

**Course Outline for CIS 81A**

**INTRODUCTION TO CLOUD COMPUTING**

**Effective: Spring 2020**

**I. CATALOG DESCRIPTION:**

CIS 81A — INTRODUCTION TO CLOUD COMPUTING — 3.00 units

This course introduces cloud computing which shifts information systems from on premises computing infrastructure to highly scalable internet architectures using current cloud platforms such as AWS, AZURE. The course provides a basic understanding of cloud computing technologies and provides students with the understanding required to effectively evaluate and assess the business and technical benefits of cloud computing and cloud applications. Students analyze a variety of cloud services (storage, servers, software applications), then learn to configure, deploy, and manage cloud facilities. The course also demonstrates/makes available the AWS and/or AZURE platforms for educational, industry career path guidance and career opportunities. This course surveys cloud careers and explores industry demand for cloud skills.

3.00 Units Lecture

**Grading Methods:**

Letter or P/NP

**Discipline:**

- Computer Information Systems

	<b>MIN</b>
<b>Lecture Hours:</b>	54.00
<b>Expected Outside of Class Hours:</b>	108.00
<b>Total Hours:</b>	162.00

**II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1**

**III. PREREQUISITE AND/OR ADVISORY SKILLS:**

**IV. MEASURABLE OBJECTIVES:**

**Upon completion of this course, the student should be able to:**

- A. Describe the cloud computing model, history, vendor perspectives and industry offerings.
- B. Describe the process to obtain an Amazon Web Services (AWS) and/or Microsoft AZURE account and establish an account via AWS or AZURE.
- C. Describe examples of infrastructure as a service, platform as a service, and software as a service.
- D. Use current cloud services from a leading service provider.

**V. CONTENT:**

- A. Cloud computing fundamentals
  1. History
  2. Business Drivers
  3. Basic concepts and terminology
  4. Goals/Benefits
  5. Risks and challenges
  6. Vendor perspectives
  7. Infrastructure as a service (IaaS)
  8. Platform as a service (PaaS)
  9. Software as a service (SaaS)
- B. AWS access
  1. AWS account acquisition
  2. AWS educate account acquisition
- C. Cloud adoption
  1. Current state of the cloud
  2. Business benefits and challenges of cloud services
  3. Cloud services offerings in the marketplace
  4. Case studies of AWS customers
- D. Cloud services from AWS
  1. Computing with AWS
  2. The AWS platform
  3. AWS global infrastructure

4. Data center concepts
- E. Managing the AWS platform
  1. Understanding the AWS management console
  2. AWS identity and Access Management
    - a. Understanding the IAM
    - b. IAM user management
- F. AWS budgets and alarms
  1. Freetier offering
  2. Establishment of budgets
  3. Creation of billing alarms
  4. Billing estimation and monthly calculator
- G. Hosting a static website in AWS
  1. Creating buckets for website objects
  2. Configure root domain bucket
  3. Enable logging of website
  4. Uploading of website content
  5. Enabling bucket redirections
  6. Testing/debugging of website
- H. Introduction to web services
  1. AWS Polly service introduction
  2. Using AWS Polly
  3. AWS Polly pricing
- I. Amazon AWS Elastic Compute Cloud (EC2) Services
  1. Elastic web-scale computing
  2. Administration
  3. Integration with AWS services
    - a. Amazon Simple Storage Service (S2)
    - b. Amazon Relational Database Service (RDS)
  4. EC2 Instance Types
  5. EC2 Machine Images
  6. EC2 Pricing
  7. Creating of a WordPress site using EC2
- J. AWS Educate Platform OR Microsoft AZURE Platform introduction
  1. Features
  2. Career Pathways
  3. Learning plan
  4. Career opportunities

#### VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. **Written Exercises** -
- C. **Lab** -

#### VII. TYPICAL ASSIGNMENTS:

- A. After reading a case study, create a justification and proposal for working with cloud enabling technology that meets the stated requirements
- B. Working with a cloud service (Google or Microsoft), create a shared document and a shared calendar
- C. Working with a cloud service (AWS or AZURE), create and host a website

#### VIII. EVALUATION:

##### **Methods/Frequency**

- A. Exams/Tests  
final exam
- B. Quizzes  
frequent 4-10
- C. Lab Activities  
60% hands-on lab activities

#### IX. TYPICAL TEXTS:

1. Lucifredi, Ryan. *AWS System Administration*. 1 ed., O'Reilly Publishers, 2018.
2. Sarkar, Aurobindo. *Learning AWS: Design, Build, and Deploy Responsive Applications using AWS Cloud Components*. 2 ed., Packt Publishing, 2018.

#### X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Web browser: any HTML 5 compliant web browser
- B. AWS and/or AZURE account: free for students