CS/IS242 : Cloud Computing - Security

General Information

Author:	• Simon Mirzayan
Course Code (CB01) :	CS/IS242
Course Title (CB02) :	Cloud Computing - Security
Department:	CSIS
Proposal Start:	Fall 2024
TOP Code (CB03) :	(0701.00) Information Technology, General
CIP Code:	(11.0101) Computer and Information Sciences, General.
SAM Code (CB09) :	Advanced Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000608689
Curriculum Committee Approval Date:	03/13/2024
Board of Trustees Approval Date:	04/16/2024
Last Cyclical Review Date:	03/13/2024
Course Description and Course Note:	CS/IS 242 focuses on protecting the confidentiality, integrity and availability of computing systems and data. Students learn how Amazon Web Service (AWS) uses redundant and layered controls, continuous validation and testing, and a substantial amount of automation to ensure the underlying infrastructure is continuously monitored and protected. Students examine the AWS Shared Responsibility Model and access the AWS Management Console to learn more about security tools and features provided by the AWS platform. This course will provide labs to reinforce the course content and practice securing cloud Information Technology.
Justification:	Mandatory Revision
Academic Career:	• Credit

Academic Senate Discipline

Primary Discipline:	• Computer Information Systems (Computer network installation, microcomputer technology, computer applications)
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Grading Basis

- Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Allow Students to Gain Credit by Exam/Challenge

Not applicable.

Course is not a support course

Transferability & Gen. Ed. Options

General Education Status (CB25)

Not Applicable

Transferability

Transferable to both UC and CSU

Transferability Status

Approved

C-ID	Area	Status	Approval Date	Comparable Course
ITIS	Information Technology and Information Systems	Approved	08/29/2022	ITIS 171 - Cloud Security Fundamentals

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	90
Total Course Out-of-Class Hours	72
Total Student Learning Hours	162

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience Education Status (CB10)

Variable Credit Course

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	2	4
Laboratory Hours	3	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	0
Course In-Class (Contact) Hours	
Lecture	36
Laboratory	54

Studio	0
Total	90

Course Out-of-Class Hours

Lecture	72
Laboratory	0
Studio	0
Total	72

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Advisory

CS/IS240 - Cloud Computing - Fundamentals (in-development)

Objectives

- Describe the cloud computing model.
- Describe examples of infrastructure as a service.
- Describe examples of platform as a service.
- Describe examples of software as a service.
- Identify and mitigate security concerns associated with cloud computing.

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Specifications

Methods of Instruction

Methods of Instruction	Lecture
Methods of Instruction	Laboratory
Methods of Instruction	Discussion
Methods of Instruction	Demonstrations

Out of Class Assignments

- Projects (i.e. Monitoring and Logging)
- Labs (i.e. Managing User Credentials)

Methods of Evaluation	Rationale
Exam/Quiz/Test	Exams (i.e. M/C tests and quizzes)
Project/Portfolio	Projects (i.e. Monitoring and Logging)
Evaluation	Labs (i.e. Managing User Credentials)

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Marcello Zillo Neto	AWS Certified Security Study Guide	Sybex	January 27, 2021	978-1119658818

Other Instructional Materials (i.e. OER, handouts)

Description	Instructor provided links to Internet resources.
Author	No value
Citation	No value
Online Resource(s)	No value

Materials Fee

No value

Learning Outcomes and Objectives

Course Objectives

Describe security best practices employed with AWS applications.

Manage security groups, access control lists, users, roles and permissions.

Support multi-factor authentication in their AWS applications.

Monitor and log security events using AWS tools.

SLOs

Explain the security benefits and responsibilities when using cloud services. Expected Outcome Performance: 70.0

ILOs Core ILOs	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.
CSIS Information Technology - A.S. Degree Major	Demonstrate an understanding of ethical concern associated with information technology including access, reliability, legal, ethical, and accuracy; identify types of computer crime; select, access, and use appropriate sources.
	Demonstrate installing, configuring, and maintaining computer and mobile devices, including diagnosing, resolving, and documenting common hardware and software.
	Demonstrate the proper server operation procedures, maintenance procedures and managing risks associated with real world networks.
CSIS Information Technology Certificate	Demonstrate an understanding of ethical concern associated with information technology including access, reliability, legal, ethical, and accuracy; identity types of computer crime; select, access, and use appropriate sources.
	Demonstrate installing, configuring and maintaining computer and mobile devices, including diagnosing, resolving and documenting common hardware and software.
	Demonstrate the proper server operation procedures, maintenance procedures and managing risk associated with real world networks.
CSIS Computer Science - A.S. Degree Major	Prepare a software project to implement a single scientific, mathematical, business, or technical function.
CSIS Computer Science - Certificate	Prepare a software project to implement a single scientific, mathematical, business, or technical function.
CSIS Computer Support Technician	demonstrate an understanding of computer structure and operations
	possess a basic knowledge of computer operation and capabilities with the skills to troubleshoot problems or aid in user support.
CSIS Computer Software Technician	demonstrate the ability to independently create, save, modify and print a document using a word processing program and appropriate assistive technology
CSIS Web Development - A.S. Degree Major	use industry standard tools and techniques to produce, publish and maintain Web sites and Web content.

CSIS Web Development - Certificate	use industry standard tools and techniques to produce, publish and maintain Web sites and Web content.

Describe the access control and management features available in the cloud. Expected Outcome Performance: 70.0

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Describe security logging and monitoring tools available in the cloud. Expected Outcome Performance: 70.0

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Course Content

Lecture Content

Introduction to AWS (4 hours)

Cloud Security Best Practices (4 hours)

Cloud Shared Responsibility Model (4 hours)

Cloud Security Groups (4 hours)

Cloud Network Access Control (4 hours)

Managing User Credentials on the Cloud (4 hours)

Managing SSL/TLS Certificates on the Cloud (4 hours)

Cloud Monitoring and Logging (4 hours)

Cloud based Multi-Factor Authentication (4 hours)

Total hours: 36

Laboratory/Studio Content

Introduction to AWS (6 hours)

Cloud Security Best Practices (6 hours)

Cloud Shared Responsibility Model (6 hours)

Cloud Security Groups (6 hours)

Cloud Network Access Control (6 hours)

Managing User Credentials on the Cloud (6 hours)

Managing SSL/TLS Certificates on the Cloud (6 hours)

Cloud Monitoring and Logging (6 hours)

Cloud based Multi-Factor Authentication (6 hours)

Total hours: 54

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

No Value

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liason?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value