Syllabus

Course Info

CIS 4083: Cloud Computing for IT - Fall 2019 - ONLINE

NOTE Contents may change for Spring 2020 offering

Prerequisite: COP 3515

University Course Catalog Description

Covers the methods and technologies of cloud computing. The creation, configuration, building, deployment and management of cloud-based solutions are explored.

Student Learning Outcomes

At the sucessful completion of this course the student will be able to:

1. Contrast the different categories of cloud computing services.
2. Apply load balancing and auto scaling to a cloud application.
3. Illustrate the fundamental concepts of cloud storage and demonstrate their use in storage systems such as Amazon S3 and HDFS.
4. Design, implement test and debug a Hadoop application.
5. Configure and deploy a cloud-hosted database.
6. Choose and apply appropriate security measures for a cloud-based system.
7. Design, configure, test and deploy a virtual private cloud utilizing a VPN connection.

Faculty Info

Professor

Professor	Phil Ventura, Ph.D.
Office	ENG 211
E-mail	Use Piazza (or Canvas messaging)
Website	http://www.usf.edu/engineering/cse/people/ventura-philip.aspx
Office Hours	TR 10:55 - 12:15

Teaching Assistants

TA	Bhavana Doppalapudi
Office	ENG 329
E-mail	bdoppalapudi@mail.usf.edu
Office Hours	W: 10:30 A.M - 12:00 P.M.

TA	Nikolai Fetisov
Office	
E-mail	nfetisov@mail.usf.edu
Office Hours	TBD

Required Text

Wadia. Y. (2016). *AWS Administration – the Definitive Guide*. **Packt Publishing. ISBN-13: 978-1-78217-376-2**

Grading

The class will consist of a number of assignments, projects, quizzes, and exams weighted as follows:

Assignments, projects, quizzes	45%
Discussions	10%
Mid-Term and Final Exam	45%

The following grading scale will be used for this course. Note there are no + or - grades.

The professor reserves the right to adjust grade cut-offs downward.

Course Average	Course Grade
90% and up	A
80% - 89%	B

70% - 79%	C
60% - 69%	D
59% and below	F

Course Policies

Programming & Scripting Submissions

All submitted work must compile without syntax errors (compiler warnings are acceptable). **Any work submitted with syntax errors will receive a grade of 0** for that part/assignment.

As scripts may be used to assist grading, you must follow all directions, especially with regarding to naming files, functions, etc; as well as making sure your code meets the specification. Failure to follow such instructions will result in a grade of 0 for the work in question.

Canvas & Piazza

Students are expected to have their notifications set as "*Notify me right away*" or at least "*Daily Summary*" in Canvas.

Students are also expected to check discussions/Piazza regularly (at least daily).

Instructor Feedback Policy & Grade Dissemination

The TA(s) will provide feedback on assignments within a week of the posted last (late) day to submit the assignment, and feedback on exams within two weeks of the posted deadline. Graded tests and materials in this course will be returned individually only by request. You can access your scores at any time using "Grades" in Canvas.

Communication Policy

General questions about the course material, help for an assignment, etc. should be posted to Piazza. However, please refrain from providing code solutions. *If you are in doubt you can make your Piazza post **private*** in which case only the Professor and TAs will be able to see it.

Should you need to contact the professor for a matter related only to you and regarding the class, please send a message within Canvas email/messaging system. However, if it is for help on an assignment, etc. you are better off posting to Piazza where both the professor and the TA(s) will see it.

Netiquette Guidelines

General Communications Guidelines

1. Act professionally in the way you communicate. Treat your instructors and peers with respect, the same way you would do in a face-to-face environment. Respect other people's ideas and be constructive when explaining your views about points you may not agree with.
2. Be sensitive. Be respectful and sensitive when sharing your ideas and opinions. There will be people in your class with different linguistic backgrounds, political and religious beliefs or other general differences.
3. Proofread and check spelling. Doing this before sending an email or posting a thread on a discussion board will allow you to make sure your message is clear and thoughtful. Avoid the use of all capital letters, it can be perceived as if you are shouting, and it is more difficult to read.
4. Keep your communications focused and stay on topic. Complete your ideas before changing the subject. By keeping the message on focus you allow the readers to easily get your idea or answers they are looking for.
5. Be clear with your message. Avoid using humor or sarcasm. Since people can't see your expressions or hear your tone of voice, meaning can be misinterpreted.

