

William Paterson University
College of Science and Health - Department of Computer Science

Fall 2015 – Spring 2017 Assessment Cycle
Analysis of the Course Coverage and Assessment Report Data

Course Number: CS3450

Course Coordination Committee Members: Erh-Wen Hu, John Najarian, Gilbert Ndjatou (chair)

Date: May 26, 2017

A. Course Prerequisites/Co-requisites

a) Problems/Issues Identified: None

b) Suggestions for Improvement: N/A

B. Course Objectives

a) Problems/Issues Identified: None

b) Suggestions for Improvement: N/A

C. Course Student Learning Outcomes

a) Problems/Issues Identified:
I find learning outcome 5 is a little vague and hard to assess.

b) Suggestions for Improvement:
Get rid of it

D. Course Content

a) Problems/Issues Identified: None

b) Suggestions for Improvement: N/A

E. Assessment of the CS Program Student Outcomes

Student Outcome S1: Effectively communicate in written and oral forms.

In this course, each student is required to produce a report on one or more of the following topics: virtualization and the cloud, security, multiple processor systems, LINUX, Android, Window 8, and operating system design. They are encouraged to work in groups of two or three. But some students choose to work by themselves. Although we do not always have the time for the presentations at the end of the semester, we feel that this student outcome is appropriate for this course because of the reports produced by the students. These reports are graded by the instructor of the course.

Student Outcome S5: Demonstrate abilities to locate and make effective use of information.

In this course, each student is required to produce a report on one or more of the following topics: virtualization and the cloud, security, multiple processor systems, LINUX, Android, Window 8, and operating system design. Students are encouraged to work in groups of two or three. But some students choose to work by themselves.

Student Outcome S9: Demonstrate an Understanding of Computer Systems and their Networking

Students develop extensive experience with UNIX / Linux in this course with C / C++, to counterbalance the Windows OS prevalence. Student get to work with UNIX system calls, I/O, libraries, internals, file-systems, and basic system programming. They are asked to write programs in C for UNIX in class-assignments (often in a recitation-session walk-through or in a collective programming effort (either the whole class led by teacher or in student teams)), homework, projects, and exams. This student outcome is appropriate for true Computer Scientific understanding and professional growth.

The evaluation tools \ metrics and procedures for measuring attainment of this outcome are well defined, well-executed, significant, and properly / accurately assessing the outcome.

F. Analysis of the Course Student Outcomes Assessment Data

Students did pretty well with most of the learning outcome and consistently for the three semesters.

G. Assessment of the Course Student Outcomes

Course: CS 3450: Operating Systems

Instructor: Gilbert Ndjatou

Semester: Spring 2016

Course Student Outcomes	Where Measured	Percentage of Satisfactory Results
1. I am able to describe the major components of a computer system hardware with their functions.	Test 1	90
2. I am able to describe the communication between the CPU and the main memory or the controllers.	Test 1	80
3. I am able to describe the history and the evolution of operating systems.	Test 2	78
4. I am able to describe the major concepts used in modern operating systems.	Test 2 & final	81
5. I am able to describe the different structures used in the implementation of operating systems.	Final	
6. I am able to describe the concept of a process and process implementation.	Test 3 & final	80
7. I am able to write programs that create and use processes in the UNIX environment.	Test 3, Lab, & final	72
8. I am able to describe the concepts of race conditions and critical sections.	Test 3 & final	79
9. I am able to describe most of the strategies for implementing mutual exclusions.	Test 3 & final	75
10. I am able to describe the scheduling algorithm goals in different types of operating systems.	Test 3 & final	71
11. I am able to describe one or more scheduling algorithms used in each type of operating system.	Test 3	75
12. I am able to describe the concept of deadlock.	final	81
13. I am able to describe how deadlocks are modeled and detected in a system.	final	78
14. I am able to describe the strategies used for dealing with deadlocks.	final	77

15. I am able to describe the memory hierarchy.	Test 1	85
16. I am able to describe the memory management strategies used in most operating systems.	Test 3 & final	73
17. I am able to describe the major components of the I/O hardware with their operations.	Test 1 and final	83
18. I am able to describe the goals of the I/O software.	final	73
19. I am able to describe the I/O software layers	final	80
20. I am able to describe the file system of one or more operating systems.	final	76
21. I am able to describe the file system implementation.	final	74
22. I am able to write programs that use system calls for file and directory management in a UNIX system.	Test 3, lab, & final	81
23. I am able to describe the structure and the major components of at least one modern operating system.	Test 2	75

Observation

I started this class with 24 students and all of them stayed in the class until the end of the semester. Five of those students received A for the course, six received B, eight received C, and 3 received an F. Many students in this class were very motivated and eager to learn.

