

Professor: Steve Brinton

Office: MacDonald 215 x4183 sbrinton@gordon.edu

Office Hours: MWF 11:25-12:25, MWF 2:10-3:10

Class Hours: MWF 9:10 – 10:10am (M212)

Lab: Tues 1:15pm (M107)

Class Website: <http://www.math-cs.gordon.edu/courses/cps312/>

CATALOG DESCRIPTION:

Introduces the process concept and multiprogramming; atomic operations and methods for ensuring atomicity; processor, device and memory management; introduction to computer networks and database management systems.

Prerequisites: [CS311](#) and either completion of or concurrent enrollment in [CS212](#).

COURSE OBJECTIVES:

Upon completion of this course, you should be familiar with the basic issues involved in the design of operating systems. In particular, you should be familiar with:

- The historical evolution of operating systems from bare machines to today's multi-programmed, multiprocessor, and network systems.
- The function and structure of the major components of an operating system.
- The *process* concept as a fundamental abstraction.
- Issues arising from concurrency and various options available for dealing with these issues, including techniques for concurrent programming.
- Issues and options available for scheduling the CPU and other system resources.
- Issues and options available for managing physical memory, including the use of virtual memory.
- Issues arising from the need for protection of users from one another and various options for dealing with these issues.
- A practical understanding of one of the fastest growing operating systems in the world: Linux.

In addition to class lecture, each student will receive practical experience working with Linux in weekly laboratory experiences. Also, various programming projects will be used to gain valuable experience programming specific types of problems associated with operating system theory.

TEXT: Linux+ Guide to Linux Certification, Second Edition

by Jason Eckert (Author), M. John Schitka (Course Technology, 2005)

[ISBN-10: 0619216212, ISBN-13: 978-0619216214]

LAB MANUAL: Lab Manual For Linux+ Guide To Linux Certification:

Lab Manual by Ed Sawicki (Course Technology, 2005)

[ISBN-10: 0619216204, ISBN-13: 978-0619216207]

ON RESERVE: Operating Systems by Gary Nutt (Addison Wesley, 2004)
ISBN: 0201773449 (This textbook supports the lecture material.)

COURSE TECHNIQUES AND PROCEDURES

This course will involve both theory and practice. The theoretical aspects of operating systems will be covered through weekly lectures. Each student will be expected to attend lectures to learn about the theoretical elements of modern operating systems. The practical side of operating systems will be covered by way of textbook reading and laboratory exercises.

COURSE REQUIREMENTS AND EVALUATION:

1. You will be expected to attend class lectures and read material from the textbook, which is assigned in the schedule. Reading assignments should be completed on schedule so that it corresponds with the week's laboratory assignment.
2. Group presentations will be used this semester to give students an opportunity to do research and present results to the class.
3. Weekly laboratories will focus on gaining practical experience, which directly relates to the theoretical details covered in lectures. There is a separate lab book which will be used for lab.
4. A couple of OS programming projects will be assigned within the semester. These assignments will be individual programming projects.
5. Two mid-term examinations (worth 25% of the final course grade) and a final examination (worth 20%) will be given as shown in the course schedule. Each exam will assume familiarity with material in the text, material covered in lecture, and/or used in projects. Exams will be closed book and closed notes.
6. Your final grade will be computed on the basis of a weighted sum of the items listed above.

Summary:

30%	Labs & Lab Reports
15%	Projects
10%	Student Presentation
12%	1 st Exam
13%	2 nd Exam
20%	Final Exam

100%	

Grading Scale:

A: <=100% >=95%	A-: <95% >=90%	B+: <90% >=86%
B: <86% >=84%	B-: <84% >=80%	C+: <80% >=76%
C: <76% >=74%	C-: <74% >=70%	D+: <70% >=66%
D: <66% >=64%	D-: <64% >=60%	F: <60% >=0%

BEING RESPONSIBLE:

At times, the amount of work required may seem insurmountable – however it is expected that each student be responsible to strive to do his or her best. On this note, pilfering or borrowing code/answers is not acceptable. It will result in a failing grade and any further action deemed appropriate by the college.

POLICY STATEMENT ON EXTENSIONS AND INCOMPLETES:

Extensions of the due dates for homework or projects will be given in the event of extenuating circumstances (such as illness, personal emergency) If you submit a brief written request to the professor as soon as possible after the circumstances arise. This request will be initialed (if approved) and will be returned to you. You must attach it to the piece of work for which the extension was granted.

A grade of Incomplete will be given without penalty If you are unable to complete the course work by the last day of the term due to major illness or other similar emergency. Again, a written request should be submitted. Such a request will only be granted if you are substantially up-to-date with your course work and were making good progress in the course up to the time that the difficulty arose. Of course, you must complete all work for the course by the midpoint of the next semester in accordance with College policy.

A grade of Incomplete with a penalty of one letter grade to be applied in the final grade computation MAY be given if you are unable to complete all the course work for reasons other than those noted above. You must make a written request, and your progress in the course, class attendance etc. will be taken into consideration in determining whether to grant it. Again, you must complete all work for the course by the midpoint of the next semester.

ATTENDANCE POLICY:

Regular class and lab attendance is expected of all students, and class attendance will be recorded. Absences from class will be classified as “documented” or “undocumented”. A documented absence is one where written documentation is submitted and approved by the professor supporting an absence from class due to circumstances beyond the student’s control (such as illness, family emergencies, etc.) An undocumented absence is any other absence. Students who have more than 3 undocumented absences will have penalty added to their final grade at the discretion of the professor. Students who have more than 9 undocumented absences will fail the course automatically.

Labs are special occasions for OS students – the only way to be able to miss a lab is to have it well documented and for a very good reason. After the documentation is accepted, the lab must be made up to receive credit. An

undocumented lab absence will result in missed credit for the lab and 3 undocumented absences added to the course total.

A student who is habitually late will have late arrival for class counted as a half undocumented absence for that class, and a student who sleeps through most or all of a given class session will be counted as undocumented absent for that class.

A student who anticipates the need to miss more than three classes due to athletic competitions or other student activities should review the college's attendance policy on page 31 of the catalog, and should then discuss alternatives to class attendance with the professor at the start of the semester.

STUDENTS WITH DISABILITIES:

Gordon College is committed to assisting students with documented disabilities (see Academic Catalog Appendix C, for documentation guidelines). A student with a disability who may need academic accommodations should follow this procedure:

1. Meet with a staff person from the Academic Support Center (Jenks 412 X4746) to:
 - a. make sure documentation of your disability is on file in the ASC,
 - b. discuss the accommodations for which you are eligible,
 - c. discuss the procedures for obtaining the accommodations, and
 - d. obtain a **Faculty Notification Form**.
2. Deliver a Faculty Notification Form to each course professor *within the first full week of the semester*; at that time make an appointment to discuss your needs with each professor.

Failure to register in time with your professor and the ASC may compromise our ability to provide the accommodations. Questions or disputes about accommodations should be immediately referred to the Academic Support Center. See Grievance Procedures available from the ASC.