Course Syllabus

Metropolitan State University

ICS 462-02 Operating Systems
Spring 2021

Class Hours:

Wednesdays, 6:00pm – 9:20pm
Synchronized meeting
Zoom Meeting ID: 976 7868 7507 || Passcode: 46202
January 13 – April 28, 2021

Instructors and Department Contact Information

Name:	**Mathew Nyamagwa**
Email:	Mathew.Nyamagwa@metrostate.edu - Preferred
Phone:	**Support staff:** 651-793-1471
Office hours:	On appointment only. **Time**: vary case by case. **Place**: Zoom **Note**: I am not available on weekends.

About the Course

Course Description

Students learn principles, techniques, and algorithms for the design and implementation of modern operating systems. Topics include operating system structures, process and thread scheduling, memory management including virtual memory, file system implementation, input output systems, mass storage structures, protection, and security. Students will implement process, memory, and file management algorithms.

Prerequisites

Prior to taking this course, you must have successfully completed the following:

- ICS 240 Programming with Elementary Data Structures
- MATH 215 Discrete Mathematics
- **Programming competence**

Learning Objectives

- Explain and compare process scheduling algorithms
- Explain and compare the workings and relative merits of different memory management algorithms
- Explain the theory of and protocols for process synchronization apply them
- Explain the security issues and compare different protection mechanisms that can be incorporated into an operating system
- Analyze and compare algorithms for managing external storage devices
- Explain the design and implementation of file systems
- Implement parts of process scheduling, memory management, and file system management in an operating system.

Textbooks
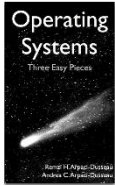
Arpaci-Dusseau, Remzi H; Arpaci-Dusseau, Andrea C: Operating Systems - Three Easy Pieces, 1st Edition, Arpaci-Dusseau Books, 2018, ISBN-13: 978-1985086593, http://www.ostep.org

Other readings as assigned

Supplementary Readings, Databases, and Sources

The library databases can be accessed by going to the library website library website and then using the Search for Articles tool.

Schedule

You are responsible for reading and understanding all the documents in the Course Information and Assignments section of the Content tool.

The Schedule summarizes the topics of study and assignment deadlines in a week-by-week format.

Grades

University Grading Policy

An overview of the University Grading Policy can be found at the student handbook website.

Assignment Points/Percentages

Points are allocated to different learning activities as indicated in the table below.

Description	Number of Assignments	Points	Total pts.	%
Projects	3	50	150	40
Attendance	15	10	150	20
Midterm Exams	1	100	100	20
Final Exam	1	100	100	20
Total			720	100

Letter Grade

Your letter grade will be determined based on the percentage of possible points that you earn during the semester. The following table relates the percentage to a letter grade:

Percentage	Grade
94 - 100	A
90 - 93	A-
87 - 89	B+
84 - 86	B
80 - 83	B-
77 - 79	C+
74 - 76	C
70 - 73	C-
60 - 69	D
Below 60 %	F

If you have selected the S/N grading option, then to receive a satisfactory rating (S) you must earn at least 70% of the possible points. If you wish to elect S/N grading, you must inform the registrar before the second class meeting. Bear in mind that you must earn a C- or better (or an S) in order for a course to fulfill a requirement or elective in your major.

Assignments

You are responsible for reading and understanding all the documents in the Assignments section of the Content tool. Check the schedule for assignment due dates.

Programming Assignments

There will be a total of three (3) Project Assignments.

- These assignments will be offered as take-home assignments.

Exams

There will be one (1) Midterm exam and one (1) Final exam.

- No makeup exams will be offered.
- Both the Midterm and the Final will be based on textbook and assigned readings.
- Midterm exam will be delivered via D2L.
    - Will cover all chapter prior assignment availability date.

- The **Final exam** will be comprehensive.

    - This exam will be taken in class via D2L.
    - Only the textbook and hand written notes will be allowed.
    - There will be not make-up exams.

Attendance

Class attendance will be taken at every class session after the second break.

Please note that you MUST attend the first two class session to ensure that you are not dropped from the course.

- More information see "University Non-Attendance and Reporting Policy and Procedure" below.

Submission

All written assignments should be submitted to the appropriate Assignments section in D2L.

Return of Assignments / Feedback

Unless otherwise announced in class, assignments will be graded and returned within 7 - 14 days of the deadline.

Copies of Assignments

You are responsible for keeping copies of all assignments turned in to the course as well as returned assignments. When materials have been submitted through the D2L Dropbox area, these materials can be downloaded for storage on your computer.

Late Work

All assignments must be submitted prior to the due date. Assignments that are not submitted on time will receive a grade of zero.

Missing Class:

If for any reason you need to miss a class, please let me know beforehand whenever possible. Materials can be downloaded from D2L. Please make arrangements to borrow or copy a classmate's notes from that session. Assignment due dates and late assignment penalties will apply whether you attend class or not.

Incompletes

From time to time I am asked to consider assigning a grade of incomplete. A grade of incomplete may be considered if the person requesting has successfully completed at least two thirds of the class and is a student in good standing in the class. "Good standing" means that the requester is earning a minimum of a B grade and has attended class regularly. **I reserve the right to say no to any request for an incomplete without justifying my position**.

