

# CS/CE4390.002 – COMPUTER NETWORKS

## SPRING 2022

### SYLLABUS

#### CONTACT INFORMATION

Professor: Khiem Le, Ph.D.  
 Office: ECSS 3.703  
 Telephone: 972-883-6217 (use MS Teams to call)  
 Email: kv1140030@utdallas.edu (best way to reach me)  
**Always use your UTD email account and include CS4390.<section\_number> in the subject**  
 Lecture: Mondays-Wednesdays, 4:00 PM to 5:15 PM  
 Office hours: By appointment, on Collaborate. See “Procedures” on eLearning for details  
 TA: Omer Faruk Deniz  
 Email: OmerFaruk.Deniz@UTDallas.edu  
 Office hours: Mondays, 11 AM to 12 PM, or by appointment, on MS Teams. See “Procedures” on eLearning for details  
 Grader: Bhavesh Prasad Pudi  
 Email: BhaveshPrasad.Pudi@UTDallas.edu  
 Office hours: Wednesdays, 10 AM to 11 AM, or by appointment, on MS Teams. See “Procedures” on eLearning for details

#### COURSE MODALITY AND EXPECTATIONS

Instructional Mode	In-person
Course Platform	eLearning, Piazza
Expectations	<p>Lectures: You are expected to attend at the specific lecture day/times.</p> <p>Tests and checkpoints: You should take them at specific times.</p> <p>Homeworks: You usually have 1 week to complete a homework.</p>

**COVID-19 Guidelines and Resources:** Please see <https://covid.utdallas.edu/>

**Syllabus Policies and Procedures:** Please see <https://go.utdallas.edu/syllabus-policies>

#### PREREQUISITES AND COREQUISITES

Prerequisite: CS 3345 or equivalent.

#### TEXTBOOK AND REQUIRED TOOLS

Reference textbook (not required): Computer Networking: A Top-Down Approach, *Jim F. Kurose and Keith W. Ross*, Addison Wesley, 7<sup>th</sup> edition, 2017, ISBN 978-0-13-359414-0

#### COURSE DESCRIPTION

**Computer Networks** (3 semester credit hours) The design and analysis of computer networks. Topics include the ISO reference model, transmission media, medium-access protocols, LANs, data link protocols, routing, congestion control, internetworking, and connection management.

### STUDENT LEARNING OBJECTIVES

The learning objectives of this class are:

1. Ability to understand the need for and structure of the OSI, TCP/IP network models
2. Ability to design and evaluate methods for the framing messages in transmission media
3. Ability to analyze and evaluate different error detection schemes
4. Ability to understand and evaluate stop-and-wait, sliding window protocols
5. Ability to understand and evaluate multiple-access protocols
6. Ability to design and evaluate routing protocols
7. Ability to design and evaluate flow control and congestion control protocols
8. Ability to understand the issues in internetwork design
9. Ability to understand the various Internet protocols (TCP/IP)
10. Ability to write networking protocols

### GRADING

Your overall numerical score will be calculated as the weighted average of the element scores, using the weights below:

Test # 1 score:	25%
Test # 2 score:	25%
Project score:	25%
Homeworks:	15%
Class participation:	10%

The overall numerical score is possibly curved and then converted to a letter score, as follows.

In addition, if you are borderline, at my discretion, I may decide to bump you up based on considerations such as active involvement in class (see "Class participation and involvement" section).

Overall numerical score (possibly curved)	Grade
≥97	A+
≥93	A
≥90	A-
≥87	B+
≥83	B
≥80	B-
≥77	C+
≥73	C
≥70	C-
≥67	D+
≥63	D

≥60	D-
Less than 60	F

## TESTS

- Each test covers all the handouts + information given during lectures + homeworks + class discussions, up to the exam
- Tests are taken on eLearning at the Testing Center. They are closed book, closed notes. A 8.5 x 11 cheatsheet with handwritten notes on both sides is allowed.
- The test dates are shown in the “Schedule” section below. If you have unforeseen problems, such as medical issues or emergencies, you should contact me ASAP with the proper documentation. A makeup exam may be given at my discretion
- You are required to reserve your seat at the Testing Center at least 72 hours prior to the test through this link: <https://ets.utdallas.edu/testing-center/students/> . The Center does not allow walk-ins. Be sure to select the right section. If you fail to reserve your seat, you may not be able to take your test, and there is no guarantee I can reschedule the test for you. If I reschedule your test, there will be an automatic 10% penalty on your test score.

## PROJECT

- Projects are hands-on team assignments designed to help you develop deeper understanding of the material covered in class
- More details will be provided in class and on eLearning

## HOMEWORKS

- Homeworks are designed to help you check your understanding of the material covered in class and prepare you for the tests.
- You will usually have a week to do each one. All homework assignments will be submitted to eLearning.
- The homeworks score is the weighted average of the individual assignment scores.
- Late homework submissions will not be accepted.
- Unless explicitly told of the contrary, all submissions must be your individual work. Non observance of these rules may be considered as academic dishonesty and handled accordingly

## CHECKPOINTS

Checkpoints are 1-question quizzes. They give you and me an instant gauge as to how well you are grasping the material. They count for participation. You logon to elearning to take the checkpoint, which is graded like a test. You are allowed to take the checkpoint up to 11:59 PM on the day of the lecture. The password is communicated during the lecture.