Email and Discussion Board Guidelines

1. Use the subject line effectively by using a meaningful line of what your email or discussion is about.
2. Keep your emails and postings related to the course content. You should not post anything personal on a discussion board, unless is requested by the instructor.
3. Any personal, course or confidential issues should be directly communicated to the instructor via email. The discussion boards are public spaces; therefore any issues should not be posted there.

Late Work & Submission Policy

This semester I am trying out a new policy on late work.

The penalty for late work is 11 points (out of 100) **per day**. Note if your work is even 1 second past the deadline that counts as 1 day late.

But there is also a carrot to this stick. If you submit your work at least 24 hours before the deadline you will get 10 points (out of 100) **added** to your grade. Here is a chart illustrating the policy for an example due date of Aug 2 at 11:59 PM:

Date		Reward/Penalty
Date assignment was posted	- Aug 1st at 11:59:00 PM	+10 points (out of 100)
Aug 1st at 11:59:01 PM	- Aug 2nd at 11:59:00 PM	none

Aug 2nd at 11:59:01 PM	- Aug 3rd at 11:59:00 PM	-11 points (out of 100), i.e. an A drops to a B
Aug 3rd at 11:59:01 PM	- Aug 4th at 11:59:00 PM	-22 points (out of 100), i.e. a B drops to a C
Aug 4th at 11:59:01 PM	- Aug 5th at 11:59:00 PM	-33 points (out of 100), i.e. a C drops to a D
Aug 5th at 11:59:01 PM	- Aug 6th at 11:59:00 PM	-44 points (out of 100), i.e. a D drops to a F
Aug 6th at 11:59:01 PM or later		No credit for assignment

Unless otherwise directed to, all assignments, quizzes, and exams will be submitted through Canvas in its appropriate place. **I do NOT accept email or printed submissions**.

I am not responsible when technology fails you. If you decide to wait until the last minute to submit, and are unable to submit due to technology problems you will still be subject to the late policy as stated above.

Regrading

If you feel that you wrongly lost points on an assignment, quiz, exam, etc. you must address the matter with theTA within 5 business days of when the work in question was graded. After the 5 business days, you forfeit the right for regrading.

Please restrict regrading issues solely to issues where you lost points but think your answer was in fact correct.

No *point weaseling*. For instance, requests of the nature that too many points were deducted for a given error, or that you need a certain grade will be denied on face.

Note that in the process of regrading, other deductions may be found that ultimately result in a score lower than that which you had originally.

Lecture Recording

Please be advised I will be using lecture recording technology in the classroom which could result in student voices being recorded.

Students are not allowed to record video/audio/photos of class and/or labs.
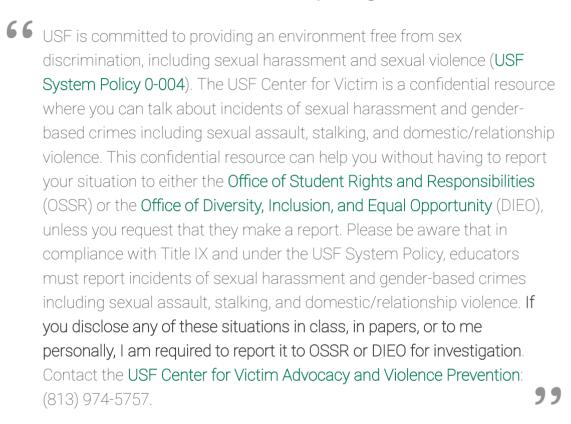
University Course Policies

Online Proctoring

> Canvas-based tests and/or quizzes within this course may require online proctoring. Students are therefore required to have a webcam with a microphone (either USB or mounted into your computer).