Expectations

Sometimes difficulties arise when the expectations of students and teachers are different. Here is a brief summary of what I expect from you AND a summary of what you can expect from me.

What you can expect from me:

- I will share my technical knowledge with you as effectively as I know how.
- I will grade your work and return it quickly. In most cases I will grade your work and return it to you at the next scheduled class period (but not before). Occasionally I will take two class periods to return your work.
- I will provide you with written feedback on the quality of your work. If you do not understand why you were assigned a particular grade or if my comments are not clear, I will explain more thoroughly if you ask me to.
- I will show up for class. I will start and end class on time.
- I will return your phone calls and emails. However, I may take more than one business day to do so. I do not offer 24/7 service.
- I will listen to you respectfully. I will answer your questions respectfully.
- I will provide you with a summary of the total points earned to date anytime that you ask for it.

What I expect from you:

- I expect you to read the syllabus and to know the class policies outlined there.
- I expect you to seek help if you are having difficulty with your course work. I expect you to talk to me if you are having problems. If a stressful work or home situation arises which is affecting your ability to perform well, please talk to me as soon as possible.
- If you do not understand why you received a particular grade, I expect you to approach me and ask questions. I expect you to treat me with respect even if you disagree with the grade you were assigned.
- I expect you to show up for class on time and stay for the entire session except when you have an unavoidable conflict. If you must miss class, assignments and most handouts can be obtained from D2L.
- I expect you to turn in your assignments. I expect them to be submitted in a timely fashion.
- I expect you to come to class prepared to discuss all assignments on the day they are due.
- I expect you to turn in individual and original work. Please be respectful of copyrights and document your sources appropriately. This means that what you turn in must be your own work and it cannot be work previously done for some other class. If you copy the words of another, you must put quote marks around the quote and indicate the source. Otherwise, you have committed plagiarism. If you turn in work done by someone else you may be assigned an F in this course. Repeated instances of academic dishonesty can result in expulsion from the University.

- I expect you to say no if another student asks you for a copy of your work. The penalty for permitting another student to copy your work is the same as if you yourself had turned in work that was not individual and original.
- I recommend that you complete the reading assignments before you come to class, particularly if you are having difficulty understanding the material.
- I expect you to turn off your cell phone during class. If your cell phone must remain on, please turn your phone to vibrate.
- I expect you to refrain from reading email, surfing the web, playing computer games or doing your homework assignments during lecture.
- I expect you to remain in your seats during lecture except for emergencies or religious observances. Scheduled breaks will be provided.

Academic Honesty

While engaged in the study of computer security or computer forensics, it is not unusual to learn of system vulnerabilities. It is not, however, appropriate to exploit them. As computer professionals in training, you are expected to honor the University's Acceptable Use of Computers and Information Technology Resources policy (see attached). Violations of the Acceptable Use policy can lead to expulsion from the University and/or legal prosecution.

Respect

Metro State is privileged to serve students from many different nations, racial, ethnic and religious backgrounds. Students, staff and faculty practice a variety of lifestyles and come from many walks of life. We expect our classrooms to be safe havens where the opinions, practices and beliefs of others are treated respectfully. If you feel that you are not being treated appropriately by others in the class, I ask that you bring this to my attention so that the issues can be addressed. If I offend you, I ask that you approach me to share your concern so that we can learn from each other how to live together with respect and honor.

If you do not feel comfortable sharing your concern directly with me, contact the Information and Computer Sciences Department chairman, Michael Stein, at 651-793-1476 or michael.stein@metrostate.edu.

Communications

Email

As a university policy, in order verify identification before processing requests, the Registrar's Office requires that all official correspondence take place through Metropolitan State University email accounts. Emails originating from outside the campus email servers may be deleted without review of the instructor.

All emails should be sent to the two instructors and must include a subject line starting with the course number and include a brief description that summarizes the content of the email. For example:

ICS 462-02: <heading>

University Policies and Requirements

Academic Progress

The university's academic progress policy may affect students who withdraw from classes. Be aware that a W (withdraw) is different from a drop. Withdrawing from this class may put you at risk for academic probation. If you have questions about your situation, contact your academic advisor as soon as possible.

If you choose to drop this course, check the University's Academic Calendar for dates and deadlines.

University Non-Attendance and Reporting Policy and Procedure

The purpose of the Non-Attendance and Reporting Policy is to ensure Federal Title IV regulations are adhered to with respect to a student's enrollment level for the purpose of calculating and paying financial aid. While Metropolitan State University is not required to take attendance, Federal Title IV financial aid regulations require a procedure to establish that students have attended, at a minimum, one day of class for each course in which the student's enrollment status was used to determine eligibility for the Pell Grant Program. In addition, the university needs to determine a last date of attendance for those students who receive all failing grades or unofficially withdraw.