## CLASS PARTICIPATION AND INVOLVEMENT

Class participation score is based on:

- Checkpoint scores: Non submission by the due date counts as zero, submission by the due date counts as 1 point (regardless of whether your answer is correct or not). If you are unable to

submit the checkpoint by the due date due to an emergency or medical reason, I may waive the checkpoint for you, provided that you submit acceptable documentation

- Survey and other task assignments (other than homeworks): For each survey or task, completion by deadline counts as 5 points, otherwise counts as zero point

Non observance of instructions may lead to participation points being deducted, at my discretion.

In addition, if you are borderline, I may decide, at my discretion, to bump you up based on your participation score and other considerations such as:

- Active involvement (asking questions, contributing to discussions, answering other students' questions) during the lectures or on the Piazza discussion forum

Disruptive behavior will not be tolerated

## ISSUES ABOUT GRADING

Students are required to bring up any grading issue within a week of score posting.

- All homework assignments and project will be graded by the TA. Therefore, if you have any questions concerning the homework or project gradings, please email the TA about it first. Please copy me on all your emails with the TA so I am aware of the situation and can make sure it is resolved.
- All tests will be graded by me. If you have question about your test grading, please contact me.

## COURSE TOOLS

### COMMUNICATION

Tests, checkpoints, lecture material, grades and announcements are posted on eLearning. Announcements are also emailed out to the whole class. In addition, you may also receive individual emails from me or the TA. **It is your responsibility to timely logon to eLearning and check your UTD email to stay abreast of assignments, announcements and other information.** Technical requirements for eLearning can be found at [Getting Started with eLearning](#). Tutorials can be found at [Student eLearning Tutorials](#).

### DISCUSSION FORUM

We will use Piazza as a discussion forum. Please sign up by clicking on the link below, and **be sure to use your UTD email address** (if you don't use your UTD email address, the system cannot recognize you properly) :

[piazza.com/utdallas/spring2022/csce4390s22](https://piazza.com/utdallas/spring2022/csce4390s22)

Rather than emailing questions to me or the grader, I encourage you to post your questions on Piazza. When you post your question on Piazza, everyone can answer and everyone can benefit from the answer. Piazza makes it easy for students to discuss among themselves and benefit from the collective wisdom and knowledge of the students, Prof and grader. I encourage you to ask questions in particular when you're struggling to understand a concept—you can even do so anonymously.

Posting questions and/or answering questions also counts as participation and citizenship.

If the nature of your question is private, you can post a private question to me or the grader.

## SCHEDULE (MAY BE ADJUSTED AS NEEDED)

Date		Lecture
Jan 19	1	Syllabus, units 1 (Intro) and 2 (History and concepts)

Jan 24	2	Unit 2 (History and concepts)
Jan 26	3	Unit 2 (History and concepts)
Jan 31	4	Unit 3 (Internet structure)
Feb 2	5	Unit 4 (Packet switching and security overview)
Feb 7	6	Unit 4 (Packet switching and security overview) - Unit 5 (Application overview and HTTP)
Feb 9	7	Unit 5 (Application overview and HTTP)
Feb 14	8	Unit 6 (Network application programming)
Feb 16	9	Unit 7 (Transport overview and UDP)
Feb 21	10	Unit 8 (Reliable data transfer)
Feb 23	11	Unit 9 (Pipelined protocols)
Feb 28	12	Unit 9 (Pipelined protocols)
Mar 2	13	Unit 10 (TCP overview)
Mar 7	14	Unit 11 (Flow and congestion control)
Mar 9	15	Unit 11 (Flow and congestion control)
Mar 14		Spring break
Mar 16		Spring break
Mar 21	16	Test Review
Mar 23	17	<b>Test #1</b>
Mar 28	18	Unit 12 (Network layer intro)
Mar 30	19	Unit 13 (IP part 1)
Apr 4	20	Unit 14 (IP part 2)
Apr 6	21	Unit 15 (Network control plane part 1)
Apr 11	22	Unit 16 (Network control plane part 2)
Apr 13	23	Unit 17 (Link layer)
Apr 18	24	Unit 18 (Link access)
Apr 20	25	Unit 17 {slide 17}
Apr 25	26	Unit 18 (Link access)
Apr 27	27	Unit 19 (LAN)
May 2	28	Cushion/TBD
May 4	29	Cushion/TBD
May 10		<b>Test # 2</b>

## COMET CREED

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

## UNIVERSITY’S POLICIES AND PROCEDURES

Please go to <http://go.utdallas.edu/syllabus-policies> for information on the university’s policies and procedures, which include in particular:

- Student Conduct & Discipline
- Academic Integrity
- Withdrawal from Class
- Student Grievance Procedures
- Incomplete Grade Policy
- Disability Services
- Religious Holy Days

These descriptions and topics are subject to change at the discretion of the Instructor.