



CIS*3210 Computer Networks Fall2021

School of Computer Science

Credit Weight: 0.50

Version 1.00 - September 09, 2021

1 COURSE DETAILS

1.1 Calendar Description

This course covers the high-level (protocol) oriented aspects of computer networks, specifically: application, session, transport and network layers.

It includes the Internet, socket-level programming, multimedia and quality of service issues. The hardware aspects (switches, LANs, modems, transmission paths) are only covered at a functional level.

Pre-Requisites: CIS*3110

1.2 Course Description

Computer Networking has become increasingly important in the daily basis become more dependent on the Internet. As increasingly large number of people rely on the internet to communicate, search for the information, shop online, etc. It is therefore important for computer scientists and computer engineers to be familiar with the fundamentals as well as practices of computer networking. This course covers the high-level (protocol) oriented aspects of computer networks, specifically: application, session, transport, and network layers. It includes the Internet, socket-level programming, multimedia, quality of service, and security issues. The hardware aspects (switches, LANs, modems, transmission paths) are only covered at a functional level.

1.3 Timetable

Lectures: Monday, Wednesday, Friday 12:30 PM - 1:20 PM, MCKN room 117

Lab: Monday 11:30 AM - 12:20 PM, MCKN, Room 029

Final Exam: Wednesday December 8 11:30 AM - 1:30 PM, Room TBD

2 INSTRUCTIONAL SUPPORT

2.1 Instructor

Instructor: Ahmed Mahmood, Ph.D., EIT
Office: THRN 2361, ext. 53385
Email: amahmood@uoguelph.ca
Office hours: TBA on Courselink or by appointment

2.2 Teaching Assistants

GTA	Email	Office Hours
Cathrine Nayrouz	cnayrouz@uoguelph.ca	TBA on Courselink
Fatemeh Safari	safarif@uoguelph.ca	TBA on Courselink

3 LEARNING RESOURCES

3.1 Course Website

Course material, news, announcements, and grades will be regularly posted to the CIS*3210 Courselink site. You are responsible for checking the site regularly.

3.2 Required Resources

Lecture notes (Notes)

Notes to accompany lectures will be posted on the course website (Courselink) throughout the semester. Students will be granted access to the website when they register for the course.

3.3 Recommended Resources

Computer Networking: A Top-Down Approach, 8th ed. J. Kurose and K. Ross

3.4 Additional Resources

Computer Networks, 6th ed. A. Tanenbaum

4 COURSE LEARNING OUTCOMES

1. Define and describe the layered structure of a typical networking architecture.
2. Describe the components of IPv4 and IPv6 protocols, including addressing, routing and forwarding.
3. Evaluate error detection/correction mechanisms in different network contexts.
4. Implement applications using reliable and unreliable socket communication.
5. Develop distributed applications that exchange data and employ serialization techniques.
6. Describe common networking security issues, as well as the methods for mitigating them.

5 ASSESSMENT

5.1 Dates and Distribution

Assessments

Assignments (4, 9% each, 36%)

- Assignment 1 (Week 3 Mon September 20)
- Assignment 2 (Week 5 Mon October 4)
- Assignment 3 (Week 7 Mon October 18)
- Assignment 4 (Week 9 November 1)

Quizzes (4, 4% each, 16%). four best quizzes out of six will be considered

- Friday class (Last 10 -15 min)

Week 3: Sept 24

Week 5: Oct 8

Week 7: Oct 22

Week 8: Oct 29

Week 9: Nov 5

Week 12: Nov 26

Midterms (2, 9% each, 18%)

- Friday class

Week 6: Oct 15

Week 10: Nov 12

Final exam (30%) - Dec 7, 11:30AM - 01:30PM, room TBA

5.2 Course Grading Policies

Development environment: Systems and software are provided in the lab and the SoCS Linux servers for use in assignments. Students who choose to develop their assignments on other systems and/or with other versions of software are fully responsible for ensuring compatibility with the SoCS Linux server environment for marking purposes.

Late Assignments: All assignments are due at 9am on the due date. Late assignments will be accepted for 24 hours after the deadline and penalized at 2% per hour. Assignments that are more than 24 hours late will not be accepted, and will automatically receive the grade of zero (o). See below for compassionate exceptions.

Compiler errors/warnings: Program code which does not compile will not be accepted for marking and a grade of zero (o) will be assigned. Code that does not compile “clean” will lose marks for compiler warnings. Code must compile and run on the SoCS servers.

Submission errors: Failure to submit assignments correctly (e.g., incorrect file names, faulty/missing makefile, etc.) will result in a mark penalty.

