Course Syllabus

Edit

Instructor Contact and Office Hours

Instructor: Nasreen Arif
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Office Location: 1103BB Dragas Hall

Scheduled Class Meetings and Office Hours:

For in-person sessions, our meetings are scheduled to take place in the in building CONST, room 1009, every Monday, Wednesday and Friday from 2:00 to 2:50 pm. Additionally, I offer alternatives for consultations, including zoom meetings or in-person discussions in my office by appointment.

Scheduled Office Hours: Available by appointment Monday-Thursday. Please use the **schedule link (https://outlook.office.com/book/Fall2025OfficeHours@olddominion.onmicrosoft.com/?ismsaljsauthenabled)** to book a time.
Once your appointment is scheduled, you will receive a confirmation email with a Zoom link. Please join the Zoom meeting at your scheduled time

Course Description

From the ODU Catalog
Operating system structures. Multiprogramming and multiprocessing. Process management. Memory and other resource management. Storage management, I/O systems, distributed systems. Protection and security. The concepts will be illustrated through example systems such as Unix and Windows.

Prerequisites:
ECE 346 or ECE 443 or a grade of C or better in CS 361 and CS 170; a grade of C or better in ENGN 122 or CS 150 or CS 260

Course Materials

Required Materials

For CS471, we will be using the *Operating System Concepts* Zybook by Silberschatz, Galvin, and Gagne.

zyBook ISBN: 979-8-203-05727-3

This is an **interactive and engaging online resource**, and **it is mandatory** for all students.

Important Instructions – How to Subscribe:

Do not go directly to the Zybooks website to create an account.
Follow the steps below to ensure proper registration:

1. Click any zyBooks assignment link in your learning management system
(Do not go to the zyBooks website and create a new account)
2. Subscribe

A subscription is **$64**. Students may begin subscribing on Aug 09, 2025 and the cutoff to subscribe is Nov 28, 2025. Subscriptions will last until Dec 26, 2025.

Zybook participation is a required part of this course. You must complete all assigned learning check before our Monday class each week. These activities are graded, so staying on track is important for doing well in the course.

Optional Materials

Reference material will be provided for each module

Topics include:

- Operating system structures
- Multiprogramming and multiprocessing
- Process management
- Memory and other resource management
- Storage management
- I/O systems
- Distributed systems
- Protection and security

These concepts will be illustrated through example systems such as Unix and Windows.

Course Objectives

At the end of the course, the student will be able to:

1. Explain the need for an operating system
2. Describe the functionality of an operating system
3. Discern the structure of an operating system and its components
4. Discern the key role of processes and threads
5. Explain inter-process communication
6. Analyze synchronization problems in computer systems
7. Analyze operating system algorithms for performance
8. Identify mechanisms to detect and handle deadlocks
9. Assess operating system policies in terms of the cost they incur
10. Discern the limitations of main memory
11. Explain the need for memory mechanisms such as virtual memory, paging, and segmentation.

12. Describe different mechanisms for secondary storage management
13. Discern the general structure of a distributed system
14. Recognize the need for coordination among processes in a distributed application
15. Evaluate protection and security policies in an operating system
16. Configure an operating system and evaluate its characteristics
17. Build operating system software

Course Delivery Method

This course will be held in an in-person mode. Students who registered “live” (face-to-face) are anticipated to take the class in the classroom. All students are anticipated to show up during class time unless they are sick or under university policies.

Grading Criteria

Your grade in this class will be based on the following:

Assignments	Percentage of Grade
Attendance	5%
Learning Check (LC)	15%
Homework	30%
Mid-term Exam	20%
Course Project	30%
Total	100%

Extra Credit

Some homework assignment and in-class activity will offer opportunities to earn extra credit.

