

Introduction to Network Systems

Course Overview and Syllabus

Grade level: 9–12

Prerequisite Courses: None

Credits: 0.5

Course Description

This semester-long course introduces students to the fundamental technology and concepts that make networking systems possible. The most important concept introduced is that of the OSI reference model and its bottom four layers, which are most directly concerned with networking instead of computing. The course explores the software and hardware supporting LANs, WANs, and Wi-Fi networks. Students are introduced to the protocols in the TCP/IP stack that are used to communicate across a network, and to networking hardware, including hubs, switches, bridges, routers, and transmission media. Students explore questions of security, network management, and network operating systems.

Course Objectives

Throughout the course, you will meet the following goals:

- State the purpose of a computer network and the role of hardware in achieving that purpose
- Explain how the protocols from the TCP/IP stack contribute to data transmission
- Describe the technical differences between a LAN and a WAN
- Explain the importance of technical standards in networks
- Identify all seven layers of the OSI reference model and explain what each of the bottom four layers contributes to a network
- Compare and contrast the Windows Server and Linux operating systems

Student Expectations

This course requires the same level of commitment from you as a traditional classroom course. Throughout the course, you are expected to spend approximately 5–7 hours per week online on:

- Interactive lessons that include a mixture of videos, readings, and tasks
- Assignments in which you apply and extend learning in each lesson
- Assessments, including quizzes, tests, and cumulative exams

Communication

Your teacher will communicate with you regularly through discussions, email, chat, and system announcements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

| Grading Category | Weight |
|------------------|--------|
| Lesson Quizzes | 20% |
| Unit Tests | 20% |
| Cumulative Exams | 20% |
| Assignments | 10% |
| Projects | 30% |
| Additional | 0% |

Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

- Unit 1:** Networking Fundamentals
- Unit 2:** Network Access Concepts
- Unit 3:** Local Area Networks
- Unit 4:** Wide Area Networks and Securing the Network
- Unit 5:** Managing the Network