IT4100 - File Systems and Storage Technologies

Spring 2022 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 Spring 2022 Schedule

<table>
<thead>
<tr>
<th>Days</th>
<th>Time</th>
<th>Course/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWF</td>
<td>8am - 8:50</td>
<td>IT4510 (107)</td>
</tr>
<tr>
<td>MWF</td>
<td>9am - 9:50</td>
<td>Office hours</td>
</tr>
<tr>
<td>MWF</td>
<td>10am - 10:50</td>
<td>Office hours</td>
</tr>
<tr>
<td>MW</td>
<td>11am - 11:50</td>
<td>Mostly office hours</td>
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<tr>
<td>MW</td>
<td>12pm - 1:15</td>
<td>IT3110 (107)</td>
</tr>
<tr>
<td>Online</td>
<td>IT1100 (2 sections)</td>
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<tr>
<td>TBA</td>
<td>IT4600</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>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;= 94</td>
<td>A</td>
</tr>
<tr>
<td>&gt;= 90</td>
<td>A-</td>
</tr>
<tr>
<td>&gt;= 87</td>
<td>B+</td>
</tr>
<tr>
<td>&gt;= 84</td>
<td>B</td>
</tr>
<tr>
<td>&gt;= 80</td>
<td>B-</td>
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<td>&gt;= 77</td>
<td>C+</td>
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<tr>
<td>&gt;= 64</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 64</td>
<td>F</td>
</tr>
</tbody>
</table>

**Course Policies**

**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**

Assignments that are turned in by the due date and that are done correctly will receive full points.

Late assignments can be turned in until the exam is given which covers the assignment. You may receive a reduced score on the late assignment.

Assignments will not be accepted after an exam has been given that relates to those earlier assignments.

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.

**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**

[Click](#) - for comprehensive information on the Semester Dates, the Final Exam Schedule, university resources such as the library, Disability Resource Center, IT Student Help Desk, Online Writing Lab, Testing Center, Tutoring Center, and Writing Center. In addition, please review DSU policies and statements with regards to Academic Integrity, Disruptive Behavior and Absences related to university functions.

If you are a student with a medical, psychological, or learning disability or think you might have a disability and would like accommodations, contact the Disability Resource Center (652-7516) in the Student Services Center. The Disability Resource Center will determine eligibility of the student requesting special services and determine the appropriate accommodations related to their disability.

Dixie State University affirms its commitment to the promotion of fairness and equity in all aspects of the educational institution. Harassment and discrimination – including sex/gender discrimination, gender identity, gender expression, sexual harassment, sexual misconduct, gender-based violence, dating violence, domestic violence, stalking, pregnancy or parental, family or marital status and or retaliation – not only disrupts our commitment to maintaining an environment in which every member of the University community is treated with respect and dignity, but may also violate University policy and federal, state, and/or local law.

Should you or someone you know experience behavior that is coercive, discriminatory, harassing, and/or sexually violent in nature, or if you or someone you know has questions about their rights and options regarding such behavior, you are encouraged to contact:

Hazel Sainsbury, Dir. Of Equity Compliance, Title IX Coordinator: 435.652.7747 (ext. 7747)
hazel.sainsbury@dixie.edu ; titleix@dixie.edu

Incidents may also be reported directly to law enforcement, either separately or in conjunction with any report made to the University’s Title IX Coordinator, and the University will aid in making contact if requested.
Dixie State University Police: 435.275.4300 or by calling 9-1-1.

Maintaining a safe and inclusive University community is a shared responsibility. For more information on how Title IX protections can benefit you and help us keep a productive campus environment, visit titleix.dixie.edu to learn more.

**Important Links**

- Disability Resource Center
- IT Help Desk
- Library
- Testing Center
- Tutoring Center