Computer Science (COMP) 314

Operating Systems (Revision 6)

Delivery Mode:	Individualized Study Online ⧉ with eText ⧉
Credits:	3
Area of Study:	Science
Prerequisites:	COMP 206 or COMP 268, or an equivalent university level programming course. Check with the course coordinator if not sure.
Precluded:	None
Challenge:	COMP 314 has a Challenge for Credit option.
Faculty:	Faculty of Science and Technology ⧉
Status:	Replaced with new revision, see the course listing ⧉ for the current revision ⊗
Notes:	Students who are concerned about not meeting the prerequisites for this course are encouraged to contact the course coordinator before registering.

Overview

COMP 314 introduces the fundamental concepts, principles, and structures of operating systems. An operating system is the software on a computer that orchestrates the hardware components of the computer. The operating system provides the user/programmer with efficient and convenient service and a high degree of machine independence in writing programs, executing programs, and managing system resources.

It is assumed that students taking this course are familiar with the basic structure and the main hardware components of a computer. COMP 314 covers the following topics:

- an overview of computer-system structures and operating-system structures;

- process management: defining a process, CPU scheduling, process synchronization, deadlocks, and inter-process communication;

- storage management: memory management, virtual memory, file-system management, disk management, and I/O systems;

- protection and security issues: access matrix and its implementations, authentication, viruses and other intruders, and encryption; and

- an overview of distributed and special-purpose operating systems: distributed operating systems, real-time systems, embedded systems, and multimedia systems.

Outline

COMP 314 consists of five units:

- Unit 1: Overview of Computer Organization and Operating Systems

- Unit 2: Process Management

- Unit 3: Storage Management

- Unit 4: Protection and Security

- Unit 5: Distributed, Real-Time, and Multimedia Systems

Learning Outcomes

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

- describe the overall structure and components of operating systems.

- explain the key concepts and mechanisms of process management, memory management, storage management, security, and protection of operating systems.

- apply the principles and methods learned to practical tasks such as the analysis, diagnosis, and development of functions and components associated with modern operating systems.

Evaluation

To **receive credit** ☐ for COMP 314, you must achieve a course composite grade of at least **D (50 percent)** ⊠, including a grade of at least 50 percent on the invigilated final examination, an average grade of 50 percent on the (three) assignments and at least 50 percent on the course project. The weighting of the composite grade is as follows:

The Final Examination is closed-book and is invigilated.

Activity	Weight
Assignment 1 (Unit 1)	10%
Assignment 2 (Unit 2)	10%
Assignment 3 (Unit 3)	10%

Activity	Weight
Assignment 4 (Units 1-5)	15%
Final Exam	55%
Total	**100%**

The **final examination** for this course must be taken online with an AU-approved exam invigilator at an approved invigilation centre. It is your responsibility to ensure your chosen invigilation centre can accommodate online exams. For a list of invigilators who can accommodate online exams, visit the **Exam Invigilation Network** ⬀ .

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

Materials

Silberschatz, A., Galvin, P. B., & Gagne, G. (2012). *Operating system concepts* (9th ed.). Hoboken, NJ: John Wiley & Sons, Inc. 📖 (eText)

eText

Registration in this course includes an electronic textbook. For more information on **electronic textbooks** ⬀ , please refer to our **eText Initiative site** ⬀ .

Other Resources

The remainder of the learning materials for COMP 314 are distributed electronically through the course website. Additional course materials such as journal and conference papers, online learning objects and materials will be provided through links and AU Library access.

Special Course Features

The delivery of COMP 314 requires that students use computer mediated communications. Students will be required to complete assignments and activities on the School of Computing Information Systems Web server and will be required to use online resources.

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.

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View **previous revision** ⬈