CSCI 411 - Course Syllabus

I. Operating Systems
Theory and implementation of operating systems including process management, device management, memory management, and file system management. Security, networking, and distributed operating systems. Prerequisites: CSCI 253, 305, and 310.

II. Instructor: Dr. Troy Kammerdiener
Office: Airway and Computer Science 348
Office Phone: 342-1856
Email Address: kammerdi@ulm.edu
World Wide Web: http://www.cs.ulm.edu/~tkammerd/
Office Hours: 3:30 p.m. – 4:30 p.m. Mondays and Wednesdays, 1:00 p.m. – 5:00 p.m. Tuesdays and Thursdays, and by appointment. You are also welcome to just drop by during the day. If I’m here and I’m not on a deadline, I’d be happy to take some time with you.

III. Goals and Objectives:
• To gain a working understanding of the tasks that an operating system performs to support a standard computing environment
• To get some experience in concurrent programming, as well as an appreciation for the problems that can occur in a multiprocessing environment
• To attain an appreciation for the special problems that are encountered in developing an operating system, as well as some of their solutions
• To gain some experience with administration of a Linux operating system

IV. Course Requirements:
A. Texts and other required materials:
   Live Linux CD Support: You will be provided with a live Linux CD, such as the Knoppix Linux distribution. You must provide removable media with at least 10 Mb available storage space, to provide a sufficient persistent home directory. We have successfully used both USB flash media and Zip disks for this purpose.
   Internet/Server Access: You will be provided with an account on the Computer Science Department's server, shaman.cs.ulm.edu. This account will include an email address, which you are expected to check at least twice a week, more often if possible. Accounts belonging to students who are not majors in the Computer Science Department should expect to be deleted 5 business days after the last day of classes, and all contents will be lost. All students are responsible for maintaining their own accurate and timely backup of data in their personal account. You will also need an ISP (Internet service provider) if you wish to do some work from home. Any CSCI503 student may apply for an account on ULM’s tribe.ulm.edu for free, which can act as an ISP. You may also use a commercial ISP for this purpose.

B. Class Schedule and Place: Tuesdays and Thursdays, 9:30 a.m. – 10:45 a.m. in AIRW 316.

C. Probable Test Dates:
   Test #1 Thursday, September 23, 2004.
   Test #2 Thursday, October 28, 2004.
   Final Exam Tuesday, December 7, 2004, 10:00 a.m. – 11:50 a.m.
Note: These are only estimated test dates. The actual dates will be dictated by convenient closure of topics, and should be very close to those listed, but this cannot be guaranteed. Any deviation from this schedule however, will be announced at least one week prior to the actual test date.
D. Assignments: There will be several assignments to reinforce areas of study. Some will be programming assignments in Java and (probably) C++, practicing concurrent programming techniques and simulating operating system functions. Some may be laboratory investigations of operating system behavior. There will probably be a total of 4 to 6 assignments. They should each be worth the same amount toward your grade, although there may be exceptions. Any such exceptions will be announced when the assignment is given. Due dates will be provided with each assignment, and you will generally have one or two weeks for each assignment, depending upon its complexity.

E. Homework: Homework assignments, given under policy D of the Departmental Policy Statement, should be regularly completed by students to reinforce and apply concepts presented in class. A list of homework exercises selected from the book will be provided by the instructor, and additional problems may be handed out occasionally. Although the instructor will not generally collect homework, students are expected to attempt every homework problem, and consult with the instructor during office hours or at the beginning of the succeeding class meeting concerning difficult homework exercises.

F. Required Reading: There is too much detail in this course to cover explicitly during class time. Therefore it is important that you keep up with the required reading, indicated in the course outline. The reading should be done prior to the class indicated -- not after, and you may occasionally be asked to demonstrate that you have done it (through quizzes, questions, etc.) You will also be responsible for the reading on exams. Unless you are told otherwise, read the entire chapter. The topics mentioned in the schedule are points of special interest -- not a limitation on the reading.

G. Attendance Policy: Attendance will be taken each day, as required by the University Regulations. This policy may be found in the Undergraduate Catalog, and you should make yourself familiar with it. In particular, note that excessive unexcused absences are considered 10% of the total classes, which for this semester and class is three (3) classes. According to the University Regulations, this can result in a failing grade, but even if it does not your grade will suffer. You will miss material that is only available in class, and classroom participation is crucial to your success in this class. In the event of an excused absence, you are responsible for providing acceptable documentation and making arrangements for making up for the lack of participation. Every student is responsible for anything covered in class, even if it is not in the text. This includes announcements of assignments or test dates, so if forced to miss class, be sure to contact the instructor and ask to be informed of those announcements.

H. Out-of-class work: Most of your time in this class is not spent in the classroom. You should be prepared to spend a significant portion of time outside of class for every hour spent in class. Traditional rules of thumb suggest that 3 hours outside of class for every hour spent in class is reasonable. The actual time spent varies from student to student, but suffice it to say that you will NOT complete course requirements through attendance alone.

I. Disruptive Devices: Students are asked to turn off any personal electronic devices such as cellular phones, beepers, mp3 players, video games, etc. At the discretion of the instructor, each instance of class disruption related to this type of device will result in a penalty of up to 10% on the next or current exam.

J. Midterm Grades: Midterm grades will be assigned and will be available by 10/14/2004 through the Arrow system. Midterm grades will be based upon your grades and performance to that point, but may include the instructor’s subjective evaluation of your performance and understanding of material. Please be aware that these grades are not a prediction of your eventual final grade, but they should inform you of your progress. Students receiving midterm grades of D or F should make an appointment to discuss their progress with their advisor by 10/27/2004.

