Point Loma Nazarene University
CSC3014 Operating Systems
Spring 2023 (4 Credit Hours)

Time and Place: Tuesday, Thursday 1:30 - 2:45 pm

PLNU Campus - Rohr Science 395

Instructor: Mike Leih (619) 248-3008

mleih@pointloma.edu office: Rohr Science 240

Office Hours:	Monday	1:00pm to 3:00pm or by appointment
	Tuesday	10:00am to Noon or by appointment
	Wednesday	1:00pm to 3:00pm or by appointment
	Thursday	10:00am to Noon or by appointment
	Friday	By appointment

Students are welcome to contact me via e-mail and schedule an appointment at any time as I am available. Appointments can be face to face in my office, on the phone or via a video conference call. I will keep office hours as often as I can, but off campus appointment my require me to be unavailable. It is always best to arrange a time and location with me prior to a meeting.

Changes to Course and Syllabus: The syllabus and course schedule presented here is subject to change based on the learning needs of the students as determined by the instructor. Changes will be announced in class or through e-mail. Students are responsible for checking their PLNU e-mail and reviewing due dates in canvas on a regular basis to ensure they are aware of changes.

Text:

Understanding Operating Systems, 8th Edition

Ann McIver Mchoes and Ida M. Flynn

ISBN: 978-1-305-67425-7

Unix Computer Operating System

Tutorialspoint - Simply Easy Learning

Free Access: https://www.academia.edu- Sign up for a free account - Search of "Unix Tutorial" by Sakshi Bajaj - Download the free PDF (you do not need to purchase the premium package).

Needed Supplies:

Access to a laptop computer running either Windows or MacOS. You are required to bring your computer to class to more easily start in class assignments. You should bring your textbook to each class sessions. We will be using information from the textbook each week as part of in class assignments.

Catalog Description:

A systems course focusing on operating systems, topics include basic operating system design, process management, device management, memory management, and file systems. Students are introduced to the basics of software evolution, reliability, concurrency, security and protection in the context of single-core, multi-core, distributed, and virtual environments. Class members gain experience using both GUI and command-line interfaces. In the course of implementing the CPU scheduling simulation, students understand the importance of thorough system testing and attention to system specs as they try to make parts of their systems work with those designed by their teammates.

Course Learning Outcomes:

- Students will understand the interaction between hardware and software.
- Students will be able to explain the purpose of the Operating System, and where it fits into the computer system as a whole.
- Students will be able to evaluate how a change in one part of the operating system will affect the operating system as a whole.
- Students will develop a working knowledge of the UNIX/Linux operating systems.
- Students will be able to take from theory to design to implementation a module of an operating system.
- Students will have an understanding of the historical development, contemporary progress and societal role of computer science.
- Students will be able to list the 5 tasks of the operating system, describe what each is, and justify why it is important.
- Students will be able to state how ethics plays a role in OS development.
- Students will be able to collaborate effectively in teams.

Course Organization:

Reading: The assigned reading each week should be completed before class. Lecture, class discussion and class activities will be based on the assumption that the reading has been completed before the class where the topic is being discussed.

Chapter Quizzes: Quizzes are open book and will focus on having read and understood the reading assignment. Quizzes will be taken online using Canvas before class and will be available a week before they are due. Each quiz will have 10 questions and students will have 8 minutes to complete the quiz. Each quiz is due before we discuss the topic in class. This is to encourage students to complete the reading prior to class discussion. Missed quizzes will receive zero points and there will be no make-up for missed quizzes. Quiz questions are randomly pulled from a large dataset and students are able to take the quiz as many times as they would like before the quiz due date and time. The highest quiz score will be recorded.

Chapter Questions: After reading a given chapter, students should submit one or more questions they have regarding the chapter before 6am on the due date (typically before the chapter is discussed in class). Questions posted after the due date or are unrelated to the assigned chapter reading will receive zero points.

Chapter Exercises: Each week, students will be assigned a series in chapter activities and problems to begin during class time and then completed before the next week. Exercises will be based on research related to the chapter and lab activities.

Weekly Labs: Each week, additional course topics will be introduced via an online video. Each online topic will require a hands-on lab response, online discussion and/or topic quiz.

