentation, or prior rescheduling. To reschedule contact me before the due date with a valid reason and suggested make-up dates will be given.

Please feel free to contact me and come to office hours to ask questions and get clarifications or assistance.

## GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

### Assessments

Basis for Evaluation:

| | |
|---|---|
| Assignments | 30% |
| Quizzes | 20% |
| Midterms | 25% |
| Final Exam | 25% |

## TECHNOLOGY REQUIREMENTS

### LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

The *syllabus/schedule are subject to change.*

Zoom Video Conferencing Tool
https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

## ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

## COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

### Interaction with Instructor Statement

| | |
|---|---|
| **Office Location:** | RELLIS ACB1 335<br>https://tamuc.zoom.us/j/92711096337?pwd=cS9UZlIXb2xIc2V1dGtoNnArcDZ5UT09 |
| **Office Hours:** | Mondays, Wednesdays, and Thursdays 10 am to 12 pm<br>Other times by appointment only via email |
| **University Email Address:** | amy.hays@tamuc.edu |
| **Preferred Form of Communication:** | For all emails, make sure the email the subject line reads: “CSCI 434.01W~~”. |
| **Communication Response Time:** | 48 hours |

The *syllabus/schedule are subject to change.*

# COURSE AND UNIVERSITY PROCEDURES/POLICIES

## Course Specific Procedures/Policies

You should do your own work on exams and assignments. Copying another student's work is not acceptable. Any indication of cheating or plagiarism on an exam/assignment will result in an automatic 0 (zero) for the exam/assignment for all students involved. Yet, based on cheating and plagiarism activity in any section of the class, the instructor holds the right to give the grade of F to the identified student(s) for the section. Regarding codes in assignments, you may be required to explain the code you submitted. In case of discursive explanation, the instructor holds the right to lower your grade. No makeup exams or assignments unless documents explaining the emergency are provided.

## Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

## Late Policies

Credit will be given for ONLY those exams, quizzes, and assignments turned in no later than the deadline as announced by the instructor of this class unless prior arrangement has been made with the instructor.

Late assignments can gain partial credit upon the following policy. As per University requirements, assignments submitted within 7 days after the deadline can receive up to 20% deduction, assignments submitted between 8-14 days after the deadline can receive up to 50% deduction.

- **No assignments will be accepted two weeks after the assigned due date.**
- **No assignment will be accepted after the term end day.**
- Exceptions to this policy will only be made in extraordinary circumstances. Please let me know your circumstances.

## University Specific Procedures

### Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

The *syllabus/schedule are subject to change.*

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

## TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedures 13.99.99.R0.01
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

## Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03
Undergraduate Student Academic Dishonesty Form

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf

Graduate Student Academic Dishonesty Form

http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

## Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services**
Texas A&M University-Commerce
Velma K. Waters Library Rm 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu

The *syllabus/schedule are subject to change.*

Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

## Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

## Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

## A&M-Commerce Supports Students' Mental Health

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit **www.tamuc.edu/counsel**

## AI use policy [Draft 2, May 25, 2023]

**Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.**

**Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).**

**Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors ' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.**

**In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.**

**13.99.99.R0.03 Undergraduate Academic Dishonesty**

**13.99.99.R0.10 Graduate Student Academic Dishonesty**

## Department or Accrediting Agency Required Content

# COURSE OUTLINE / CALENDAR

| WEEK OF | CONTENT | READING |
|---|---|---|
| Jan 10 | Course Introduction, Network performance, protocols, and security | Ch 1 |
| Jan 15 | Application layer and protocols: HTTP, SMTP | Ch 2.1-2.3 - **Jan 15 – MLK Holiday** |
| Jan 22 | DNS, Peer to peer, streaming, socket programming | Ch 2.4-2.8 **(Quiz 1)** |
| Jan 29 | Transport layer services, UDP, reliable data transfer | Ch 3.1-3.4 |
| Feb 5 | **Exam 1** | -- |
| Feb 12 | Reliable data transfer, TCP, congestion control | Ch 3.5-3.9 |
| Feb 19 | Network layer: Data Plane | Ch 4 |
| Feb 26 | Network layer: Data Plane (continued) | Ch 4 |
| Mar 4 | Network layer: Control Plane | Ch 5 |
| Mar 11 | **Spring Break** | |
| Mar 18 | Link layer, error detection and correction | Ch 6 **(Quiz 2)** |
| Apr 1 | **Exam 2** | -- |
| Apr 8 | Wireless and Mobile Networks | Ch 7 |
| Apr 15 | Network security, cryptography, TLS, IPsec, VPNs, intrusion detection | Ch 8 **(Quiz 3)** |
| Apr 22 | | -- |
| Apr 29 | Course review | **3rd - Spring Last Class Day** |
| May 4 – May 10 | **Final Exams** | |

| Tentative Due Dates: | Assignment Topics (30% of Final Grade) |
|---|---|
| Jan 21 | Packet Switching, Caravan Analogy, HTTP Connections, Traceroute, Wireshark |
| Feb 4 | Source & Destination Ports, Checksum |
| Feb 25 | UDP Checksum, RTT Estimation, Wireshark |
| Mar 17 | IP Subnetting, Link State Routing, Distance Vector Routing |
| Apr 7 | Parity Bits, CSMA/CD, CRC Calculation, Switch, Lan Addressing, Wireshark |

*Note: The right to modify the presentation order of materials is reserved. Course progress will be based on feedback and suggestions from students. We would cover the course materials, so if we slow in some topics, we must accelerate elsewhere.*

***HAVE A HAPPY AND SUCCESSFUL SESSION***

The *syllabus/schedule are subject to change.*