CS471 Grading Chart:

A	A-	B+	B	B-	C+	C	C-	D+	D	F
90-100	87-89	84-86	80-83	77-79	74-76	70-73	67-69	64-66	60-63	Below 60

CS 571 Grading Chart:

A	A-	B+	B	B-	C+	C	C-	F
95-100	90-94	87-89	84-86	80-83	77-79	74-76	70-73	Below 70

Late Assignments

Any assignment submitted after its deadline is considered late. Weekends are counted just like weekdays. I reserve the right to specify that late submissions will not be accepted for particular assignments

Attendance Policy

Attendance is required. One non-excused absence causes a deduction of 1% on attendance until all points are deducted in this aspect. If more than 11 absences are observed, the student automatically get an F for this course. In case of absence due to legitimate reasons, including but not limited to sickness, University-approved curricular and extracurricular activities (such as athletic contests), career interviews, or the death of family members, students should be prepared to provide documentation before classes start. Makeup classes are not available. Students can discuss with the instructor about course content in office hours.

Course Disclaimer

Every attempt is made to provide a syllabus that is complete and that provides an accurate overview of the course. However, circumstances and events may make it necessary for the instructor to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the students.

University Policies

Academic Integrity

Individual assignments must be completed independently. While students are encouraged to form study groups and learn from their peers, discussions on projects and assignments should be confined to general approaches to solutions. Specific answers should never be discussed. Adherence to **ODU's policy on Academic Integrity (https://www.odu.edu/sites/default/files/documents/BOV1530.pdf)** is mandatory.

- **Cheating**: Using unauthorized assistance, materials, study aids, or other information in any academic exercise (Examples of cheating include, but are not limited to: (1) using unapproved resources or assistance to complete an assignment, paper, project, quiz or exam; collaborating in violation of a faculty member's instructions; (2) submitting the same, or substantially the same, paper to more than one course for academic credit without first obtaining the approval of faculty).
- **Plagiarism**: Using someone else's language, ideas, or other original material without acknowledging its source in any academic exercise. Examples of plagiarism include but are not limited to submitting a research paper obtained from a commercial research service, the Internet, or from another student as if it were original work; or making simple changes to borrowed materials while leaving the organization, content, or phraseology intact. Plagiarism also occurs in a group project if one or more

of the members of the group does none of the group's work and participates in none of the group's activities but attempts to take credit for the work of the group.

- **Fabrication**: Inventing, altering, or falsifying any data, citation, or information in any academic exercise. Examples of fabrication include, but are not limited to (1) citation of a primary source which the student actually obtained from a secondary source; (2) invention or alteration of experimental data without appropriate documentation (such as statistical outliers).
- **Facilitation**: Helping another student commit, or attempt to commit, any Academic Integrity violation, or failure to report suspected Academic Integrity violations to a faculty member. An example of facilitation may include circulating course materials when the faculty member has not explicitly authorized their use.

Policy on AI-assisted Tools

Students must abide by the ODU Honor Code. Specifically, all students must abide by the following rule on using AI-assisted Tools, which are not limited to ChatGPT but also other online services based on AI apps and large language models. Violation to these tools in homework assignments, project coding, and final reports will result in zero scores for the assignments in which the tools are used.

- Use of ChatGPT and such tools may be used to get some ideas, but the work submitted must be students' own

College Class Conduct

The following standards are intended to define acceptable classroom behavior that preserves academic integrity and ensures that students have optimum environmental conditions for effective learning.

1. Students must turn off cell phones and pagers during class or have them set to vibrate mode.
2. Classes are expected to begin on time, and students will respect the time boundaries established by the professor. If classroom doors are locked, students may not knock or seek entrance in other ways.
3. Students should notify instructors in advance when a class will be missed. In an emergency that causes a class to be missed, instructors must be notified as soon as possible.
4. Instructors may require that cell phones and other electronic devices be left on their desks during tests or examinations.
5. Students must not engage in extraneous conversations during classes. Such acts are considered to be violations of the Code of Student Conduct.
6. Students will activate their Old Dominion e-mail accounts and check them before each class. If the student chooses to have his/her messages forwarded to another account, it is the student's responsibility to take the necessary steps to have them forwarded.
7. Consumption of food and drink during class is prohibited, except when the professor has specifically approved of such acts.
8. Offensive language, gestures, and the like are disrespectful and disruptive to the teaching-learning process.