—taken from https://www.usf.edu/atle/teaching/usf-system-syllabus-template.docx, last access Jan 6, 2019.

Sexual Misconduct/Sexual Harassment Reporting

> USF is committed to providing an environment free from sex discrimination, including sexual harassment and sexual violence (USF System Policy 0-004). The USF Center for Victim is a confidential resource where you can talk about incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. This confidential resource can help you without having to report your situation to either the Office of Student Rights and Responsibilities (OSSR) or the Office of Diversity, Inclusion, and Equal Opportunity (DIEO), unless you request that they make a report. Please be aware that in compliance with Title IX and under the USF System Policy, educators must report incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. **If you disclose any of these situations in class, in papers, or to me personally, I am required to report it to OSSR or DIEO for investigation.** Contact the USF Center for Victim Advocacy and Violence Prevention: (813) 974-5757.

—taken from https://www.usf.edu/atle/teaching/usf-system-syllabus-template.docx, last access Jan 6, 2019.

Academic Integrity Policy

> Academic integrity is the foundation of the University of South Florida System's commitment to the academic honesty and personal integrity of its university community. Academic integrity is grounded in certain fundamental values, which include honesty, respect, and fairness. Broadly defined, academic honesty is the completion of all academic endeavors and claims of scholarly knowledge as representative of one's own efforts. The final decision on an academic integrity violation and related academic sanction at any USF System institution shall affect and be applied to the academic status of the student throughout the USF System, unless

In computing classes, plagiarism will include but is not limited to submitting any code as your own that you did not author. That includes open source code, code from books, classmates, students from previous semesters, code monkeys in foreign lands, etc. **All code that is not authored by you must be cited**. Consult the professor, before submitting used code, if you do not know how to properly cite it.

All work for the class including but not limited to assignments, exams, quizzes, and projects is to be completed individually unless otherwise explicitly noted.

Violations of academic conduct will result, **minimally**, in a grade of FF for the class. Note that confirmation of such incidents can also result in further sanctions all the way up to expulsion from the University.

Attendance Policy

USF requires attendance be taken the first day of classes. Students who are not present for the first day will be reported as not attending and dropped from the course. Otherwise, your attendance is expected and strongly encouraged.

Note if you are **absent** during any in-class assignment/activity, quiz, presentation, test or exam you will **receive a grade of 0** for it and you will **not be allowed a make up**.

If you know ahead of time that you will not be able to attend an exam due to *reasonable extenuating circumstances*, and you let the professor know at least 5 business days ahead of time, accomodation *may* be provided at the discretion of the professor. Reasonable extenuating circumstances do not include things like buying non-refundable plane tickets to leave prior to the end of the semester. Note the accomodation may take the form of weighing your other exam(s) higher in grading.

If a reasonable extenuating circumstance arises that causes you to miss an exam, you must contact the professor immediately, on the same day, and again accomodation may be provided at the discretion of the professor.

Further, if you are absent you are expected to get the notes from a *reliable* friend in class. The professor is **not** your reliable friend. Do not expect the professor or TAs to reteach material that you missed due to absence.

Professionalism Policy

> Per university policy and classroom etiquette; mobile phones, iPods, etc. **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, etc., and have been warned may suffer a reduction in their final class grade.

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You may not sleep, put your head down, talk, or otherwise disrupt the learning environment.

Students who habitually disturb the class by talking, arriving late, *etc*., and have been warned may suffer a reduction in their final class grade.

University Writing Center

> The University Writing Center is a free resource for USF undergraduates and graduates. At the UWC, a trained writing consultant will work individually with you on anything you're writing (in or out of class), at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, visit the UWC website at http://www.lib.usf.edu/writing, stop by LIB-125, or call 813.974.8293.

