





# Computer Science (COMP) 503

## IT Hardware and Software (Revision 5)

**Status:** Replaced with new revision, see the [course listing](#)  for the current revision 

**Delivery mode:** [Grouped study](#)  with [eText](#) 


**Credits:** 3

**Area of study:** Information Systems

**Prerequisites:** None

**Precluded:** None

**Faculty:** [Faculty of Science and Technology](#) 

**Notes:** This is a graduate level course and students need to apply and be approved to one of the graduate programs or as a non-program [School of Computing and Information Systems](#)  graduate student in order to take this course. Minimum admission requirements must be met. Undergraduate students who do not meet admission requirements will not normally be permitted to take this course.

**Instructor:**

**Dr. Dunwei Wen** [↗](#)

## Overview

This course provides a background in hardware and software technology that will enable systems development personnel to understand the trade-offs in computer architecture for effective use in a business or scientific environment. The course will explain system architecture for single-user, central, and networked computing systems; and single- and multi-user operating systems. It will help you gain a good understanding of general computer organization, basic microprocessor architecture and assembly language, and operating system internals.

## Outline

- Unit 1: Overview
- Unit 2: Process Management
- Unit 3: Memory Organization
- Unit 4: Protection and Security
- Unit 5: CPU Architecture

## Learning outcomes

After completing this course, you should be able to

- know modern computer architecture components;
- begin to write assembly language programs;
- obtain detailed knowledge about the internals of single-user and multi-user operating systems.

## Evaluation

In order to receive credit for COMP 503, you must achieve a cumulative course grade of B- (70%) or better, and you must achieve an average grade of at least 60% on the assignments and achieve a grade of at least 60% on the Final Examination. Your cumulative course grade will be based on the following assessment.

Activity	Weight
Assignment 1	20%
Assignment 2	20%
Assignment 3	20%
Final Examination	40%
<b>Total</b>	<b>100%</b>

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.

## Materials

Silberschatz, A., Gagne, G., & Galvin, P. B. (2018). *Operating System*

*Concepts* (10th ed.). John Wiley & Sons.  (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 remaining learning materials for COMP 503 are delivered through Athabasca University's learning management system (LMS), Moodle. Online course materials include discussion forums, learning materials, and assignments. Assignments must be submitted online through the LMS.

## Course Workload

Estimated weekly workload:

- readings = 6 hours
- synthesis and/or exercises = 6 hours

## Special Course Features

COMP 503 is offered in computer-mediated communications (CMC) mode and can be completed your workplace or home.

## Important links

- › [Future Course Offerings](#)
- › [Important Dates and Deadlines](#)
- › [MScIS Contact Information](#)

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 5, December 10, 2020*

*Updated October 10, 2024*

View **previous revision** 

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