CS 3400: Operating Systems

Fall 2021 Syllabus

Course for students in Computer Science and Computer and Information Technologies programs. This course will instruct students in the design, implementation, and use of operating system features. Students will be required to complete programming assignments.

Prerequisites

CS 2420, CS 2810, and CS 3005, each with a C- or better

Course fees

Computer lab access fee: $20, used to assist in maintaining computing infrastructure.

Sections

One section:

1. TR 9:00–10:15 PM in Smith 109
   CRN: 42132
   Final exam: TBD

Instructor

Instructor: Dr Russ Ross
Email: russ@dixie.edu
Phone: 435-652-7971 (note: email preferred)
Office: North Burns 226
Office Hours: TBD

Course learning outcomes

At the successful conclusion of this course, students will be able to:

1. Design the major components of an operating system.
2. Analyze the tradeoffs between competing goals in system software projects, including safety, performance, convenience, and ease of future maintenance.
3. Build and modify complex software projects in teams.
4. Assess and criticize the design of modern and historical operating systems.

Resources

Text

There is no text for this course. Readings will be assigned from online sources.

Computer labs

You may use the computers in the Smith open computer lab. There will also be lab assistants in this lab.

You can also use your own personal computer, but if you do so you are on your own when it comes to installing and configuring necessary software.

Course web site

This course has an accompanying website. You are responsible for announcements, the schedule, and other resources posted on the website. Grades will be managed using Canvas.
Assignments and exams

Reading

The student is responsible for reading the assigned material. A reading schedule is provided with the class schedule on the course website. Readings consist of a series of research papers, online articles, and recordings of technical talks.

Research papers can be difficult reading, so students should plan on several hours over multiple sessions to read each paper. The schedule of research paper readings and submission of the required responses will be maintained on Canvas. Responses must be submitted before class begins on the due date. No late work will be accepted for reading responses.

Assignments

Assignments will be graded for accuracy of function and style of design. Programs that do not compile will receive no credit. It is important that you start early and get each of your assignments done before its due date. Many problems will take much longer to solve in a single sitting than in many shorter sessions. Give yourself time to think; sleep on difficult problems. Finish early so you can go back and refine your initial approach.

Assignments are due on the date listed in the schedule, and must be passed off to the instructor or a lab assistant for the course. This means that you must reserve time to pass it off at a suitable time before the end of the day it is due.

Final presentation

There will be no exams, but there will be a final presentation. Each student will be assigned a research paper to read and present to the entire class. Details and the schedule will be discussed in class.

Grading

Assignments, in-class activities, and presentations each contribute to your point total. In total, the assignments comprise 60% of your grade, reading responses 25%, and the presentation counts for 15%.

Letter grades are assigned based on the percentage of possible points attained, according to the following chart:

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<thead>
<tr>
<th>Minimum Percentage</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>93</td>
<td>A</td>
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<tr>
<td>90</td>
<td>A-</td>
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<td>87</td>
<td>B+</td>
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Course policies

COVID-19

Students are strongly encouraged to get vaccinated and to wear a face covering that covers both mouth and nose in class and when working in the Smith Computing Center or visiting faculty offices. Students who are ill for any reason should avoid coming to class or otherwise coming into contact with other people, and should work with other students to get notes from missed classes.

Attendance
Students are responsible for material covered and announcements made in class. School-related absences may be made up only if prior arrangements are made. The class schedule presented is approximate. The instructor reserves the right to modify the schedule according to class needs. Changes will be announced in class. Exams and quizzes cannot be made up unless arrangements are made prior to the scheduled time.

Occasional absences are acceptable as long as the student keeps up with assignment work. Students who miss more than two consecutive weeks of class or who miss more than 20% of scheduled classes during the semester without making prior arrangements will receive a failing grade. Students who miss any scheduled exam (including midterm exams and the final exam) or fail to complete a final project without making prior arrangements will receive a failing grade.

**Time Commitment**

Courses should require about 45 hours of work per credit hour of class. This class will require about 135 hours of work on the part of the student to achieve a passing grade, which is approximately 9 hours per week. If you do not have the time to spend on this course, you should probably rethink your schedule.

**Late Policy**

The lateness policy of this course is designed to encourage students to stay up-to-date on the current topics and assignments. Each assignment has a soft due date (when students are expected to complete it) and a cutoff date (after which submissions are no longer accepted).

Assignments may be made up after the cutoff date, subject to the following constraints:

1. No old assignments are accepted until the current, active assignment is complete. Students should focus on the current projects, instructional materials, and in-class activities, and only go back to work on older assignments when they are fully caught up or even ahead on current assignments.

2. Old assignments (anything accepted after the initial cutoff date) will be subject to a 15% penalty.

Response papers are due before class starts on the day we are scheduled to discuss the paper. No late work is accepted for response papers.

**Collaboration**

Limited collaboration with other students in the course is permitted. Students may seek help learning concepts and developing programming skills from whatever sources they have available, and are encouraged to do so. Collaboration on assignments, however, must be confined to course instructors, lab assistants, and other students in the course. Students are free to discuss strategies for solving programming assignments with each other, but this must not extend to the level of programming code. Each student must code his/her own solution to each assignment. See the section on cheating.

**Cheating**

Cheating will not be tolerated, and will result in a failing grade for the students involved as well as possible disciplinary action from the college. Cheating includes, but is not limited to, turning in homework assignments that are not the student’s own work. It is okay to seek help from others and from reference materials, but only if you learn the material. As a general rule, if you cannot delete your assignment, start over, and re-create it successfully without further help, then your homework is not considered your own work.

You are encouraged to work in groups while studying for tests, discussing class lectures, discussing algorithms for homework solutions, and helping each other identify errors in your homework solutions. If you are unsure if collaboration is appropriate, contact the instructor. Also, note exactly what you did. If your actions are determined to be inappropriate, the response will be much more favorable if you are honest and complete in your disclosure.

Where collaboration is permitted, each student must still create and type in his/her own solution. Any kind of copying and pasting is not okay. If you need help understanding concepts, get it from the instructor or fellow classmates, but never copy another’s code or written work, either electronically or visually. The line between collaborating and cheating is generally one of language: talking about solutions in English or other natural languages is usually okay, while discussions that take place in programming languages are usually not okay. It is a good idea to wait at least 30 minutes after any discussion to start your independent write-up. This will help you commit what you have learned to long-term memory as well as help to avoid crossing the line to cheating.
College policies

Click on this link: https://calendar.dixie.edu/ for the official academic calendar, which has several important dates you should be aware of.

Click on this link: https://employees.dixie.edu/faculty-resources/required-elements-in-dsu-syllabi/ and scroll down to the section starting with “Important Links” for links to resources and policies that apply university wide.