Regrades: Students may request a regrade of an assignment or midterm exam if the marker has made an error in grading. The original submission will be entirely regraded and a new mark will be assigned. It is possible for a mark to go down, go up, or remain unchanged as a result of a regrade. Students must request a regrade by email within 5 calendar days of receiving the assessment grade.

Missed Assessments: If you are unable to meet an in-course requirement due to medical, psychological, or compassionate reasons, please make an appointment to meet your course instructor. Please see below for specific details and consult the undergraduate calendar for information on regulations and procedures for Academic Consideration: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/co8/co8ac.shtml>

Note: There are no makeup assignments or midterm exams. If you miss an assessment and have documentation to show that you are eligible for Academic Consideration, the weight of the assessment will be moved to the final exam.

Accommodation of Religious Obligations: If you are unable to meet an in-course requirement due to religious obligations, please email the course email address within two weeks of the start of the semester to make alternate arrangements. See the undergraduate calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/co8/co8accomrelig.shtml>

6 TEACHING AND LEARNING ACTIVITIES

Lectures Lecture topics Tests Assignments

Lectures	Lecture Topic	Ref	Assignment	Test
Week 1 (Sept 10)	Introduction			
Week 2 (Sept 13, 15, 17)	Computer Networks and the Internet	Ch 1		
Week 3 (Sept 20, 22, 24)	Computer Networks and the Internet	Ch 1	Assignment 1	Quiz 1
Week 4 (Sept 27, 29, Oct 1)	Application layer	Ch 2		
Week 5 (Oct 4, 6, 8)	Application layer/ Transport layer	Ch 2, 3	Assignment 2	Quiz 2
Week 6 (Oct 13, 15)	Transport layer	Ch 3		Midterm 1
Week 7 (Oct 18, 20, 22)	Transport layer	Ch 3	Assignment 3	Quiz 3
Week 8 (Oct 25, 27, 29)	The Network Layer: Data Plane	Ch 4		Quiz 4
Week 9 (Nov 1, 3, 5)	The Network Layer: Control Plane	Ch 5	Assignment 4	Quiz 5
Week 10 (Nov 8, 10, 12)	The Link Layer and LANs	Ch 6		Midterm 2
Week 11 (Nov 15, 17, 19)	Wireless and Mobile Networks	Ch 7		
Week 12 (Nov 22, 24, 26)	Security in Computer Networks	Ch 8		Quiz 6
Week 13 (Nov 29, Dec 1, 3)	Security in Computer Networks	Ch 8		

Note: Oct 11 is a Holiday -- No Classes Scheduled -- Classes rescheduled to Friday, December 3

Last day to drop classes is Friday, December 3

7 ROLES AND RESPONSIBILITIES

7.1 Communication & Email Policy

Major announcements will be posted to the course website and the discussion forums. It is your responsibility to check the course website regularly. As per university regulations, all students are required to check their <mail.uoguelph.ca> e- mail account regularly: e-mail is the official route of communication between the University and its students.

7.2 Recording of materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, classmate or guest lecturer. Material recorded with permission is restricted to use for that course and may not be posted on any public space unless further permission is granted.

7.3 Instructor's Role and Responsibility to Students

The instructor's role is to develop and deliver course material in ways that facilitate learning for a variety of students. Selected notes will be made available to students on the course website but are not intended to be stand-alone. During lectures, the instructor will expand and explain the content of notes and provide example problems that supplement posted notes. Scheduled classes will be the principal venue to provide information and feedback for exams and assignments.

7.4 Students' Learning Responsibilities

Students are expected to take advantage of the learning opportunities provided during lectures, labs and help sessions. Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor. Students who fall behind due to illness, work, or extra-curricular activities are advised to keep the instructor informed as early as possible. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if appropriate.

8 UNIVERSITY STATEMENTS

8.1 ACADEMIC INTEGRITY

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. All students who take a SOCS course must pass the **Academic Integrity Self Test**.

For educational purposes, instructors impose conditions on assignments that may limit students' permission to collaborate with others or to utilize external sources (including, but not limited to, software, data, images, text, etc.). Any permitted utilization must be done with proper references. Aiding and abetting is a punishable offence; students must be careful not to help others commit offences by giving out solutions or providing to access computer accounts. Instructors may use automated tools to detect possible cases of academic misconduct.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to

whether an action on their part could be construed as an academic offence should consult with a faculty member.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/co8/co8-amisconduct.shtml>

The SOCS Academic Integrity Unit:

<http://moodle.socs.uoguelph.ca/course/view.php?id=2> Login with your central login credentials. The key to use is “imhonest”.

8.2 ACCESSIBILITY

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

8.3 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email. This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

8.4 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

8.5 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

<https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>

<https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.