Simulation Project: A 3-week programming project based on process scheduling will be assigned. The entire project is due by Week 11, but there will be several intermediate due dates as well. In order to get full credit, all intermediate dates must be met as well as the final date. Unless otherwise stated, late portions are not accepted. **Most aspects of this project (exceptions will be noted) must be completed using basic Linux/UNIX tools (non-GUI)**. Programs will be written in C++ using the basic Linux Operating System (command-line) and g++ compilers. All written projects will be completed using a Linux/Unix text editor.

Exams: Three exams will be given in class, two exams and a final exam. Exams will cover the material up to the exam. The final exam will cover all material throughout the course. The exams will be closed book and closed note and will include multiple choice, short answer, and problem-solving questions. **If you will miss an exam for a school function, you must make arrangements ahead of time to take it during an alternative time. If you ever miss an exam without giving the instructor prior notice, there is a good chance you will receive a zero unless, of course, there was clearly an emergency. Exams may require the use of Honorlock and screen recording to ensure students do not share exam solutions or communicate with others or artificial intelligence during the exam.**

Final Exam: Date and Time: The final exam is scheduled for the Thursday of finals week at 1:30pm. It will be cumulative for the entire course and contain questions similar to those on both the exams and chapter reading quizzes. The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in the course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for that particular student.

E-mail and Messages:

Students are expected to regularly use their PLNU e-mail. The instructor will periodically send you information and updates via e-mail and/or canvas. Students must activate their PLNU e-mail account a week prior to the first class session if you are not currently using it.

Activity Point Distribution: (Note: Points will likely be adjusted throughout the semester to meet the learning objectives of the course. The value of the exams will be adjusted to be 35% of the total point values.

Activity	**Points**	**Percent**
Quizzes	140	12%
Questions	70	6%
Labs	300	25%
Exercises	280	23%
Exams	140	12%
Final Exams	270	23%
Total	1200	100%

Grading Scale:

The grading scale for the course, in percentages of the maximum points, is:

A	92 - 100%		**C**	72 - 76.9%
A-	90 - 91.9%		**C-**	70 - 71.9%
B+	87 - 89.9%		**D+**	67 - 69.9%

B	82 - 86.9%		**D**	62 - 66.9%
B-	80 - 81.9%		**D-**	60 - 61.9%
C+	77 - 79.9%		**F**	0 - 59.9%

Credit Hour Information: Distribution of Student Learning Hours

In the interest of providing sufficient time to accomplish the stated course learning outcomes, this class meets the PLNU credit hour policy for a 4-unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request. It is anticipated that you will spend a minimum of 37.5 participation hours per credit hour in your course. The estimated time expectations for this course are shown below:

Activity	**Hours**
Chapter Reading and Online Quizzes	39
In-Class Discussion and Activities	42
Chapter Assignments	39
Team Cases	6
Team Project	16
Exams Preparation	8
TOTAL	**150**

Late Homework/Classwork:

Online chapter quizzes and chapter questions are not accepted late. If you fail to take the chapter quiz or post a chapter question before the due date/time, you will receive zero points. Other assignments can be submitted late but will receive a 10% point deduction for each day late (24 hour period after the due date/time). Late assignments will not be accepted more than four calendar days late. No assignment will be accepted after the last day of class.

University Mission:

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Institutional Learning Outcomes:

1. Learning, Informed by our Faith in Christ - Students will acquire knowledge of human cultures and the physical and natural world while developing skills and habits of the mind that foster lifelong learning.
2. Growing, In a Christ-Centered Faith Community - Students will develop a deeper and more informed understanding of others as they negotiate complex professional, environmental, and social contexts.
3. Serving, In a Context of Christian Faith - Students will serve locally and/or globally in vocational and social settings.

Department Mission:

The Mathematical, Information, and Computer Sciences department at Point Loma Nazarene University is committed to maintaining a curriculum that provides its students with the tools to be productive, the passion to continue learning, and Christian perspectives to provide a basis for making sound value judgments.

PLNU Attendance and Participation Policy:

Attendance is expected at each class session. In the event of an absence, you are responsible for the material covered in class and the assignments given that day.

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See the Undergraduate Academic Catalog Class Attendance.

