Operating Systems
CS 314-002 Spring 2022 (CRN: 13473)

Welcome to CS 314!

Instructor: Dr. Hiroshi Fujinoki
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URL: www.siue.edu/~hfujino
Office Phone: (618) 650-3727

Office Hours (all office hours are as a zoom meeting):
- Monday: 10:00 A.M.-12:00 P.M. or by appointment
- Tuesday: 2:00-4:00 P.M.
- Wednesday: 10:00 A.M.-12:00 P.M. or by appointment
- Thursday: 2:00-4:00 P.M. (the Thursday office hour can be cancelled for Fujinoki’s committee duties).
- Friday: Only by Appointment: please make an appointment 24 hours prior to the time you want to meet the instructor.

Note: The above office hour schedules do not apply to (1) the spring break, (2) the final exam week and (3) the week before the final exam week.

Class Meeting Room: EB-1033
Class Meeting Days: Tuesday and Thursday
Class Meeting Time: 11:00 A.M. – 12:15 P.M. (same time for T and R)

Note: item with "★" symbol means an important item.

★ Course Prerequisites:
- CS286 (Computer Organization & Architecture) and CS240 (Introduction to Computing III)

★ Grading:

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
<th>Final Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Quizzes:</td>
<td>20%</td>
<td>100-92: A</td>
</tr>
<tr>
<td>Programming projects:</td>
<td>20%</td>
<td>91-82: B</td>
</tr>
<tr>
<td>Midterm Exam:</td>
<td>25%</td>
<td>81-72: C</td>
</tr>
<tr>
<td>Final Exam:</td>
<td>35%</td>
<td>71-62: D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Below 62: F</td>
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</tbody>
</table>
Exams:
- Exams will be closed textbook, closed notes, and closed Internet.
- Exams will start and end at the pre-announced time and every student is expected to take the exams at those pre-scheduled time slots.
- Absence without a prior written consent from Dr. Fujinoki will result in zero point except for your medical emergency (a letter from your doctor is required).
- If you need any special assistance, it is expected that you contact Dr. Fujinoki at least one week before.
- One letter-size cheat sheet and a calculator are allowed in the exams.
- Exams will cover reading assignments and the required exercise questions.
- Any grading error regarding your exams should be reported to Dr. Fujinoki within two weeks (14 calendar days) after your graded exam is returned in the classroom.

Lecture Attendance:
- Attending the course lectures is required.
- At the beginning of each lecture, an attendance card will be given to each student, which should be returned to the course instructor at the end of each lecture.
- Attendance cards not provided by the course instructor will not be accepted.
- No penalty will be given up to three absences in a semester. For each absence beyond the third absence, -2 point penalty (in 100 scale) will be given to your next exam.
- The above penalty will not apply to your medical emergency (however, you need to provide a written proof of medical service to waive the penalty).
- Any error regarding your lecture attendance status should be reported to Dr. Fujinoki within two weeks (14 calendar days) after your attendance status is posted to the course web site.

Programming Projects (tentative plan): there will be one start-up and three programming projects in this course (Project 0, 1, 2, and 3, respectively). Each programming project is an individual project (i.e., not a team project). The topics in each programming project is described in separate handouts. The course programming projects use a time-sharing C/C++ on a UNIX-based system (os.cs.siue.edu). The weight of the three projects is 5, 30, 35, and 30% (for Project 0, 1, 2, and 3, respectively) of your programming project grade.
Any questions about the programming projects (all programming projects in CS314) should be made either by a zoom (preferred) or a phone call. Please avoid using e-mails for questions about the projects.

**Note:** the schedules of the programming projects are subject to change during a semester, depending of various factors, such as the number of the lecture cancellations due to severe weather and the progress of the lectures.

**Quizzes:**
- There will be up to 12 quizzes during this course.
- Your lowest quiz core will be dropped from grading.
- If we cancel some lectures, some quizzes may be dropped (the weight of the quizzes to the course grade is still 20%).
- Any grading error should be reported to Dr. Fujinoki within two weeks (14 calendar days) after your grade quiz is returned in the classroom.

**Reading Assignments:**
Textbook: The course materials are presented using PPT slides in this course, but they are the summaries of the chapters/sections in a required text book. Designated chapters in the textbooks are supposed to be read before each lecture. Subjects in the designated textbook sections will be covered in the exams even though those subjects are not explicitly mentioned in the lecture.