Honor Code

The Old Dominion University Honor Code will be strictly enforced. By attending Old Dominion University, you have signed a pledge accepting the responsibility to abide by the following Honor Code found at the **Office of Student Conduct and Academic Integrity (http://www.odu.edu/oscai)** .

> We, the students of Old Dominion University, aspire to be honest and forthright in our academic endeavors. Therefore, we will practice honesty and integrity and be guided by the tenets of the Monarch Creed. We will meet the challenge to be beyond reproach in our actions and our words. We will conduct ourselves in a manner that commands the dignity and respect that we also give to others. ODU Honor Code

This is an institutional policy approved by the Board of Visitors. The University Honor Code applies to all assignments.

Honor Pledge

> I pledge to support the honor system of Old Dominion University. I will refrain from any form of academic dishonesty or deception, such as cheating or plagiarism. I am aware that as a member of the academic community, it is my responsibility to turn in all suspected violators of the honor system. I will report to Honor Council hearings if summoned. ODU Honor Pledge

By attending Old Dominion University you have accepted the responsibility to abide by this code. This is an institutional policy approved by the Board of Visitors. For more information, please visit **Policies and Student Responsibilities (https://online.odu.edu/admissions/policies-and-student-responsibilities)** .

Educational Accessibility

In compliance with PL94-142 and more recent federal legislation affirming the rights of disabled individuals, provisions will be made for students with special needs on an individual basis. The student must be identified by the university and provide a letter from the Office of Educational Accessibility (OEA), located at 1021 Student Success Center. Any accommodations will be based on written guidelines from the Office of Educational Accessibility (OEA). All students are expected to fulfill all course requirements.

Old Dominion University is committed to ensuring equal access to all qualified students with disabilities in accordance with the Americans with Disabilities Act. The Office of Educational Accessibility (OEA) is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you experience a disability that will impact your ability to access any aspect of my class, please present me with an accommodation letter from OEA so that we can work together to ensure that appropriate accommodations are available to you.
- If you feel that you will experience barriers to your ability to learn and/or test in my class but do not have an accommodation letter, please consider scheduling an appointment with OEA to determine if academic accommodations are necessary.

The Office of Educational Accessibility is located at 1021 Student Success Center and their phone number is (757)683-4655 (tel:+17576834655) . Additional information is available on the OEA Website (http://www.odu.edu/educationalaccessibility/) .

University Email & Electronic Messaging Systems Policies

Electronic messaging systems and communication services are provided by Old Dominion University for the purpose of enhancing productivity and maintaining effective communication.

Old Dominion University employees, students, employees of affiliated organizations, guests, volunteers, and researchers who are provided official email accounts must activate and maintain regular access to these accounts. These accounts must be used to send and receive electronic communications related to official University business.

Failure to access the email account will not exempt individuals from their responsibility of being aware of and meeting the requirements and responsibilities included in electronic communications.

Message content is the sole responsibility of the individual sending the message and users must adhere to University Policy 3500, Use of Computing Resources (https://www.odu.edu/about/policiesandprocedures/university/3000/3500) , and Information Technology Standard 09.1.0, Acceptable Use Standard (http://www.odu.edu/about/policiesandprocedures/computing/standards/09/01) . Users are also encouraged to practice generally accepted online etiquette.

Instructors retain the discretion of establishing class expectations for email and other electronic messaging communication as a part of the course requirements.

Alternative messaging services should be arranged in cases where users' access to information technology resources is limited or unavailable.

Incomplete

Documented illnesses, deaths in the family, car accidents, or other traumatic occurrences call for flexibility and good judgment on the part of the student and instructor. These situations are rare and are handled individually. Should such a situation occur, students **MUST** contact Student Outreach & Support (https://www.odu.edu/dean-students/student-outreach-support) . Email oducares@odu.edu (mailto:oducares@odu.edu) or by phone 757-683-3442 (tel:+17576833442) to acquire the necessary documentation. An incomplete grade will only be given under the following circumstances

1. The student has completed ½ or more of the course requirements with a C or better
2. There is legitimate deficiency due to the illness or emergencies deemed acceptable to the instructor
3. There is no neglect on the student’s part.