Class Enrollment:

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

PLNU Academic Accommodations Policy:

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

PLNU Academic Honesty Policy:

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation

involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See Academic Policies for definitions of kinds of academic dishonesty and for further policy information.

The author's solutions to questions and problems might be found on the Internet (or other sources) for free or for purchase. The clear use of the author's solution (or the solution not developed by the student) as determined by the instructor, not provided to you by the instructor or through in-class videos for a single question or problem on an assignment will, at minimum, result in a zero for the entire assignment or up to a failing grade in the course on first offense. The student will receive a failing grade in the course on the second offense.

State Authorization:

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on State Authorization to view which states allow online (distance education) outside of California.

PLNU Copyright Policy:

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

Course Summary:

Date	Details	Due
Tue Jan 17, 2023	Discussion Topic Ch 01 Question - Due 6am Tuesday	due by 6am

Date	Details	Due
	Assignment Lab 01	due by 6am
	Quiz Ch 01 Quiz	due by 1:30pm
Tue Jan 24, 2023	Assignment Ch 01 Exercises	due by 6am
	Discussion Topic Ch 02 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 02	due by 6am
	Quiz Ch 02 Quiz	due by 1:30pm
	Quiz Binary Hex Quiz	due by 1:40pm
Tue Jan 31, 2023	Assignment Ch 02 Exercises	due by 6am
	Discussion Topic Ch 03 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 03	due by 6am
	Quiz Ch 03 Quiz	due by 1:30pm
Tue Feb 7, 2023	Assignment Ch 03 Exercises	due by 6am
	Discussion Topic Ch 04 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 04	due by 6am
	Quiz Ch 04 Quiz	due by 1:30pm

Date	Details	Due
Tue Feb 14, 2023	Assignment Ch 04 Exercises	due by 6am
	Discussion Topic Ch 05 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 05	due by 6am
	Quiz Ch 05 Quiz	due by 1:30pm
Tue Feb 21, 2023	Assignment Ch 05 Exercises	due by 6am
	Discussion Topic Ch 06 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 06	due by 6am
	Quiz Ch 06 Quiz	due by 1:30pm
	Quiz Exam 1	due by 2:15pm
Tue Feb 28, 2023	Assignment Ch 06 Exercises	due by 6am
	Discussion Topic Ch 07 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 07	due by 6am
	Quiz Ch 07 Quiz	due by 1:30pm
Tue Mar 14, 2023	Assignment Ch 07 Exercises	due by 6am
	Discussion Topic Ch 08 Question - Due 6am Tuesday	due by 6am

Date	Details	Due
	Assignment Lab 08	due by 6am
	Quiz Ch 08 Quiz	due by 1:30pm
Tue Mar 21, 2023	Assignment Ch 08 Exercises	due by 6am
	Discussion Topic Ch 09 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 09	due by 6am
	Quiz Ch 09 Quiz	due by 1:30pm
Tue Mar 28, 2023	Assignment Ch 09 Exercises	due by 6am
	Discussion Topic Ch 10 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 10	due by 6am
	Quiz Ch 10 Quiz	due by 1:30pm
Tue Apr 4, 2023	Assignment Ch 10 Exercises	due by 6am
	Discussion Topic Ch 11 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 11	due by 6am
	Quiz Ch 11 Quiz	due by 1:30pm
	Quiz Exam 2	due by 2:15pm

Date	Details	Due
Tue Apr 11, 2023	Assignment Ch 11 Exercises	due by 6am
	Discussion Topic Ch 12 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 12	due by 6am
	Quiz Ch 12 Quiz	due by 1:30pm
Tue Apr 18, 2023	Assignment Ch 12 Exercises	due by 6am
	Discussion Topic Ch 13 and 15 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 13	due by 6am
	Quiz Ch 13 and 15 Quiz	due by 1:30pm
Tue Apr 25, 2023	Assignment Ch 13 and Ch 15 Exercises	due by 6am
	Discussion Topic Ch 14 and 16 Question - Due 6am Tuesday	due by 6am
	Assignment Lab 14	due by 6am
	Quiz Ch 14 and 16 Quiz	due by 1:30pm
Thu Apr 27, 2023	Assignment Ch 14 and Ch 16 Exercises	due by 2:45pm
Thu May 4, 2023	Quiz Final Exam	due by 4pm