University of Toronto
Edward S. Rogers Sr. Dept. of Electrical & Computer Engineering

ECE361 Computer Networks I – Winter 2022

Course Management Form

Instructor

- Hamid S. Timorabadi, P.Eng.
- Email: h.timorabadi@utoronto.ca

Criteria for Emails:

- Subject area of the email should include course name, section number, and intention, e.g.
  - ECE361: Missing mark

Office Hour: Wednesdays 1 – 2 PM

Important Note: All course components are online until Jan. 31 after which we will follow guidelines provided by the University.

Lectures (start: Jan. 10)

- Mondays, Wednesdays, Thursdays 2 – 3 PM BA1130

Tutorials

- TUT0101: Fridays 5 – 6 PM GB304 (Starts Jan. 21)
- TUT0102: Mondays Noon – 1 PM GB304 (Starts Jan. 17)

Textbook

Kurose and Ross, "Computer Networking: A Top Down Approach", 8th Ed., Pearson, ISBN: 13 978-0-13-670713-4

Complementary Readings

- Peterson and Davie, "Computer Networks", Morgan Kaufmann, 2003.

Course description in the calendar

- Layered network architectures; overview of TCP/IP protocol suite. Introduction to sockets; introduction to application layer protocols. Peer-to-Peer Protocols: ARQ; TCP reliable stream service; flow control. Data Link Controls: Framing; PPP; HDLC. Medium access control and LANs: Aloha; Ethernet; Wireless LANs; Bridges. Packet Switching: Datagram and virtual circuit switching; Shortest path algorithms; Distance vector and link state algorithms.
- Prerequisite: STA286H1 or ECE302H1
  Co-requisite: ECE302H1. (Students must take the co-requisite, ECE302H1 in the same term as ECE361H, OR in a term before taking ECE361H1.)

Wireshark Labs

- Students will form groups of two. Each group submits only one report and the mark will be assigned to both members, however, both members must know and understand the content of the lab and the report. Read and follow the schedule provided in the Wireshark handout as posted under Files/Labs/Wireshark. There will be a Wireshark lab training that you can attend and learn about Wireshark labs. The schedule will be posted.

Programming Labs

- Students will form groups of two (the same group as the Wireshark lab. There are no labs during the first week of classes and the schedule is found at the end of this document.
- All programming labs will use C language.

Tutorials

- In each tutorial session, the TA will solve some sample problems. Please refer to the detailed list of tutorials and the coverage of each tutorial for more information as posted on the course website.

Evaluation

- Labs:
  - Wireshark Labs 5%
  - Programming Labs 22.5%
- Quizzes/Participations 5%
- Midterm 27.5%
- Final Exam 40%

  100%

➢ **Midterm**

- Date: Monday February 28
- Time: 6:10-8pm
- Duration: Approximately 90 minutes
- Location: if not online then in TBD.
- Aids for Midterm and Final Exam:
  - Calculator Type: 2 (non-programmable calculators)
  - No other aids.

➢ **Quizzes/Participations**

- Are designed to promote gradual learning of the concepts in the course.
- Occur once or more in almost every lecture depending how course progresses.
- Are marked when lectures are over and may have different weights.

There are no make-up midterm or Labs. If you miss the midterm or a lab then consideration will be given, provided an approved petition by the department (petitions are submitted online) as follows:

- If you missed a lab session and your petition is approved, you will be provided with an opportunity to redo the missed lab during your upcoming labs.
- If you missed the last Lab and your petition is approved then:
  - If resources are available then you will be given a chance to make up for that lab.
  - If resources are not available then your average lab mark will be calculated based on other labs and course average on the labs.
- If you missed midterm and your petition is approved, your midterm mark will be transferred to the final exam.

Academic Offences

- Will be handled according to faculty policy (see the Academic Regulations section of the Faculty of Applied Science and Engineering Calendar).

ECE361 - Winter 2022

Course Schedule and Reading

Note: this is a tentative list and basesd on the course progress may change in terms of content or order.

Week	Date	Lecture	Topic	Reading
1	Jan.9-15	1	Course Introduction	-
		2	Introduction to Computer Networks	1.1-1.2
		3	Circuit Switching and Packet Switching	1.3
2	Jan.16-22	4	Layered Architecture	1.4, 1.5
		5	Applications	2.1 - 2.2
		6	HyperText Transfer Protocol (HTTP)	2.2
3	Jan.23-29	7	Cookies, Caching, Conditional Get, FTP	2.3
		8	Domain Name System	2.5
		9	P2P File Sharing	2.6
4	Jan. 30- Feb. 5	10	Transport layer, UDP	3.1, 3.2, 3.3
		11	Stop-and-Wait ARQ	3.4
		12	Selective Repeat ARQ/Go-Back-N ARQ	3.4
5	Feb. 6-12	13	Transport Control Protocol (TCP)	3.5
		14	Flow Control	3.6
		15	Congestion Control	3.7
6	Feb. 13-19	16	Virtual Circuits and Datagram	4.1, 4.2
		17	Inside a router, Internet Protocol	4.3, 4.4.1
		18	Review/IP Addressing	4.4
7	Feb.20-26		**Reading Week**	
8	Feb. 27 - Mar. 5	19	**Midterm, Monday Feb. 28, 6:10-8PM**	
		20	CIDR, DHCP	4.4
		21	NAT	4.4
9	March 6 - 12	22	ICMP	4.4
		23	IPV6	4.4.4, 4.5.1
		24	Routing- Distance Vector	4.5.2
9	March 13 - 19	25	Routing- Distance Vector - Hierarchical	4.5.2, 4.5.3
		26	Routing in the Internet, RIP, OSPF	4.6.1, 4.6.2
		27	BGP - Flooding	4.6.3, 4.7
10	March 20 - 26	28	Broadcast and Multicast	4.7
		29	Link layer, Error Detection	5.1
		30	Cyclic Redundancy Check (CRC)	5.2
11	Mar. 27-Apr. 2	31	Multiple Access - ALOHA - Slotted ALOHA	5.3.1, 5.3.2
		32	Carrier Sense Multiple Access, Ethernet	5.3.2, 5.4.2
		33	MAC Addressing - ARP	5.4.1
12	April 3 - 9	34	Link Layer Switches, VLAN	5.4.3, 5.4.4
		35	Simple Mail Transfer Protocol (SMTP) (Will be covered later)	2.4
		36	FTP	2.3
13	April 10 - 14	37	Link Layer Switches, VLAN	5.4.3, 5.4.4
		38	CSMA/CA	6.3
		39	Review	

ECE361 Programming Labs Schedule (Winter 2022)

Section	Date	Time	Location	Programming Lab	Material Due	Marks
PRA0101	26-Jan-22	3 - 6 PM	GB 243	1	Section 1 of File Transfer Lab	2 1 works; 1 questions
PRA0102	02-Feb-22					
PRA0103	24-Jan-22					
PRA0101	09-Feb-22			2	Section 2 of File Transfer Lab	4 2 works; 2 questions
PRA0102	16-Feb-22					
PRA0103	07-Feb-22					
PRA0101	09-Mar-22			3	Section 3/Overall File Transfer Lab	4 2 works; 2 questions
PRA0102	02-Mar-22					
PRA0103	07-Mar-22					
PRA0101	23-Mar-22			4	Section 1 of Text Conferencing Lab	6 4 works; 2 questions
PRA0102	16-Mar-22					
PRA0103	21-Mar-22					
PRA0101	06-Apr-21			5	Section 2 of Text Conferencing Lab	4 2 works; 2 questions
PRA0102	30-Mar-22					
PRA0103	04-Apr-21					