

## COP 4600      Operating Systems

1. Catalog Description - *Credits: 3*;  
The design and implementation of various components of a modern operating system, including I/O programming, interrupt handling, process and resource management, computer networks and distributed systems. (MR)
2. Pre-requisites and Co-requisites: *CDA 3101, COP 3530; knowledge of C or C++ recommended.*
3. Course Objectives  
Students will study the design and implementation of various components of a modern operating system. Topics include processor multiplexing, process and resource management, network and distributed operating system concepts. This is a course on the theory, design, and implementation of operating systems, *not* a course on how to merely use an operating system.  
Successful students will be able to discuss the four main components of operating system, design each of these, evaluate a given design vis-à-vis a particular purpose, and apply their knowledge of data structures, algorithms, performance analysis, and protocols to real-life problems in multi-threaded systems.
4. Contribution of course to meeting the professional component (ABET only – undergraduate courses)  
Engineering science is addressed in the theoretical aspects of performance analysis and in deadlock detection, e.g. Engineering design is a larger component of this course, with coverage of the design and implementation of various components of a modern operating system, including I/O programming, interrupt handling, process and resource management, computer networks and distributed systems. Students will study and evaluate designs as well as design and implement their own solutions to operating systems problems.
5. Relationship of course to program outcomes: Skills student will develop in this course (ABET only undergraduate courses)
  - (c) an ability to design hardware and software systems, components, or processes to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
  - (k) an ability to use the techniques, skills, and modern engineering tools necessary for computer engineering practice.
6. Instructor: R. Newman
  - a. Office location: CSE-E346
  - b. Telephone: 352-505-1579
  - c. E-mail address: nemo-at-cise-dot-ufl-dot-edu
  - d. Class Web sites: <http://www.cise.ufl.edu/cop4600sp12>,  
<http://www.cise.ufl.edu/~nemo/cop4600>
  - e. Office hours: M 10:30-11:30, 3:00-4:00; W 9:30-10:30, 3:00-4:00
7. Teaching Assistants: Elham **Sakhaee**, Ryan **Cobb**, Hang **Guan**
  - a. Office location: CSE-E309
  - b. Telephone: 352.871.4668
  - c. E-mail address:

esakhaee at cise dot ufl dot edu  
rcobb at cise dot ufl dot edu  
hguan at cise dot ufl dot edu

- d. Office hours:
  - M 1:00-3:00 Elham, 4:00-5:00 Ryan
  - T 4:00-6:00 Hang
  - W 1:00-3:00 Elham, 4:00-5:00 Ryan
  - R 4:00-6:00 Hang
  - F 1:00-2:00 and 4:00-5:00 Ryan
8. Meeting Times: MWF 5<sup>th</sup> period
9. Class/laboratory schedule, i.e., number of sessions each week and duration of each session: sect 1089 W 4<sup>th</sup> (10:40) FLG 0270; sect 0556 M 3<sup>rd</sup> (9:35) TUR 2306
10. Meeting Location: TUR L011
11. Material and Supply Fees: N/A
12. Textbooks and Software Required
  - a. Title: OPERATING SYSTEMS DESIGN & IMPLEMENTATION
  - b. Author: TANENBAUM & WOODHULL
  - c. Publication date and edition: 2006, 3/e
  - d. ISBN: [9780131429383](#)
13. Recommended Reading:
  - a. Title: OPERATING SYSTEMS CONCEPTS
  - b. Author: SILBERSCHATZ, GALVIN, AND GAGNE
  - c. Publication date and edition: 2009, 8<sup>th</sup>
  - d. ISBN: 9780470128725
  - a. Title: THE C PROGRAMMING LANGUAGE
  - b. Author: KERNIGHAN & RITCHIE
  - c. Publication date and edition: 1988, 2/e
  - d. ISBN: [0131103628](#)
14. Course Outline (provide topics covered by week or by class period)
  - a. Introduction – 2 wks
  - b. Processes and Interprocess Communication – 3 wks
  - c. I/O Systems – 3 wks
  - d. Memory Management – 3 wks
  - e. File Systems – 3 wks
15. Attendance and Expectations (is attendance required, penalties for absence, tardiness, cell phone policy, etc.)

Attendance is required. Pop quizzes will be given on assigned reading and on material covered in classes. Cell phones and pagers must be silent during class. Reading emails, facebook, etc. is appropriate at some other time. Questions are encouraged - raise your hand to be recognized. Try to formulate the question before asking it, and wait to see if it is answered in a few minutes so we can maintain flow. Lengthy discussions will be deferred to office hours. Students are required to check the class web pages at least three times a week (MWF) for announcements/updates. You are responsible for all assignments posted on the web page or announced in class.
16. Grading – methods of evaluation:

- a. Quizzes & Homeworks: 20%
- b. Exams: 50%
- c. Projects: 30%

Project grades include scoring for documentation and good programming practice in addition to correct functionality.

17. Grading Scale: Grades are curved. However, there some guidelines you may follow:

- a. A = 75% on exams, 90% on projects, 90% on homeworks and quizzes
- b. B = 65% on exams, 80% on projects, 85% on homeworks and quizzes
- c. C = 55% on exams, 70% on projects, 80% on homeworks and quizzes

Significantly better performance in one method may make up for poorer performance in another method up to a point, but to make a letter grade, the exam grade must be within 5 points of the guideline, project grade must be within 10 points of the guideline, and homeworks and quizzes grade must be within 10 points of the guideline (e.g., you cannot make an A if you have less than 80% on your projects, and you cannot pass unless you have at least 60% on your projects).

#### **Obligatory Statements**

“A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

“Undergraduate students, in order to graduate, must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. Graduate students, in order to graduate, must have an overall GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

#### **18. Make-up Exam Policy**

Exams must be taken at the scheduled time, except under extreme extenuating circumstances. Written documentation of circumstances (e.g., doctor’s note on letterhead, obituary notice, etc.) must be submitted with the request for a make-up examination. No exams will be given early, and discretionary travel does not qualify as an extenuating circumstance.

- 19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.
- 20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will

provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services –Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
  - UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
  - Career Resource Center, Reitz Union, 392-1601, career and job search services.
22. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.