NORTHWESTERN POLYTECHNIC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – Winter 2026

CS2000: Data Communications and Networking – 3 (3-0-2) UT
75 Hours for 15 Weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Dr. Mohamed Elgamal	**PHONE:**	780-539-2976
OFFICE:	C-306	**E-MAIL:**	melgamal@nwpolytech.ca
OFFICE HOURS:	TR. 10:00-11:30 (by Appointment)		

CALENDAR DESCRIPTION:
This course provides an introduction to computer communications and computer networks. Topics will include communication hardware and software, protocols, local area and wide area networks, and network management.

PREREQUISITE(S)/COREQUISITE:
CS1140

RECOMMENDED TEXT/RESOURCE MATERIALS:
Computer Networking: A Top-Down Approach. 9th edition by James Kurose & Keith Ross (online).

DELIVERY MODE(S):
In-Person, On-Campus
This course includes 3-hours of lectures per week and 2-hours lab.

Lectures:	E302	TR	11:30 – 12:50
Lab:	G112	R	14:30 – 16:20

COURSE OBJECTIVES:

This course will introduce students to:

- The internet protocol stack.
- Application-layers protocols, such as HTTP, SMTP, DNS, and FTP.
- The TCP and UDP transport layer protocols.
- The IP network-layer protocol as well as other network-layer protocols such as ICMP.
- The link-layer, LANs and Ethernet

LEARNING OUTCOMES:

As a result of taking this course, students will gain the ability to:

- Demonstrate and articulate fundamental knowledge of the various protocols found at the different layers of the internet protocol stack.
- Identify the protocols that work in the different network applications that users interact with.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page http://www.transferalberta.ca.

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

EVALUATIONS:

Lab Assignments:	20%
Quizzes:	20%
Midterm 1:	15%
Midterm 2:	15%
Final Exam:	30%

Late work will not be accepted and will be granted a mark of 0. All work must be submitted via myClass; no emailed assignments will be accepted. The due date for each assessment will be posted in the myClass.

GRADING CRITERIA:

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines	Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100	C+	2.3	67-69
A	4.0	85-94	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

- Chapter 1: Computer Networks and the Internet
- Chapter 2: The Application Layer
- Chapter 3: The Transport Layer
- Chapter 4: The Network Layer: The Data Plane
- Midterm 1
- Chapter 5: The Network Layer: The Control Plane
- Chapter 6: The Link Layer
- Chapter 7: Wireless and Mobile networks
- Chapter 8: Network Security
- Midterm 2

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the Northwestern Polytechnic Calendar at https://www.nwpolytech.ca/programs/calendar/ or the Student Rights and Responsibilities policy which can be found at https://www.nwpolytech.ca/about/administration/policies/index.html.

**Note: all Academic and Administrative policies are available on the same page.

STUDENT RESPONSIBILITIES:

- Students should arrive on time for classes and labs (no later than 10 min).
- If students are consistently late, they may be barred from attending future classes.
- Students' attendance will be recorded.
- Students are responsible for all lecture materials, labs and readings.
- It is the student's responsibility to adhere to ALL course requirements.
- The students are expected to finish the assignments during the lab sessions.
- The students should not leave the lab without demonstrating their work to the instructor and signing up in the attendance sheet.
- Assignments must be submitted on their due date by the end of the labs.
- Late assignments will NOT be accepted and will receive a grade of 0 (unless permission is granted).
- The use of AI is not allowed and considered academic misconduct.
- No use of cellphones during classes and labs.
- Cellphones are banned during quizzes and exams.
- In case of illness, a doctor's note should be provided.
- If the final is missed due to illness, it will be deferred.

Students are responsible for all lecture material, labs and readings. If the final is missed due to illness it will be deferred. A doctor's note or a phone message or email will be required in both cases.

It is the student's responsibility to adhere to ALL requirements of the assignments. Students are expected to arrive on time for both class and lab. If students are consistently late, they may be barred from attending future classes

Assignments MUST be submitted on their due date. Late assignments will NOT be accepted and will receive a grade of 0.

Additional Information:

- The quizzes/midterm exams could be written or programming tasks and will be during the lab or class time.
- The students should be prepared at any time for flash quizzes (quizzes without prior notification).
- The evaluation of this course is divided into two parts: lab/programming part (assignments, practical quizzes, practical exams, etc.) and theoretical part.
- For passing this course, the students **MUST** pass in the lab/programming part (%50 at least) and **MUST** also pass the theoretical part as well (%50 at least).