Computer Science (COMP) 348

Network Programming in Java (Revision 6)

Status:	Replaced with new revision, see the **course listing** ⧉ for the current revision ✖
Delivery mode:	**Individualized study online** ⧉
Credits:	3
Area of study:	Science
Prerequisites:	Either **COMP 268**, **COMP 272** and **COMP 347**; or **COMP 308** and **COMP 347**.
Precluded:	None
Challenge:	COMP 348 is not available for challenge.
Faculty:	**Faculty of Science and Technology** ⧉
Notes:	Students who are concerned about not meeting the prerequisites for this course are encouraged to contact the **course coordinator** before registering.

Overview

COMP 348 is designed to extend students' knowledge and practice in analysis and design of computer networks by focusing on computer network programming. In addition, some advanced network topics including network security and multimedia computer networks are introduced in this course. The Java programming language will be used throughout the course. To be able to complete this course, a student should have both sufficient knowledge about computer networks, especially the Internet, and some good programming skills in Java.

Outline

COMP 348 consists of the following units:

- Unit 0: Orientation

- Unit 1: Basic Network Concepts

- Unit 2: Java Streams

- Unit 3: Java Threads

- Unit 4: Internet Addresses

- Unit 5: URLs and URIs

- Unit 6: Hypertext Transfer Protocol (HTTP)

- Unit 7: URLConnection

- Unit 8: Sockets for Clients

- Unit 9: Sockets for Servers

- Unit 10: Secure Sockets

- Unit 11: Nonblocking I/O

- Unit 12: User Datagram Protocol (UDP)

- Unit 13: IP Multicast

- Unit 14: Remote Method Invocation (RMI)

The units are closely based on material from Java Network Programming by

Elliotte Rusty Harold, with additional material supplied via web reference links. Unit 1 is a review of material students have studied in the prerequisite computer networking course (COMP 347). Unit 2 and Unit 3 comprise a review of material students should have studied in the prerequisite Java programming courses (COMP 268, COMP 272).

Learning outcomes

Upon successful completion of this course, you will be able to

- discuss network programming with Java in general, including some of the history and features that Java brings to network programming.

- type, compile, and execute example Java programs from the textbook that demonstrate key concepts of network programming.

- modify example programs to further demonstrate key concepts of network programming.

- create original programs in Java that demonstrate key concepts of network programming.

- create Java network programs that fulfill specific deliverables and provide significant network capability, as required, to fulfill assignment objectives and deliverables.

- articulate design decisions and create a diary describing learning experiences. (This is an essential component of the course project.)

Evaluation

To **receive credit** ☑ for COMP 348, you must achieve a course composite grade of at least **D (50 percent)** 🗎 , including a grade of 50 percent on each assignment, and at least 50 percent on the final examination. The weighting of the composite grade is as follows:

Activity	Weight
Assignment 1	15%

Activity	Weight
Assignment 2	15%
Assignment 3	15%
Assignment 4 (Project)	25%
Participation and Reflection	15%
Final Online Exam	15%
Total	**100%**

The **final examination** for this course must be requested in advance and written under the supervision of an AU-approved exam invigilator. Invigilators include either ProctorU or an approved in-person invigilation centre that can accommodate online exams. Students are responsible for payment of any invigilation fees. Information on exam request deadlines, invigilators, and other exam-related questions, can be found at the **Exams and grades** ☐ section of the Calendar.

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** ☐ .

Materials

Harold, E. R. (2013) *Java Network Programming*, 4th ed. O'Reilly. ☐ (Print)

Other materials

The remainder of the learning materials for COMP 348 is available from the course site or other websites.

Special Course Features

COMP 348 is an elective in all **Computing and Information Systems programs** ☐ .

Important links

> **Academic advising** ⇗

> **Program planning** ⇗

> **Request assistance** ⇗

> **Support services** ⇗

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

Opened in Revision 6, August 6, 2014

Updated November 6, 2024

View **previous revision** ⇗