



UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
COURSE OUTLINE

1. **Course:** CPSC 441, Computer Networks -- Fall 2017

Lecture 01: (MWF, 10:00-10:50 in ENE239)

| Instructor Name | Email | Phone | Office | Hours |
|-----------------|----------------------|----------------|---------|--|
| Majid Ghaderi | mghaderi@ucalgary.ca | (403) 210-3855 | ICT 746 | MW 13:00 – 14:00, or by appointment |

Lecture 02: (MWF, 11:00-11:50 in ENE239)

| | | | | |
|---------------|----------------------|----------------|---------|--|
| Majid Ghaderi | mghaderi@ucalgary.ca | (403) 210-3855 | ICT 746 | MW 13:00 – 14:00, or by appointment |
|---------------|----------------------|----------------|---------|--|

Course Site:

D2L: CPSC 441 (Fall 2017) - Computer Networks

Department of Computer Science: ICT 602, 403 220-6015, cpsc@cpsc.ucalgary.ca

2. **Prerequisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

One of Computer Science 319 or 331 and one of Computer Science 325, 359, or Computer Engineering 369. Credit for both Computer Science 441 and Electrical Engineering 573 will not be allowed.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

| Component(s) | Weighting % |
|------------------|-------------|
| In-class Quizzes | 10 |
| Assignments | 30 |
| Midterm Exam | 25 |
| Final Exam | 35 |
| | |

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows;

| Letter Grade | A+ | A | A- | B+ | B | B- | C+ | C | C- | D+ | D |
|--------------------------|----|----|----|----|----|----|----|----|----|----|----|
| Minimum Percent Required | 95 | 90 | 85 | 80 | 75 | 70 | 65 | 60 | 55 | 50 | 45 |

Bear in mind that a grade of D+ or below will result if the weighted average of midterm and final exams is below C-.

4. **Missed Components of Term Work:**

The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.3](#) of the University Calendar

There will be no alternate Midterm Exam.

5. **Scheduled out-of-class activities:**

There are no out-of-class activities scheduled for this course.

Midterm Exam

Date: Friday October 27, 2017

Time: 17:00 -- 18:30

Location: ENA 201

6. **Course Materials:**

Required Textbook(s):

J. Kurose and K. Ross, Computer Networking: A Top Down Approach, Pearson

Supplementary materials will be posted on D2L.

7. **Examination Policy:**

All exams are closed-book. No aides are allowed during the exams.

Students should also read the Calendar, [Section G](#), on Examinations.

8. **Approved Mandatory and Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course

9. **Writing across the Curriculum Statement:**

See Section E.2 of the University Calendar.

10. **Human studies statement:**

Students will not participate as subjects or researchers in human studies.

11. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**

a. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties.

b. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).

c. **Academic Accommodation Policy:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at [procedure-for-accomodations-for-students-with-disabilities_0.pdf](#).

Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Undergraduate Affairs of the Department of Computer Science, Nathaly Verwaal by email nmverwaa@ucalgary.ca or phone 403-220-8485.

d. **Safewalk:** Campus Security will escort individuals day or night (www.ucalgary.ca/security/safewalk/). Call [403-220-5333](tel:403-220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

e. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see also www.ucalgary.ca/legalservices/foip.

f. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty

Rep. Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca; Student Ombudsman, Email: suvpaca@ucalgary.ca

- g. **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy, you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these Surveys.
- i. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).

Department Approval:

Electronically Approved

Date: 2017-09-04 14:08

Course Outcomes

1. Explain what a network protocol is, list several Internet protocols and explain for what purpose they are used.
2. Describe the layered architecture of the Internet and discuss the functionality of each layer.
3. Explain the functionality and operation of network protocols such as HTTP, FTP, SMTP, DNS, TCP, UDP, and BGP.
4. Understand how application messages are carried in the Internet by describing the encapsulation/de-encapsulation process, store-and-forward mechanism, routing and addressing.
5. Analyze a simple computer network comprising of multiple routers and links to compute performance metrics such as packet loss, delay and throughput.
6. Develop client-server network programs that communicate with each other over the Internet using TCP and UDP protocol.
7. Compare TCP and UDP and explain how reliability and congestion control are implemented in TCP.
8. Explain how IP addresses are obtained and assigned to end systems, and discuss the operation of DHCP and NAT and how they relate to IPv4 and IPv6.
9. Describe what a MAC protocol is and compare different types of MAC protocols in wired and wireless networks including ALOHA and CSMA.