CIS 023A: INTRODUCTION TO AMAZON WEB SERVICES

New Course Proposal

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Originator

fmarhuenda

Justification / Rationale

This is a new course. Cloud services are a new reality and near ubiquitous in the IT industry. This course will help our students learn the cloud IT skills that will be essential for any IT manager.
This course aligns with AWS Certified Cloud Practitioner certification. Our intention is to prepare students to successfully complete AWS's Certified Cloud Practitioner (CLF-C01) exam.

Effective Term

Fall 2020

Credit Status

Credit - Degree Applicable

Subject

CIS - Computer Information Systems

Course Number

023A

Full Course Title

Introduction to Amazon Web Services

Short Title

INTRO AMAZON WEB SERVICES

Discipline

Disciplines List
Computer Information Systems (Computer network installation, microcomputer technology, computer applications)

Modality

Face-to-Face
100% Online

Catalog Description

This course introduces the fundamentals of cloud computing including the different cloud computing models; Infrastructure as a Service, Platform as a Service, and Software as a Service on cloud platform. This course reviews the basic concepts of server, networking, and storage virtualization. Course participants will develop the knowledge and skills necessary to effectively demonstrate an overall understanding of the Amazon Web Services (AWS) Cloud Environment.

Schedule Description

This course introduces the fundamentals of cloud computing including the different cloud computing models; Infrastructure as a Service, Platform as a Service and Software as a Service on the Amazon Web Services platform. This course reviews the basic concepts of server, networking, and storage virtualization. We will go over what are the current industry trend of computing, storage and application migration to cloud computing. The course will cover the advantages and disadvantages of cloud computing. Students will also study cloud careers and discuss industry demand for cloud computing skills.

Lecture Units

1

Lecture Semester Hours

18

Lab Units

1

Lab Semester Hours
54

In-class Hours
72

Out-of-class Hours
36

Total Course Units
2
Total Semester Hours
108

Required Text and Other Instructional Materials

Resource Type
Book (Recommended)
Open Educational Resource
No

Author
Hutten, Dennis

Title
AWS: Amazon Web Services Tutorial The Ultimate Beginners Guide

Edition
1st

Publisher
CreateSpace Independent Publishing Platform

Year
2017

Resource Type
Web/Other
Open Educational Resource
Yes

Year
2018

Description
AWS Whitepapers - https://aws.amazon.com/whitepapers/

Class Size Maximum
35

Course Content
  • AWS Cloud Practitioner Essentials: Introduction
  • AWS Cloud Concepts Essentials
      • Introduction to the Cloud
      • Introduction to the AWS Cloud
  • AWS Core Services Essentials
      • Overview of Services and Categories
      • Introduction to the AWS Global Infrastructure

- Introduction to Amazon VPC
- Introduction to Security Groups
- Introduction to Compute Services
- Introduction to AWS Storage Services
- Introduction to AWS Database Solutions
- AWS Security Essentials
  - Introduction to AWS Security
  - The AWS Shared Responsibility Model
  - AWS Access Control and Management
  - AWS Security Compliance Programs
  - AWS Security Resources
- AWS Architecting Essentials
  - Introduction to the Well-Architected Framework
  - Reference Architecture: Fault Tolerance and High Availability
  - Reference Architecture: Web Hosting
- AWS Pricing and Support Essentials
  - Fundamentals of Pricing
  - Pricing Details
  - The TCO Calculator Overview
  - AWS Support Plans Overview
- Careers in cloud services

Lab Content

Lab activities will be completed on a cloud environment simulation program. These activities include:
- Introduction to Amazon Web Service (6 hours)
- AWS Infrastructure (8 hours)
- AWS Computing Services (8 hours)
- AWS Global Infrastructure (8 hours)
- AWS Security Services (8 hours)
- AWS Careers (8 hours)
- AWS Billing and Pricing (8 hours)

Course Objectives

	Objectives
Objective 1	Define what the AWS Cloud is and the basic global infrastructure
Objective 2	Describe basic AWS Cloud architectural principles
Objective 3	Describe the AWS Cloud value proposition
Objective 4	Describe key services on the AWS platform and their common use cases (for example, compute and analytics)
Objective 5	Describe basic security and compliance aspects of the AWS platform and the shared security model
Objective 6	Define the billing, account management, and pricing models
Objective 7	Identify sources of documentation or technical assistance (for example, whitepapers or support tickets)
Objective 8	Describe basic/core characteristics of deploying and operating in the AWS Cloud.
Objective 9	Review AWS Career Options

