IT 2500: Cloud Computing Architecture

Fall 2020 Syllabus

Course Description

Students will develop technical expertise in cloud computing and prepare them for industry-level exams. The curriculum is delivered through instructor-led classes, knowledge assessments, hands-on labs, and project work. Students have access to course manuals, online knowledge assessments, hands-on labs, free practice certification exams, and discount vouchers for the certification exams.

Prerequisites

CS 1400 and IT 2400 both with a C- or better

Course fees

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

You will also be required to take a certification exam. Vouchers may be provided to reduce the cost of these certifications. You should plan on budgeting $50-$150 for these certification exams.

Sections

One section:

1. MWF 10:00-10:50 (SCC 108)
   
   Final exam - Wed Dec 9, 9:00-10:50am

Instructor

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 2020 Schedule

<table>
<thead>
<tr>
<th>Days</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWF</td>
<td>8:30am - 9:00 - Office</td>
</tr>
<tr>
<td>MWF</td>
<td>9am - 9:50 - Office</td>
</tr>
<tr>
<td>MWF</td>
<td>10am-10:50 - IT2500(108)</td>
</tr>
<tr>
<td>MWF</td>
<td>11am-11:50 - Office</td>
</tr>
<tr>
<td>MW</td>
<td>12pm-1:15 - IT4200 (113)</td>
</tr>
<tr>
<td>MW</td>
<td>1:30pm-2:45 - IT3100 (116)</td>
</tr>
<tr>
<td>MW</td>
<td>3:00pm-4:15 - IT3300 (108)</td>
</tr>
</tbody>
</table>

Objectives

ACF

Students will be able to:

- define Cloud Computing and discuss the technical merits of said
- explain core AWS services
- explain and implement the shared security model by correctly utilizing IAM policies
• demonstrate well-architected design principles by implementing scaling and load-balancing
• list AWS plans and pricing
• Pass the Certified Cloud Practitioner certification exam

ACA

Students will be able to:

• Differentiate between AWS storage options
• Understand AWS compute and networking options
• Describe and use AWS database options
• Make decisions based on recommended architectural principles and best practices
• Use AWS to make infrastructure scalable
• Create a business continuity plan and achieve high availability
• Create event-driven scaling
• Automate the deployment of cloud resources
• Design architectures to decouple infrastructure and reduce interdependencies
• Optimize data storage for static content
• Identify and solve common configuration and design issues
• Pass the AWS Certified Solutions Architect - Associate certification exam

Resources

Texts

There is NO required text. However, if you want a text, I strongly recommend this.

Computer Labs

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 Web Site

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/.

Assignments and Exams

Reading

Most of the course content is online. You will find all learning materials at the sites indicated.

Assignments

There are several lab exercises that you will do.

Quizzes

In general there is a quiz for each module.

Knowledge checks

Given during each module.

Exams

There are several exams given in this class.

• Exam 1 will be given on or around week 5 of the semester that covers the ACF stuff.
• Exam 2 will be given on or around week 10 of the semester and will cover some of the ACA stuff.
• Exam 3 will be given on or around week 15 of the semester and will cover the remaining ACA stuff.
Optional exams

- There are 2 practice AWS exams. These are taken online at your convenience. I will give you a coupon code so that they will be free. (These do not factor into your grade, but are good practice material)
- There are 2 real AWS exams. Each of these has a fee associated with them.
  - Cert Cloud Practitioner (50$ after discount code) - If you pass this, you will automatically get 100% on your first exam score. (Note: only a 70% is required to pass this exam)
  - Cert Solutions Architect (75$ after discount code) - If you pass this, you will get an ‘A’ for the course. (Note: only a 70% is required to pass this exam)

Grading

Assignments will count for 15% of your point total. Quizzes will count for 15% of your point total. Knowledge checks will be 5% of your grade. The required exams count as 65% of your grade.

Letter grades are assigned based on the percentage of possible points attained, according to the following chart:

Here is the grading scale:

<table>
<thead>
<tr>
<th>Percentage</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>
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<tr>
<td>&gt;= 84</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

Fall 2020 Antivirus

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. Students who are unable to wear face coverings may remotely participate in the class via interactive live stream.

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 11:59pm 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 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**

Limited collaboration with other students in the course is permitted. Students may seek help learning concepts and developing programming skills from whatever sources they have available, and are encouraged to do so. Collaboration on assignments, however, must be confined to course instructors, lab assistants, and other students in the course. Students are free to discuss strategies for solving programming assignments with each other, but this must not extend to the level of programming code. Each student must code his/her own solution to each assignment.

Cheating will not be tolerated, and will result in a failing grade for the students involved as well as possible disciplinary action from the college. Cheating includes, but is not limited to, turning in homework assignments that are not the student’s own work. It is okay to seek help from others and from reference materials, but only if you learn the material. As a general rule, if you cannot delete your assignment, start over, and re-create it successfully without further help, then your homework is not considered your own work.

You are encouraged to work in groups while studying for tests, discussing class lectures, discussing algorithms for homework solutions, and helping each other identify errors in your homework solutions. If you are unsure if collaboration is appropriate, contact the instructor. Also, note exactly what you did. If your actions are determined to be inappropriate, the response will be much more favorable if you are honest and complete in your disclosure.

Where collaboration is permitted, each student must still create and type in his/her own solution. Any kind of copying and pasting is **not** okay. If you need help understanding concepts, get it from the instructor or fellow classmates, but never copy another’s code or written work, either electronically or visually. The line between collaborating and cheating is generally one of language: talking about solutions in English or other natural languages is usually okay, while discussions that take place in programming languages are usually not okay. It is a good idea to wait a while after any discussion to start your independent write-up. This will help you commit what you have learned to long-term memory as well as help to avoid crossing the line to cheating.

**Important Dates**

I’m not going to list them all here but you should be familiar with [calendar](http://academics.dixie.edu/syllabus/) for the drop dates, and fee dates and stuff.

**College Policies**

Click on this link - [http://academics.dixie.edu/syllabus/](http://academics.dixie.edu/syllabus/) - 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.

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