Withdrawal

A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs, or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines, or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes. For more information, please visit the Office of the Registrar.

Student Acknowledgement

“I, _____ , have completely read this syllabus and understand and agree to the course requirements”.

Course Schedule

Week	Date	Topic	Exercises
1	Monday, 08/25/2025	Orientation Class	
1	Wednesday, 08/27/2025	Module 1 – Process & Threads	
1	Friday, 08/29/2025	Module 1 – Process & Threads	
2	Monday, 09/1/2025	Labor Day	
2	Wednesday, 09/03/2025	Module 1 – Process & Threads	
2	Friday, 09/05/2025	Module 1 – Process & Threads	
3	Monday, 09/08/2025	Module 2 – CPU Scheduling	

3	Wednesday, 09/10/2025	Module 2 – CPU Scheduling	
3	Friday, 09/12/2025	Module 2 – CPU Scheduling	
4	Monday, 09/15/2025	Module 3 – Process Synchronization	
4	Wednesday, 09/17/2025	Module 3 – Process Synchronization	HW#1 Due
4	Friday, 09/19/2025	Module 3 – Process Synchronization	
5	Monday, 09/22/2025	Module 3 – Process Synchronization	
5	Wednesday, 09/24/2025	Module 3 – Process Synchronization	
5	Friday, 09/26/2025	Module 3 – Process Synchronization	
6	Monday, 09/29/2025	Module 4 - Deadlocks	
6	Wednesday, 10/01/2025	Module 4 - Deadlocks	
6	Friday, 10/03/2025	Module 4 - Deadlocks	
7	Monday, 10/06/2025	Module 5 – Main Memory	

7	Wednesday, 10/08/2025	Module 5 – Main Memory	HW#2 Due
7	Friday, 10/10/2025	Module 5 – Main Memory	
8	Monday, 10/13/2025	Fall Break	
8	Wednesday, 10/15/2025	Module 6 – Virtual Memory	
8	Friday, 10/17/2025	Module 6 – Virtual Memory	
9	Monday, 10/20/2025	Module 6 – Virtual Memory	
9	Wednesday, 10/22/2025	Module 7 – Review	HW#3 Due
9	Friday, 10/24/2025	Module 7 – Review	
10	Monday, 10/27/2025	Mid Term Exam - Online	
10	Wednesday, 10/29/2025	Module 8 – Mass Storage Structure	
10	Friday, 10/31/2025	Module 8 – Mass Storage Structure	
11	Monday, 11/03/2025	Module 8 – Mass Storage Structure	

11	Wednesday, 11/05/2025	Module 9 – File Systems: Interface and Implementation	
11	Friday, 11/07/2025	Module 9 – File Systems: Interface and Implementation	
12	Monday, 11/10/2025	Module 9 – File Systems: Interface and Implementation	
12	Wednesday, 11/12/2025	Module 10 – I/O Systems	
12	Friday, 11/14/2025	Module 10 – I/O Systems	
13	Monday, 11/17/2025	Module 11 – Protection and Security	
13	Wednesday, 11/19/2025	Module 11 – Protection and Security	HW#4 Due
13	Friday, 11/21/2025	Module 11 – Protection and Security	
14	Monday, 11/24/2025	Module 12 – Distributed Systems and Virtual Machines	
14	Wednesday, 11/26/2025	Thanksgiving Holiday	
14	Friday, 11/28/2025	Thanksgiving Holiday	
15	Monday, 12/01/2025	Module 12 – Distributed Systems and Virtual Machines	

15	Wednesday, 12/03/2025	Module 12 – Distributed Systems and Virtual Machines	
15	Friday, 12/05/2025	*Project Time Off*	HW#5 Due