

# ECCS 3661: Operating Systems

*or, improving our world at the border of hardware and software*

*Ohio Northern, Spring 2025*

*Dr. Ian Kropp*

## Course Description

Welcome to operating systems! In this class, we will learn: Operating systems principles, processes, threads, synchronization, deadlock, interprocess communication, scheduling, memory management, virtual memory, paging systems, input/output & buffering, file systems, directory structure, and disk management.

## General information

<b>Instructor</b>	Dr. Ian Kropp
<b>Email</b>	<a href="mailto:i-kropp@onu.edu">i-kropp@onu.edu</a>
<b>Office</b>	JLK 242
<b>CRN</b>	30867
<b>Office hours</b>	<b>Monday</b> 2-3 PM <b>Tuesday</b> 12-2 PM <b>Wednesday</b> 10-11 AM <b>Thursday (remote)</b> 8-9 AM
<b>Research times (no meetings)</b>	<b>Monday</b> 1-2 PM <b>Tuesday</b> 3-4 PM <b>Wednesday</b> 2-3 PM <b>Thursday</b> 12-4 PM <b>Friday</b> 3-4 PM
<b>Prerequisite</b>	ECCS 2671: Data Structures and Algorithms
<b>Course website</b>	Our course will be run from <a href="#">this Canvas page</a>
<b>Do I need a textbook?</b>	No, but this course is closely based on the following textbook: William Stallings, <i>Operating Systems, Internals and Design Principles</i> , 9th ed., 2019
<b>Exam dates</b>	Midterm 1: March 5th Midterm 2: April 18 <sup>th</sup> Final: May 12 <sup>th</sup> , 9:15 to 11:15 AM

<b>Are there any assignments due?</b>	Check the course <a href="#">Canvas page</a>
<b>Do I need to buy anything?</b>	No.

### Grading breakdown:

Item	% of final Grade
<b>Midterm 1</b>	20%
<b>Midterm 2</b>	20%
<b>Final Exam</b>	20%
<b>Programming assignments</b>	30%
<b>Midterm Project</b>	10%

### Course Outcomes:

After successfully completing this course, the student should be able to demonstrate an understanding of...

1. processes and threads and of how operating systems traditionally deal with them.
2. memory management issues.
3. strategies for dealing with deadlocks.
4. basic multi-threading on single and multicore systems.

### Course Topics

1. Background & operating systems overview
2. Processes & Threads, including concurrency & deadlock
3. Memory Management, including virtual memory
4. Scheduling uni- and multi-processor
5. Multithreading and parallel processing
6. I/O and buffering

### Academic Honesty

For individual assignments, I expect you to complete the work entirely by yourself. Passing someone else's work as your own will not be tolerated. However, I encourage you to discuss course topics with me or your peers! Often all it takes to understand a topic is to talk it through with someone else. If you're unclear about this distinction, I'd be happy to talk it over with you.

## Generative AI policy

Generative AI tools, such as ChatGPT, are extremely beneficial to learning and coding. In fact, I encourage you to use generative AI for the following use cases:

- As a virtual tutor to clarify course concepts
  - e.g., how do I import CSS into my web page?
  - e.g., why is HTTPS an important protocol?
- As a code reviewer
  - i.e., pasting your code into a chat service to get feedback on your code
- Explaining code snippets that you don't understand
  - e.g., "why does every web page start with '<!DOCTYPE html>?'"

On the other hand, generative AI output is often very incorrect, so I encourage you to cross reference its output. Also, just as you shouldn't copy off of a fellow student, don't copy off of ChatGPT. In short, avoid:

- Directly copying and pasting entire programs from generative AI models
- Using code from generative AI models that you don't understand.

In other words, treat generative AI as a classmate: someone you can discuss course topics with, but don't copy and paste their work and pass it off as your own.

## Late policy

- If you feel that you cannot finish an assignment well before the due date, then please contact me, and we can discuss whether or not an extension is feasible. You must contact far ahead of the due date (i.e., don't wait until 5 minutes before the assignment due date). Extensions will ultimately be under my discretion. Examples of excuses are:
  - Family emergencies
  - Health emergencies
  - Extraordinary work loads
- You can have 1 freebie assignment extension that you may use to add *one extra week* to any assignment without any excuse. Use this wisely!
- All unexcused assignment grades will be reduced by 30% every day past its due date.

## Other Course policies

See other common course policies [here](#).