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Develop an understanding of cloud concepts, security, and compliance.
Outcome 2	Employ various cloud services technologies to provide business solutions.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Lecture	Video lectures will be delivered within the CMS and/or in person.
Collaborative/Team	Analyze a business situation and provide as-a-Service (aaS) solutions.
Demonstration, Repetition/Practice	Students will present their group work business solutions to the class.
Discussion	Weekly discussions regarding different AWS topics like costs and services.
Participation	Students will participate in classroom of CMS discussions.
Technology-based instruction	Students will complete lab modules using the AWS platform.
Laboratory	Analyze the IT needs of a business client and provide appropriate AWS solutions
Laboratory	Analyze business cases and provide AWS platform solution complete with pricing and billing structure.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Computational/problem-solving evaluations	Students will be given numerous research topic and problem-based scenarios that require students to apply learned concepts. Students will first analyze the problem, and then determine which administrative/configuration tools should be used to solve a particular problem-based scenario.	In Class Only
Mid-term and final evaluations	Quizzes, tests, labs, lab reports, homework, class/chat participation, skills demonstration, and final exam to determine that students have achieved stated course learning outcomes.	In Class Only
Written homework	Students will be required to submit written assignments for each course objective describing major concepts and applications.	Out of Class Only
Reading reports	Students are expected to complete readings that demonstrate their understanding of the course content and application of cloud computing technologies. They will be tested on the readings.	Out of Class Only
Presentations/student demonstration observations	Students will present their as-a-Service (aaS) recommendations and costs to the class as if they were the business owners.	In Class Only
Product/project development evaluation	Students will provide the details of use for each as-a-Service (aaS) and be able to explain the need for each.	In Class Only
Tests/Quizzes/Examinations	Students will complete reading comprehension quizzes after each module to ensure they've achieved stated course learning outcomes.	In and Out of Class
Oral and practical examination	Students will answer questions from the audience following their cloud migration presentation.	In Class Only
Critiques	Students will write reviews of classmates' cloud solutions proposals.	Out of Class Only
Laboratory projects	Student will use the simulation environment to complete various AWS-related activities	In Class Only
Written homework	Written reflection on the achievement of each of the course objectives	Out of Class Only

Assignments

Other In-class Assignments

Students will be given problem-solving IT scenarios that require students to apply cloud computing technologies. Students will first analyze the problem, and then determine which possible cloud computing service should be used to solve a particular problem-based scenario. They will then present different approaches to migrating to the cloud based on needs and IT situation.

Other Out-of-class Assignments

Students are expected to complete readings, watch videos, and complete out of class homework assignments that demonstrate their understanding of the course content and application of cloud computing technologies. (Approximately for 12 hours)

Students will be required to submit written assignments for each course objective describing major concepts and applications. (Approximately for 12 hours)

Students will be given various research topics and problem-based scenarios that require students to apply acquired concepts. Students will first analyze the problem, and then determine which administrative/configuration tools should be used to solve a particular problem-based scenario. Each student is to present once their different cloud solutions proposals along with migration plans, and pricing plans based on the business' needs and IT infrastructure. (Approximately for 12 hours)

Grade Methods

Letter Grade Only

Distance Education Checklist

Lab Courses

How will the lab component of your course be differentiated from the lecture component of the course?

We will be using the AWS platform to conduct lab simulations of cloud computer networks, instances, and buckets. We will have activities to develop the understanding of these cloud computing terms and function in lecture and, during lab, students will use these features and tools in their own simulated AWS environment.
Students will log in through Canvas and proceed to AWS platform from there.

From the COR list, what activities are specified as lab, and how will those be monitored by the instructor?

Introduction to Amazon Web Service, Understanding AWS Billing, Review AWS Infrastructure, Reviewing AWS Computing Services, Reviewing AWS Database Services, Reviewing AWS Storage Services, Reviewing AWS Security Services, and AWS Cloud Computing Career Options.
We will monitor these through the AWS platform and the grade reports from Canvas.

How will you assess the online delivery of lab activities?

This is the first time that we will offer this course (we would be the second in the state) so we don't have much experience evaluating the AWS simulation platform. Although I have used it in the past and find it easy to use and intuitive, this may not be our students' experience.
We will survey our students at the end of the course to determine how effective our lab activities are.

Instructional Materials and Resources

If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?

We will be using an AWS simulator that does not communicate with Canvas. The students will complete the activities that we assign in the simulation and then we assign a grade on Canvas. The AWS lab environment will not contain any student grades.

If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.

The AWS simulation environment contains simulations of computer networks, buckets, and instances and their configurations. These simulations will give students the "hands on" experience they need to be successful in the class and in finding a career.

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:

Timely feedback and return of student work as specified in the syllabus
Discussion forums with substantive instructor participation
Chat room/instant messaging
Regular virtual office hours
Private messages
Online quizzes and examinations
Video or audio feedback

Weekly announcements

External to Course Management System:
Direct e-mail
E-portfolios/blogs/wikis
Posted audio/video (including YouTube, 3cmediasolutions, etc.)
Synchronous audio/video
Teleconferencing
Telephone contact/voicemail

Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.
There will be weekly discussions regarding topics related to the course with appropriate instructor participation.
Students will create logs describing the process to create networks or instances. These logs are uploaded to the LMS and receive appropriate instructor feedback.

If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.
The AWS simulation environment will provide an environment for them to complete their lab activities.

Online Course Enrollment

Maximum enrollment for online sections of this course
35

Other Information

MIS Course Data

CIP Code
11.0901 - Computer Systems Networking and Telecommunications.

TOP Code
079900 - Other Information Technology

SAM Code
C - Clearly Occupational

Basic Skills Status
Not Basic Skills

Prior College Level
Not applicable

Cooperative Work Experience
Not a Coop Course

Course Classification Status
Credit Course

Approved Special Class
Not special class

Noncredit Category
Not Applicable, Credit Course

Funding Agency Category
Not Applicable

Program Status
Program Applicable

Transfer Status
Transferable to UC & CSU

Allow Audit
No

Repeatability
No

Materials Fee
No

Additional Fees?
No

Files Uploaded

Attach relevant documents (example: Advisory Committee or Department Minutes)
Advisory Meeting_Minutes Fall 2016.docx

Approvals

Curriculum Committee Approval Date
02/21/2019

Academic Senate Approval Date
02/28/2019

Board of Trustees Approval Date
03/15/2019

Chancellor's Office Approval Date
03/29/2019

Course Control Number
CCC000604003