CS/IS241 : Cloud Computing - Databases Essentials

General Information

Author:	• Simon Mirzayan
Course Code (CB01) :	CS/IS241
Course Title (CB02) :	Cloud Computing - Databases Essentials
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) :	CCC000608688
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 241 Teaches students cloud database implementation and management where students will define, operate and scale both Structured Query language (SQL) servers. The course will include exercises using Amazon Relational Database Service (RDS) and SQL to create and fill tables, retrieve and manipulate data, and will use Amazon DynamoDB for noSQL solutions. This course will provide hands-on labs using cloud database implementation and management.
Justification:	Mandatory Revision
Academic Career:	• Credit
Author:	• Simon Mirzayan

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.

Grading Basis

• Grade with Pass / No-Pass Option

	Allow Students to Gain Credit by Exam/Challenge	**Pre-Collegiate Level (CB21)**	**Course Support Course Status (CB26)**
		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 180 - Introduction to Database Management Systems

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	Collaborative Learning

Methods of Instruction	Lecture

Methods of Instruction	Discussion

Methods of Instruction	Laboratory

Methods of Instruction	Demonstrations

Methods of Instruction	Presentations

Out of Class Assignments

- Projects (Amazon Relational Database Service RDS setup)

Methods of Evaluation

Methods of Evaluation	Rationale
Exam/Quiz/Test	Labs (Implementing DynamoDB)
Exam/Quiz/Test	Exams
Project/Portfolio	Projects (Amazon RDS setup)

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Matheus Arrais	AWS Certified Database Study Guide	Sybex	May 9, 2023	978-1119778950

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 how SQL and noSQL database web services can be used to store data.

Identify and compare the three available data source types: structured, unstructured, and semistructured.

Identify different database types and for which use cases they are best suited.

Describe server-based and server-less architectures, including use cases for each type.

Compare and categorize relational and non-relational database services.

Identify methods of migrating data to cloud services.

SLOs

Explain the design principles that reduce redundancy and increase performance.   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 Certificate	Demonstrate installing, configuring and maintaining computer and mobile devices, including diagnosing, resolving and documenting common hardware and software.
CSIS Information Technology - A.S. Degree Major	Demonstrate installing, configuring, and maintaining computer and mobile devices, including diagnosing, resolving, and documenting common hardware and software.
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 - Certificate	use industry standard tools and techniques to produce, publish and maintain Web sites and Web content.	
CSIS Web Development - A.S. Degree Major	use industry standard tools and techniques to produce, publish and maintain Web sites and Web content.	

Describe the use of a database management system language in the cloud.   Expected Outcome Performance: 70.0

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Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Introduction Cloud Database (4 hours)

Amazon database web services, the Management Console, Regions and Availability Zones   (4 hours)

Relational database model   (4 hours)

Amazon RDS Entity relationship modeling   (4 hours)

Amazon RDS Datatypes (numeric, character and date)   (4 hours)

Amazon RDS (Scripts and SQL commands)   (4 hours)

Amazon DynamoDB   (4 hours)

Amazon web services (AWS) File storage and retrieval   (4 hours)

Amazon web services (AWS) backups and logs   (4 hours)

Total Hours: 36

Laboratory/Studio Content

Introduction cloud database (6 hours)

Amazon database web services, the Management Console, Regions and Availability Zones   (6 hours)

Relational Database Model   (6 hours)

Amazon Relational Database Service (RDS) Entity relationship modeling   (6 hours)

Amazon RDS Datatypes (numeric, character and date)   (6 hours)

Amazon RDS (Scripts and SQL commands)   (6 hours)

Amazon DynamoDB   (6 hours)

Amazon Web Services (AWS) File storage and retrieval   (6 hours)

Amazon Web Services (AWS) backups and logs   (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