K. Cancellations: If you suspect a class cancellation due to weather or any other reason, call my office number at 342-1856. If there is a cancellation, my voice mail will reflect that fact within 2 hours of class time (sooner if possible). If no message, assume that class will be held. I will also try to put a notice on the class web page. I will normally be in class on time. If I am not, you should wait at least 15 minutes before leaving, and someone should check my office to make sure I am not there. If I am unavoidably detained, I will normally call and have the class instructed to either wait, or go home.

L. Changes in Requirements: Due date changes, test postponements, etc. will be announced in class. In case of emergencies, I may attempt to contact you by phone, so please make sure that I have your phone number, and let me know if it changes. Notices may also be given by email, or on the class World Wide Web page. This syllabus will be posted on the class World Wide Web page, and that copy will always be the official copy, not the paper one received at the beginning of the semester.

V. Course Outline: Provided separately.

VI. Course Methodology:
• This course will consist primarily of interactive lectures with assignments to reinforce major points of discussion.
• Students will be provided with a live Linux distribution on CD, which requires no permanent installation on the host computer system. Students will provide sufficient removable media to keep their home directories. This will allow students to write programs and perform operating system experiments with full administrative privileges, and with no concern for adverse effects in a multiuser environment. This solution should work on the vast majority of Intel-like personal computers, and will work on the computers in the computer science department laboratories, but cannot be guaranteed to work on all computers. Some assignments must be done in this environment, while others may be done on the students shaman account. Be aware that our computing facilities are limited, and if you wait until the last minute to do your assignments, you may be unable to get adequate resources. For programs, you may use any development platform that you like on your own computer, but your final submission must compile without error and run on shaman.cs.ulm.edu or the provided Linux distribution, using the most recent version of the Java 2 SDK or ANSI C++ compiler installed there, as appropriate.
• The Internet is used extensively as a communications tool in this class. Announcements, copies of assignments, a copy of this syllabus, and various examples and data files will be available on the class page on the World Wide Web. Announcements of a time critical nature may be emailed to class members. Class discussions and questions may be pursued on the class web-based discussion forum.
• Reading assignments will be provided separately. Note that some reading assignments may come from web-based resources, not just the required texts. Students should be aware that they will be tested over the contents of their reading and class handouts, as well as lecture topics. Some things will be in the text but not in the lecture, others will be in the lecture but not in the book. Both parts are necessary for success in this class.
• There will be 3 tests to assess individual understanding of the material presented. These tests will be spaced in a relatively even fashion throughout the semester, a midterm and a final exam. All tests will have equal weight, and the final exam is not cumulative (although any test may require understanding of previous concepts, simply because of the dependence of one topic upon another). Tests will normally be returned within one week of the test date during the semester.

VII. Evaluation Procedure
A. Make-up Tests: You are expected to arrange your schedule around the dates indicated in this syllabus as much as is possible. Make-up tests arranged at least one full week prior to the test date can be obtained:
   • to avoid direct conflict with participation in an unavoidable official school-sponsored activity, such as playing in an intercollegiate sporting event (documentation from the sponsor is required)
   • in the event that a test occurs on a day other than those given in this syllabus, for an unavoidable personal conflict (this is at my discretion, but I try to be reasonable)
Make-up tests will be arranged after the test date only:
   • in the event of an unexpected and professionally documented medical condition which prevented attendance. If you are experiencing a long term illness, please keep me informed each week of your status.
   • with an excused absence authorization from the Vice President for Academic Affairs. Note that the basic courtesy of advance notification and arrangements are expected if you have advance knowledge of such an excused absence.
   • in the event of the death of an immediate family member (see the undergraduate catalog for specific details).
B. Late Assignments: Unless specified otherwise, assignments are due at the beginning of class on the date due. Late penalties are 10% per day (including weekends and holidays), with a maximum penalty of 50% off. Assignments turned in more than 7 days late will not be graded. Some assignments may be submitted through the electronic submission system, and that timestamp will be used for determining appropriate penalties. Physical portions of late assignments must be given directly to me, or to the CS Department front desk worker or secretary for timestamping, and the timestamp should be within one school day of the electronic timestamp. Do not just slip them under or in the door, or in my departmental mailbox. No assignments of any sort will be accepted after 2:00 p.m. on the last official day of classes, even if this would result in a failing grade.
C. Your grade will calculated according to the following point distribution:

- 60% Tests (20% each)
- 40% Assignments

Letter grades will probably be assigned by the following chart:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
</tr>
<tr>
<td>D</td>
<td>60-69</td>
</tr>
<tr>
<td>F</td>
<td>0-59</td>
</tr>
</tbody>
</table>

Some grades might be improved above that given in the chart if I feel that an anomalous statistical grouping requires it, but your letter grade will never be worse than that indicated by the chart.

VII. Academic Honesty:

Learning is a social experience, and I wouldn't dream of trying to change that. Studying with friends, and talking among yourselves about how to attack a problem is important to success in this class. But if you don't do your own thinking -- if you only take from these discussions, and never give -- then you won't understand well enough to perform on tests. That's enough to trash your grade in this class. Make sure that your work is your own, because you might have to pass a quiz over the content of your assignment to receive credit. If a project is supposed to be done by a group, it will be specifically announced that way. Note that homework exercises, which do provide grade point value, may be solved in collaboration. And if you need further help, please come see me. I try to be as accessible as I know how. If you can't make my office hours, drop by anyway -- if I'm not covered up with something, I'll be glad to work with you. And if we need to, we can make a special appointment. And remember that you can always leave me a phone message or use email.

This statement is intended to conform to policy level C of the Computer Science Departmental Policy for Dealing with Academic Dishonesty for assignments, and policy level D for homework exercises. You should familiarize yourself with this policy, and conform to it unless specifically instructed otherwise (in writing) by the instructor. A copy should be attached to this syllabus for your convenience.