IT4200 - Devops Lifecycle Management

Fall 2020 Syllabus

Takes students through the DevOps lifecycle. Students will develop practical skills in continuous integration, cloud provisioning, configuration management, continuous deployment, continuous monitoring, and continuous feedback.

**COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to:
1. Create and sign certificates, and run an SSL enabled server.
2. Describe and configure continuous integration.
3. Describe and configure continuous delivery.
4. Use automated tools for provisioning and configuration.
5. Utilize a version control system.

**Prerequisites:** (CS1400 and IT2400) or CS2810

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

**Course Time:** M,W 12:00-1:15pm in SCC 113

**Final Exam:** Wed Dec 9, 11:00am - 12:50pm

**Professor:** Dr Joe Francom

- **Email:** [francom at dixie dot edu](mailto:francom@dixie.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>
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<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>
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<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>
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**Objectives**

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

- Describe and configure continuous integration (PLO 1,2,3)
- Describe and configure continuous delivery (PLO 1,2,3)
- Use automated tools for provisioning and configuration. (PLO 3)
- Describe and implement DevOps methods and technologies. (PLO 1,2,3,4)

**Resources**

**Texts**

There is one required text for this course “The Phoenix Project”, by Gene Kim. You should be able to read it for free by going to [library.dixie.edu -&gt; E-book Collections -&gt; O’Reilly -&gt; Search for The Phoenix Project](library.dixie.edu). A kindle copy is also relatively inexpensive.

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.

**Participation**

Participation points will come from online discussions and any other relevant participation stuff that we do throughout the semester. A lot of these points will revolve around the book we read. Sometimes points are awarded for attendance. Guest speakers may attend. The final presentation is also part of the participation points.

**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. An exam fee of $50 may be required for one of the exams that we take.

**Grading**

Projects and exams each contribute to your point total.

The breakdown for the above items is as follows:

- Projects = 40%
- Participation = 10%
- 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>
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<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>
</tr>
<tr>
<td>B-</td>
<td>&gt;= 80</td>
</tr>
<tr>
<td>C+</td>
<td>&gt;= 77</td>
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<tr>
<td>C</td>
<td>&gt;= 74</td>
</tr>
<tr>
<td>C-</td>
<td>&gt;= 70</td>
</tr>
<tr>
<td>D+</td>
<td>&gt;= 67</td>
</tr>
<tr>
<td>D</td>
<td>&gt;= 64</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 64</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 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

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 \textit{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 \url{calendar} for the drop dates, and fee dates and stuff.

**College Policies**

Click on this link - \url{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