**Academic Dishonesty:**
Following activities (but not limited to them) will be considered academic dishonesty:

I. Exams:
- Watching and copying your neighbors' solutions during exams (all the exams are individual exams).
- Using materials not allowed during exams.
- Anyone committing academic misconduct above (I-(a) or (b)) will receive a failing grade for this course and reported to the department chair as well as to the dean of the school of engineering.

II. Programming Projects:
(a) Submitting work totally or partially done by somebody else (this includes any human/electronic sources (such as web sites and even another course at SIUE)).
(b) Submitting program source code files (for the programming projects) that are developed by collaborations with other people. This includes both program designs and implementations.

(c) Anyone committing academic misconduct above (II-(a) or (b)) will receive a failing grade for this course and reported to the department chair as well as to the dean of the school of engineering.

Note: the following link describes the university policy against academic dishonesty (www.siue.edu/policies/3c1.shtml).

✿ Required Textbook:


Note: The textbook is required for everyone in this course. The instructor will never loan his textbook to any student in this course.

Other Required Skills/Knowledge:

Proficiency in C/C++ is required.

✿ Disability Support:

- Students who believe they may need accommodations in this class are encouraged to contact the Office for Accessible Campus Community & Equitable Student Support (ACCESS) as soon as possible.

✿ Other Notices:

(1) This course expects each of you to work nine (9) hours other than attending lectures (this is also a policy of SIUE).

(2) Each of you is expected to check "Weekly Notices" in the web site of this course at least twice in a week. The course instructor will not be responsible for any issues caused by lack of attention to the course home. The decisions regarding which course materials are posted belong to the course instructor. If any promised course material is missing in the course home, it is your responsibility to request such material to the course instructor (the course instructor will post such materials within at most three days after the request).
(3) Any grading problem should be reported within two weeks (14 days) after your grades are posted to the course home or the graded materials are returned in the classroom.

(4) Any electric device, such as smart phone, laptop PC, and tablet computer (except a calculator), must not be used during exams.

(5) Any electric device, such as smart phone, laptop PC, and tablet computer (except a calculator), should not be used during the course lectures.

(6) E-mails sent to the course instructor during weekends may not be responded during the weekend.

(7) Any special arrangement agreed between you and the course instructor (Dr. Fujinoki) should be documented. Any promises or agreements orally made between you and the course instructor may not take effect without a documentation (it is your responsibility to document any such promises and agreements).

(8) Ask your questions to the course instructor whenever you have anything you do not have a clear answer for. Please do not make your own assumptions (if you do, you are responsible for any assumptions you make when they are not correct).

Potential for Changes in Course Schedule or Modality

As the COVID-19 pandemic continues, there remains a possibility that planned classroom activities will need to be adjusted. Depending on circumstances and following state-issued recommendations, potential changes include changes in course modality (e.g., transition from face-to-face to online) or in course scheduled meetings. These changes would be implemented to ensure the successful completion of the course. In these cases, students will be provided with an addendum to the class syllabus that will supersede the original version.
# Tentative Class Schedule *(subject to change)*:

This schedule is tentative and subject to change.

