IT4100 - File Systems and Storage Technologies

Fall 2021 Syllabus

Classic, virtualized, and cloud storage will be covered. Topics such as RAID, NAS, SAN will be covered. Business continuity for backup and replication of storage. Local vs. Remote file systems. We will explore older and newer OS filesystems and compare them (such as fat32, ntfs, ext3, ext4, btrfs).

Prerequisites: IT3100 should have been completed with a C- or better.

Course fee: The fee for this course is $20.00, used to assist in maintaining the CIT infrastructure.

Course Time: MWF 9:00 - 9:50 (SCC 107)

Final Exam:

Professor: Dr Joe Francom

- Email: francom at dixie dot edu
- Phone: 435-652-7732 (note: email preferred)
- Office: NBURNS 237

Office Hours: See Below

Joe’s Fall 2021 Schedule

<table>
<thead>
<tr>
<th>Days</th>
<th>Time</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWF</td>
<td>8am - 8:50</td>
<td>IT3100 (108)</td>
</tr>
<tr>
<td>MWF</td>
<td>9am - 9:50</td>
<td>IT4200 (108)</td>
</tr>
<tr>
<td>MWF</td>
<td>10am - 10:50</td>
<td>IT3100 (108)</td>
</tr>
<tr>
<td>MWF</td>
<td>11am - 11:50</td>
<td>IT3300 (108)</td>
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<tr>
<td>MWF</td>
<td>12pm - 1:15</td>
<td>Office hours</td>
</tr>
<tr>
<td>MW</td>
<td>1:30pm - 2:45</td>
<td>IT2500 (108)</td>
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<tr>
<td>MW</td>
<td>2:45 - 3:30</td>
<td>Office hours</td>
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</table>

Objectives

At the end of the course, students will be able to:

- Evaluate key filesystems technologies (both local and remote) and implement these filesystems. (PLO 1,2,3)
- Evaluate storage architectures and key data center elements in classic, virtualized, and cloud environments (PLO 1,2,3)
- Explain physical and logical components of a storage infrastructure including storage subsystems, RAID, and intelligent storage systems (PLO 1,2,3)
- Articulate business continuity solutions backup and replication, and archive for managing fixed content (PLO 3)
- Mirror disk images, clone a hard drive, partition (PLO 3)

Resources

Texts

There is no required text for this course.

There are several links and other readings given throughout the course.

Computer Resources

Each student should have their own laptop, but you may use the computers in the general lab area in the
Smith Computer Center. There will also be lab assistants in these labs. You will also have access to virtual machines to complete most of the tasks.

**Course Website**

This course has an accompanying website. You are responsible for announcements, the schedule, and other resources posted on the website. Assignments and grades will be managed using Canvas, which requires a valid Dixie username and password. The course website is accessible at [http://cit.cs.dixie.edu/courses/](http://cit.cs.dixie.edu/courses/).

**Assignments and Exams**

**Reading**

The student is responsible for reading the material in the textbook. A reading schedule is provided with the class schedule on the course website. The student is expected to read the material before the class in which it is discussed. The book also includes material beyond what we will discuss in lecture, which you are encouraged to study on your own. Feel free to bring questions from the reading to lectures or to office hours.

**Assignments**

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 submitted according to instructions. Your instructor will tell you how to appropriately submit assignments.

**Exams**

There will be several exams given throughout the semester. Any missed tests will need to have the Divisional Dean’s approval before you can take the test.

**Grading**

Projects and exams each contribute to your point total.

The breakdown for the above items is as follows:

- Projects = 50%
- Tests = 50%

Here is the grading scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt;= 94</td>
</tr>
<tr>
<td>A-</td>
<td>&gt;= 90</td>
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<tr>
<td>B+</td>
<td>&gt;= 87</td>
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<tr>
<td>B</td>
<td>&gt;= 84</td>
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<tr>
<td>B-</td>
<td>&gt;= 80</td>
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<tr>
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<td>&gt;= 77</td>
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<tr>
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<tr>
<td>D+</td>
<td>&gt;= 67</td>
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<tr>
<td>D</td>
<td>&gt;= 64</td>
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<tr>
<td>F</td>
<td>&lt; 64</td>
</tr>
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</table>

**Course Policies**

**Spring 2021 Covid-19**

Face coverings that cover students’ noses and mouths, per CDC guidelines, must be worn by all students attending in-person classes. Wearing a face covering will protect students and instructors, especially those who are most vulnerable, and will lower the risk of spreading the virus.
Absences

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 and posted to the website. Exams and quizzes cannot be made up unless arrangements are made prior to the scheduled time.

Time

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 work

Late work is not accepted. You are expected to turn things in by the date they are due. If something is due at 11:59 pm and you are 1 minute late, you will not receive credit. Your lowest assignment score will be dropped.

Any exceptions must be discussed with the instructor. Computer failure does not qualify as an excuse for late work.

It is your responsibility to see that assignments/projects are turned in and on time. If you come to me and say, “I turned in that assignment”, yet I have no record of it, you will receive a 0. The burden of proof is on you to prove that you turned in something at a given time. We are using an electronic submission system which records when a item is submitted.

Finally, no points can be contested after a test which covers that assigned material has been given. So for example, if you come to me at the end of the semester and say “Oh, but I turned in that assignment the second week of the semester”. If I don’t have a record of it, and we have already tested on it, you will not get the points.

Cheating and Collaboration

It is ok to talk to each other and to get help from each other, but in the end, everything should be your own. You should NOT copy/paste. You should know what cheating is. Cheating can be penalized with an ‘F’ on the assignment, and ‘F’ in the course, and/or appropriate annotation on campus-wide student records.

Important Dates

I’m not going to list them all here but you should be familiar with calendar for the drop dates, and fee dates and stuff.

College Policies

DSU strive to make learning materials and experiences accessible for all students so If you are a student with a medical, psychological, or learning disability or anticipate physical or academic barriers based on disability, you are welcome to let me know so we can discuss options. Students with documented disabilities are required to contact the Disability Resource Center located in the North Plaza Building, Next to the Testing Center (435-652-7516) to explore eligibility process and reasonable accommodations related to disability.

DSU seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment/misconduct/assault we encourage you to report this to the college’s Title IX office at titleix@dixie.edu. If you report to a faculty member, she or he must notify the Title IX Director about the basic facts of the incident.

You are required to frequently check your Dmail account. Important class and university information will be sent to your Dmail account, including DSU bills, financial aid/scholarship notices, notices of cancelled classes, reminders of important dates and deadlines, and other information critical to your success at DSU and in your courses. To access your Dmail account, visit dmail.dixie.edu. Your Dmail username is your DixieID (e.g. D00111111) If you have forgotten your PIN, visit my.dixie.edu and click the Forgot Pin button.
Important Links

- Disability Resource Center - dixie.edu/drcenter
- IT Help Desk - dixie.edu/helpdesk
- Library - library.dixie.edu
- Testing Center - dixie.edu/testing
- Tutoring Center - dixie.edu/tutoring
- Writing Center - dixiewritingcenter.com