Attendance is defined based on course delivery mode. A student is "in attendance" if he or she meets the following conditions before the end of the second week of the course:

- Classroom Courses – the student is present in the classroom.
- Web-Enhanced (Reduced Seat Time Courses) – the student is present in the classroom or submits at least one academically relevant assignment.
- Online Courses –the student submits at least one academically relevant assignment
- Independent Studies – the student contacts the instructor or submits at least one academically relevant assignment.

Preparation

As a university course, you are expected to spend 3 to 4 hours per credit per week in your studies, preparation activities, and assessments. In a 4-credit course, you therefore are expected to spend 12 to 16 hours per week completing readings, assignments, discussions, and research for this course.

You are expected to read all relevant textbook and other articles prior to starting any assignments or discussions.

Student Success

Information about other Students Success resources that are available to students:

- The Center for Academic Excellence, http://www.metrostate.edu/student/learning-resources/learning-resources/center-for-academic-excellence
- Veterans and Military Student Services, http://www.metrostate.edu/student/student-services-support/student-services/veterans-and-military-student-services
- Student Services, http://www.metrostate.edu/student/student-services-support/student-services
- Counseling Services, http://www.metrostate.edu/student/student-services-support/student-services/counseling-services

Professionalism and Respect

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Your comments to others should be factual, constructive, and free from harassing statements. You are encouraged to disagree with other students, but such disagreements need to be based upon facts and documentation (rather than prejudices and personalities).

Students will need to contribute in intelligent, positive, and constructive manners within the course. Behaviors that are abusive, disruptive, or harassing may result in disciplinary actions as specified within the Student Conduct Code (University Policy #1020). The conduct code can be found at the Metropolitan State University Regulations website.

Plagiarism and Copyright

Plagiarism is the act of using another person's ideas, writings, diagrams, or materials without giving specific credit known as a citation. In an academic environment, plagiarism is considered theft, and therefore if you

plagiarize any materials, you may face failure of the assignment, failure of the course, or other penalties up to and including expulsion from the university. More information regarding plagiarism and disciplinary policies can be found on the University's [student handbook](#) website.

Course Site Downtime

It is very important that each time you log into D2L that you read the My Home area to check if there are any scheduled downtimes. You are responsible for planning around these downtimes for your assignments and to turn them in prior to deadline (therefore it is best to get all assignments done before deadline and submitted in case the system needs to be taken offline for maintenance).

If there is an ongoing disruption that prevents you from completing a D2L assignment, email the [D2L BrightSpace help desk](#) screenshots of the error messages you are receiving and include specific times you are trying to log into the system. These can be later verified to determine the nature of the problem.

Most problems within D2L are based on high-usage (too many people online at the same time). Try your activity 30-minutes later, and you are likely to be successful.

Resources

Campus Resources

Computer Centers – in Minneapolis (612.659.6000), St. Paul (651.793.1634) and Midway (651.999.5845). Students have access to software applications, their email account, and online resources through these labs.

Writing Center – To make an appointment or to inquire about the center's services, call 651.793.1460 or email centerfolk@metrostate.edu. The Writing Center is very helpful, and student centered.

Library Services – The Metropolitan State Library is located on the main St. Paul campus. Library services are also available online at the library's website: http://www.metrostate.edu/library. Please see the library's website or call the Library Services Desk at 651.793.1616 for specific information on hours.

Center for Online Learning: If you are having trouble getting into your D2L course site, please contact online.learning@metrostate.edu. This support is limited to D2L only; for assistance with non-D2L technology issues, please contact the IT help desk.

Information Technology Help Desk – support is available by sending an email to IT.DESK@Metrostate.edu. During normal business hours, the IT DESK phone number is 651-793-1240. IT Help Desk provides support for campus web portal, campus email, and campus accounts (usernames and passwords).

Disability Services

Our university is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. In addition to speaking with the instructor, the following resources are available to ensure an opportunity to learn in an inclusive environment that values mutual respect.

- For students with disabilities who are experiencing barriers to learning or assessment, contact the Center for Accessibility Resources.
- For students who believe that they have experienced harassment or discrimination on the basis of age, sex, race, religion, color, national origin, disability, or sexual orientation, contact the equity and diversity office.

The Center for Accessibility Resources is located in New Main, room L223. Phone number is 651-793-1549 and email is Accessibility.Resources@metrostate.edu.

Technology Requirements

Computer Hardware

For this course, your computer should meet the optimum requirements as specified on the [Technology Requirements](#) webpage.

Internet Connection

You are expected to have Internet access in order to log into the **D2L** system at least three days per week in order to check for updates and complete required work. Your computer must also fully pass the System Check found on the [D2L BrightSpace login](#) page. Browser plug-ins for your course may be obtained by accessing the **D2L Home Page** and viewing the *Tips and Tricks* section for *Browser Plug-Ins*.

Computer Software

You are expected to be extremely well-versed in using Microsoft's Internet Explorer and in using the Internet to access online resources and sites. You are expected to be extremely familiar and competent at using Microsoft Word and Microsoft PowerPoint.

File Management

You are expected to have intermediate or higher-level skills at file management (ability to create folders, move and rename folders and files, identify type of file by its 3-letter file-extension, attach files to emails, etc.).

Note:

The instructors reserve the rights to make adjustments to this Syllabus and Assignments as needed.