<table>
<thead>
<tr>
<th>Week #: Day</th>
<th>Topics</th>
<th>Reading Assignments</th>
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<tbody>
<tr>
<td><strong>Week 1:</strong></td>
<td>January 10 (T): Introduction to operating systems</td>
<td>Chapter 1 (1.1 through 1.7)</td>
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<tr>
<td></td>
<td>Operating System Concepts (1)</td>
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<tr>
<td></td>
<td>January 12 (R): Operating System Concepts (2)</td>
<td>Chapter 1 (1.1 through 1.7)</td>
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<tr>
<td><strong>Week 2:</strong></td>
<td>January 17 (T): <strong>Quiz #1</strong>, Processes and process management (1)</td>
<td>Chapter 2 (2.1 through 2.5)</td>
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<tr>
<td></td>
<td>Programming Project #0 assigned</td>
<td>Handout</td>
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<tr>
<td></td>
<td>January 19 (R): Processes and process management (2)</td>
<td>Chapter 2 (2.1 through 2.5)</td>
</tr>
<tr>
<td><strong>Week 3:</strong></td>
<td>January 24 (T): <strong>Quiz #2</strong>, Processes and process management (3)</td>
<td>Chapter 2 (2.1 through 2.5)</td>
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<tr>
<td></td>
<td>Programming Project #0 due</td>
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<td></td>
<td>January 26 (R): Programming project #1 discussions</td>
<td>Handout</td>
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<tr>
<td></td>
<td>Programming Project #1 assigned</td>
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<td><strong>Week 4:</strong></td>
<td>January 31 (T): <strong>Quiz #3</strong>, Threads and thread management (1)</td>
<td>Chapter 2 (2.1 through 2.5)</td>
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<tr>
<td></td>
<td>February 2 (R): Threads and thread management (2)</td>
<td>Chapter 2 (2.1 through 2.5)</td>
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<tr>
<td><strong>Week 5:</strong></td>
<td>February 8 (T): <strong>Quiz #4</strong>, Threads and thread management (3)</td>
<td>Chapter 2 (2.1 through 2.5)</td>
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<tr>
<td></td>
<td>February 10 (R): Process Deadlocks (1)</td>
<td>Chapter 3 (3.1 through 3.4)</td>
</tr>
<tr>
<td><strong>Week 6:</strong></td>
<td>February 15 (T): <strong>Quiz #5</strong>, Process Deadlocks (2)</td>
<td>Chapter 3 (3.5 and 3.6)</td>
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<tr>
<td></td>
<td>Programming Project #1 due</td>
<td>Handout</td>
</tr>
<tr>
<td></td>
<td>February 17 (R): Programming project #2 discussions</td>
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<tr>
<td></td>
<td>Programming Project #2 assigned</td>
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<tr>
<td><strong>Week 7:</strong></td>
<td>February 22 (T): <strong>Quiz #6</strong>, Deadlocks (3)</td>
<td>Chapter 3 (3.5 and 3.6)</td>
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<td>February 24 (R): Memory Management (1)</td>
<td>Chapter 4 (4.1 and 4.2)</td>
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<td><strong>Week 8:</strong></td>
<td>March 1 (T): <strong>Quiz #7</strong>, Memory Management (2)</td>
<td>Chapter 4 (4.3 and 4.4)</td>
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<td>March 3 (R): <strong>Midterm Exam</strong></td>
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<td><strong>Week 9:</strong></td>
<td>March 8 (T): <strong>Spring Break</strong></td>
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<tr>
<td></td>
<td>March 10 (R): <strong>Spring Break</strong></td>
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<tr>
<td><strong>Week 10:</strong></td>
<td>March 15 (T): Memory Management (3)</td>
<td>Chapter 4 (4.5 through 4.7)</td>
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<tr>
<td></td>
<td>March 17 (R): Memory Management (4)</td>
<td>Chapter 4 (4.5 through 4.7)</td>
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<td><strong>Week 11:</strong></td>
<td>March 22 (T): <strong>Quiz #8</strong>, File System (1)</td>
<td>Chapter 6 (6.1)</td>
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<tr>
<td></td>
<td>March 24 (R): File System (2)</td>
<td>Chapter 6 (6.2)</td>
</tr>
<tr>
<td></td>
<td>Programming Project #2 due</td>
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</tbody>
</table>
Week 12: March 29 (T): Quiz #9, Programming project #3 discussions
   Programming Project #3 assigned
March 31 (R): File System (3)

Week 13: April 5 (T): Quiz #10, File System (4)
   April 7 (R): I/O Subsystems (1)

Week 14: April 12 (T): Quiz #11, I/O Subsystems (2)
   April 14 (R): I/O Subsystems (3)

Week 15: April 19 (T): Quiz #12, I/O Subsystems (4)
   April 21 (R): Topics To Be Announced
   Programming Project #3 due

Week 16: April 26 (T): Topics To Be Announced
   April 28 (R): Topics To Be Announced

Final Exam Week: TBA

• The list of the reading assignment is the minimum requirement. It is expected that each student voluntarily studies not only the required sections but other related sections or materials.
• If you have any problem for the above schedule, please contact to Dr. Fujinoki as soon as possible.
• Any question regarding this syllabus should be addressed to: hfujino@siue.edu