* Notes:

1. For all the scores, the percentage corresponds to the number of students who receive a score of at least 70% on the question(s) related to the learning outcome.
2. Semester grade consists of composite scores of homework, projects, and exams. The grades were not curved.

Course: CS 3450: Operating Systems

Instructor: Gilbert Ndjatou

Semester: Fall 2016

Course Learning Outcomes	Where Measured	Percentage of Satisfactory Results
1. I am able to describe the major components of a computer system hardware with their functions.	Test 1	75
2. I am able to describe the communication between the CPU and the main memory or the controllers.	Test 1	72
3. I am able to describe the history and the evolution of	Test 2	74

operating systems.		
4. I am able to describe the major concepts used in modern operating systems.	Test 2 & final	70
5. I am able to describe the different structures used in the implementation of operating systems.	Final	
6. I am able to describe the concept of a process and process implementation.	Test 3 & final	67
7. I am able to write programs that create and use processes in the UNIX environment.	Test 3, Lab, & final	70
8. I am able to describe the concepts of race conditions and critical sections.	Test 3 & final	65
9. I am able to describe most of the strategies for implementing mutual exclusions.	Test 3 & final	75
10. I am able to describe the scheduling algorithm goals in different types of operating systems.	Test 3 & final	71
11. I am able to describe one or more scheduling algorithms used in each type of operating system.	Test 3	68
12. I am able to describe the concept of deadlock.	final	76
13. I am able to describe how deadlocks are modeled and detected in a system.	final	73
14. I am able to describe the strategies used for dealing with deadlocks.	final	69
15. I am able to describe the memory hierarchy.	Test 1	75
16. I am able to describe the memory management strategies used in most operating systems.	Test 3 & final	73
17. I am able to describe the major components of the I/O hardware with their operations.	Test 1 and final	72
18. I am able to describe the goals of the I/O software.	final	68
19. I am able to describe the I/O software layers	final	72
20. I am able to describe the file system of one or more operating systems.	final	68
21. I am able to describe the file system implementation.	final	72
22. I am able to write programs that use system calls for file and directory management in a UNIX system.	Test 3, lab, & final	76

23. I am able to describe the structure and the major components of at least one modern operating system.	Test 2	67
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Observation

I started this class with 15 students and 14 of them stayed in the class until the end of the semester. Only one student received an A for the course, whereas six received a B five received a C, and two received a D. Some of these students were not prepared to handle the concepts discussed in this class.

*** Notes:**

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- Semester grade consists of composite scores of homework, projects, and exams. The grades were not curved.

Course: CS 3450: Operating Systems

Instructor: Gilbert Ndjatou

Semester: Spring 2017

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8. I am able to describe the concepts of race conditions and critical sections.	Test 3 & final	79
9. I am able to describe most of the strategies for implementing mutual exclusions.	Test 3 & final	75

10. I am able to describe the scheduling algorithm goals in different types of operating systems.	Test 3 & final	71
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21. I am able to describe the file system implementation.	final	74
22. I am able to write programs that use system calls for file and directory management in a UNIX system.	Test 3, lab, & final	81
23. I am able to describe the structure and the major components of at least one modern operating system.	Test 2	75

Observation

I started this class with 23 students and 22 of them stayed in the class until the end of the semester. Four of those students received A for the course, five received B, twelve received C, and 1 received a D. Many students in this class were very motivated and eager to learn.

*** Notes:**

5. For all the scores, the percentage corresponds to the number of students who receive a score of at least 70% on the question(s) related to the learning outcome.
6. Semester grade consists of composite scores of homework, projects, and exams. The grades were not curved.