CMSC 818b  
Distributed and Peer-to-Peer File Systems

1 Description
The objective is an in-depth understanding of the issues in designing and deploying large-scale distributed file systems. In the course of this investigation we will be tackling a variety of themes, such as peer-to-peer systems, remote procedure calls, multi-threading, decentralized systems, and reliability, and security as it relates to such systems.

The class will consist of lectures by the instructor, student project presentations, a midterm and a final, and a series of at least five projects, which will result in a full-scale distributed file system.

Examples of technologies we may use include FUSE (and MacFUSE), the Amazon Simple Storage Service, MySQL, Google’s Protocol Buffers, Google’s Go language, PAXOS, and Apple’s development kit for the iPad.

The lectures will be split between lectures describing the tools we will use to build our file systems, and lectures based on recent research in the literature (such as those at OSDI, NSDI, and Infocom).

2 Textbooks
None.

3 Contact information

3.1 Instructor
Instructor: Dr. Pete Keleher
Office: 4157 A. V. Williams
Contact info: keleher@cs.umd.edu (*)

(*) See Section 3.2 below regarding email.

Office hours: Tuesday 12-1pm, and by appointment (feel free to drop in any time I’m in my office).

3.2 Instructional Assistance and Notices
Announcements will be posted to the class web site. Please check frequently. Occasionally I will use the class email reflector.

4 Class webpage, computing environment, and submission and grades systems
Various course materials will be made available on the class webpage, which can be accessed at the following link:

http://lagoon.cs.umd.edu/dfs

Students are expected to check the webpage frequently, especially near the time that projects are due, because important corrections or clarifications to projects may be made there.

Programming can be done anywhere, but all students’ projects will be tested and graded on triffid.cs.umd.edu.

Project submission will be done by emailing tarballs to the instructor.

5 Attendance and general grading policies
Students are responsible for all material covered, and all announcements, deadlines, policies, etc., discussed in lecture and discussion section, regardless of whether they were in class to hear the information or not. It's understood that students may occasionally have to miss class for various reasons, but email and office hours are not intended as a replacement for class attendance. Consequently, only students who typically and regularly attend class will receive assistance during office hours.

Coursework will count toward the final grade according to the following percentages:
Midterm: one midterm 25%
Final: will be comprehensive 25%
Programming projects: five expected coding assignments 50%

All projects will be graded out of 100 points, but depending upon their relative difficulty, which can’t easily be estimated in advance, they may not be weighted equally. Therefore the relative weights of the projects will be given to you near the end of the semester.

Any request for reconsideration of the grading on any coursework must be submitted within one week of when it is returned. Exam regrading requests must be made in writing (write your request on the exam and turn it back in to Pete. Any coursework submitted for reconsideration may be regraded in its entirety, at the professor’s discretion.

Final course grades will be curved as necessary, based on each student’s total numeric score for all coursework at the end of the semester.

5.1 Excused absences

Besides the policies in this syllabus, various University policies may apply to students during the semester. Policies that may be relevant appear in the Undergraduate Catalog, which may be reached at the following link:

http://www.umd.edu/catalog

Documentation for absences due to medical reasons must contain a statement that you were incapacitated, the phone number of the health care professional who examined you, and the dates of incapacitation (which must include the dates of the missed exam or quiz).

It is the student’s responsibility to inform the instructor of any expected excused absences ahead of time. For exams, students are expected to inform the instructor of a conflict in writing (email is acceptable) as soon the exam is announced or the conflict is known, whichever occurs first.

An excused absence does not relieve the student of the obligation to turn in programming projects on time, as projects are assigned well in advance of their due dates. In cases of a lengthy illness, or other protracted emergency situations, the instructor may consider extensions on project assignments, depending on the specific circumstances.

5.2 Students with disabilities

Students with disabilities who have been certified by Disability Support Services as needing any type of special accommodations should see their instructor as soon as possible, within the first week of classes. All arrangements for exam accommodations as a result of disability must be made and arranged with their instructor at least three business days prior to the exam date, or accommodations cannot be made.

6 Exam and final dates

The midterm exam will be held during the lecture time. The final exam date appearing below is fixed however, and will be rescheduled only for students having another final at exactly the same time, or for students with more than three final exams scheduled on the same day. If either of these situations applies to you, you must inform your instructor by the drop date this semester for allowances to be made. Also please let your instructor know immediately if you have a conflict with the tentative midterm date, or any other important date as the semester progresses.

The following date is when the midterm exam is expected to fall, so at this time you should plan on having exams on these dates. Note however that if it becomes necessary these dates could be adjusted depending upon lecture progress during the semester or other factors, therefore these dates will either be confirmed or adjusted as necessary, and announced in class.

Exam #1: Thursday, October 28 (during lecture)
Final exam: Thursday, December 16, 10:30–12:30 am

7 Academic integrity

The Campus Senate has adopted a policy asking students to include the following statement on each examination or assignment in every course: “I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment).” Consequently, you will be requested to include this pledge on each exam and project.

You may review the University’s Code of Academic Integrity for yourself at
Please carefully read the Office of Information Technology’s policy regarding acceptable use of computer accounts and resources at

http://www.nethics.umd.edu/aup

Unless stated otherwise by the instructor, all programming assignments are to be written individually. Cooperation between students on exams, quizzes, or projects is a violation of the Code of Academic Integrity. Any evidence that a violation of the Code has occurred will be submitted to the Student Honor Council, which could result in an XF for the course, suspension, or expulsion. Automated tools may be used to compare students’ code to look for evidence of cheating.

Students are welcome and encouraged to study and compare or discuss their implementations of the programming projects with others after they are graded. However, before a project’s results are announced, students should not discuss or examine each other’s solutions for that project in any way. If you have any question about the appropriateness of a particular situation then consult with the instructors in advance. Should you have difficulty with a programming assignment you should see the instructional staff in office hours, NOT solicit help from anyone else in violation of these rules.

IT IS THE RESPONSIBILITY, UNDER THE HONOR CODE, OF ANYONE WHO SUSPECTS AN INCIDENT OF ACADEMIC DISHONESTY HAS OCCURRED TO REPORT IT TO THEIR INSTRUCTOR, OR DIRECTLY TO THE HONOR COUNCIL.

8 Course evaluations

Course evaluations are important, and taken seriously both by the instructor and by the Computer Science Department. Evaluations for the fall semester will be open between December 1 and 13, and reminders will be given in lecture. To complete your evaluation, go to

http://www.coursesevalum.umd.edu

9 Right to change information

Although every effort has been made to be complete and accurate, unforeseen circumstances arising during the semester could require the adjustment of any material given here. Consequently, given due notice to students, the instructor reserves the right to change any information on this syllabus or in other course materials.

10 Copyright

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