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Grades of Incomplete

> The current university policy concerning incomplete grades will be followed in this course.
> For USF Tampa undergraduate courses and USFSM undergraduate and graduate courses: An "I" grade may be awarded to a student only when a small portion of the student's work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the "I" is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not exceed one academic semester. "I" grades not removed by the end of the time limit will be changed to "IF" or "IU," whichever is appropriate.

> For USF Tampa graduate courses and USFSP undergraduate and graduate courses: An Incomplete grade ("I") is exceptional and granted at the instructor's discretion only when students are unable to complete course requirements due to illness or other circumstances beyond their control. The course instructor and student must complete and sign the "I" Grade Contract Form that describes the work to be completed, the date it is due, and the grade the student would earn factoring in a zero for all incomplete assignments. The due date can be negotiated and extended by student/instructor as long as it does not exceed two semesters for undergraduate courses and one semester for graduate courses from the original date grades were due for that course. An "I" grade not cleared within the two semesters for undergraduate courses and one semester for graduate courses (including summer semester) will revert to the grade noted on the contract. **"**

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Disability Access

> **"** Students with disabilities are responsible for registering with Students with Disabilities Services (SDS) (SVC 1133) in order to receive academic accommodations. SDS encourages students to notify instructors of accommodation needs at least five (5) business days prior to needing the accommodation. A letter from SDS must accompany this request. **"**

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Religious Observances

> **"** All students have a right to expect that the University will reasonably accommodate their religious observances, practices and beliefs (USF System Policy 10-045). The USF System, through its faculty, will make every attempt to schedule required classes and examinations in view of customarily observed religious holidays of those religious groups or communities comprising the USF System's constituency. Students are expected to attend classes and take examinations as determined by the USF System. No student shall be compelled to attend class or sit for an examination at a day or time prohibited by his or her religious belief. However, students should review the course requirements and meeting days and times to avoid foreseeable conflicts, as excessive absences in a

> given term may prevent a student from completing the academic requirements of a specific course. Students are expected to notify their instructors at the beginning of each academic term if they intend to be absent for a class or announced examination, in accordance with this Policy. "

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Statement of Academic Continuity

> " In the event of an emergency, it may be necessary for USF to suspend normal operations. During this time, USF may opt to continue delivery of instruction through methods that include, but are not limited to: Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor the Learning Management System for each class for course-specific communication, and the main USF, College, and Department websites, emails, and MoBull messages for important general information (USF System Policy 6-010). For additional guidance on emergency protective actions and hazards that affect the University, please visit www.usf.edu/em. "

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Right to Change Syllabus

The professor reserves the right to make changes to the syllabus.

Tentative Schedule

Note: This schedule is tentative and may be changed without notice, the definitive schedule is on Canvas.

Week	Topics	Due
Week 1	Intro to class, EC2	*Attendance Verification -- Student Intros*
Week 2	More EC2, Linux command line, Windows Server in AWS	*Assgn: Sign-up for AWS*
Week 3	Intro to CloudFormation	*Assgn: Hello, EC2!*

Week 4 CloudFormation helper scripts		*Assgn: Hello, CloudFormation!*
Week 5 Advanced CloudFormation		n/a
Week 6 Intro to Python		*Assgn: CloudFormation Helper Scripts*
Week 7 Boto3 & Rekognition		*Assgn: CF Secure Amazon LAMP*
Week 8 *Mid-Term Exam* **In-class for all students**		Mid-Term Exam,
Week 9 S3 & Graphical Photo Labelling		*Assgn: Google VM*
Week 10	AWS Lambda	• *Assgn: S3 Static Website* • *Assgn: Graphical Labels*
Week 11	Serverless computing with Python & Chalice; and Polly	n/a
Week 12	VPC	*Assgn: SayIt!*
Week 13	VPN with VPC	*Assgn: VPC*
Week 14	EMR/Hadoop with MrJob	n/a
Week 15	Final Exam Review	• *Assgn: VPN to VPC* • *Assgn: Grad Project* • *Assgn: MrJob*
Week 16	*Final Exam*	