

COMPUTER INFORMATION SYSTEMS

See “Computer Science (<https://catalog.sbccc.edu/academic-departments/computer-science/>)” and “Computer Network Engineering and Electronics” (<https://catalog.sbccc.edu/academic-departments/computer-network-engineering/>) sections for additional computer courses.

Computer Information Systems (CIS) provides students with a broad background in the application of computers to the emerging needs of business and industry. CIS programs of study prepare students for entry-level positions in computer programming, systems analysis, database programming, help desk, computer operations and network management, information systems management, and sales and technical information positions.

The Department offers degrees and certificates as well as entry-level and advanced Skills Competency Awards.

The Department participates in a variety of industry partnerships, including the Microsoft Imagine Academy, VMware Academy, Citrix Academy, Oracle Academy, AWS Academy, and is a CompTIA Academy Partner. It offers certification preparation classes on behalf of these vendors.

The Department also provides introductory courses (electives) for students in programs campus-wide.

Planning a Program of Study

Students are advised to see a college counselor and a departmental instructor in planning a program of study. Factors to be considered in the plan:

1. Academic goals (i.e., occupational degree, transfer, or certificate programs).
2. Career and occupational goals (i.e., programmer, operations analyst, technical support, sales).

Programs of Study

Associate Degrees

- Computer Information Systems, Associate of Science Degree (AS) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/computer-information-systems-as/>)
- Computer Information Systems, Associate of Science Degree (AS): Emphasis in System Administration (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/computer-information-systems-as-system-administration-emphasis/>)

Certificates of Achievement

- Cloud Computing Architect, Certificate of Achievement (C) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/cloud-computing-architect-certificate-achievement/>)
- Database Programming and Applications Development, Certificate of Achievement (C) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/database-programming-applications-development-certificate-achievement/>)

- IT Support Technician, Certificate of Achievement (C) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/it-support-technician-certificate-achievement/>)
- PC Support and Network Management, Certificate of Achievement (C) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/pc-support-network-management-certificate-achievement/>)
- Technical Writing, Certificate of Achievement (C) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/technical-writing-certificate-achievement/>)

Skills Competency Awards

- Access SQL Professional, Skills Competency Award (SCA) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/access-sql-professional-skills-competency-award/>)
- Apple macOS Administration, Skills Competency Award (SCA) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/mac-os-x-administration-skills-competency-award/>)
- Data Analytics, Skills Competency Award (SCA)
- Information Technology Management, Skills Competency Award (SCA) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/technology-management-skills-competency-award/>)
- Microsoft SQL Server Database Administration, Skills Competency Award (SCA) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/microsoft-sql-server-database-administration-skills-competency-award/>)
- Microsoft Windows System Administration and Security, Skills Competency Award (SCA) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/microsoft-windows-system-administration-security-skills-competency-award/>)
- Virtualization System Administration, Skills Competency Award (SCA) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/virtualization-system-administration-skills-competency-award/>)
- Web Server Administration, Skills Competency Award (SCA) (<https://catalog.sbccc.edu/academic-departments/computer-information-systems/web-server-administration-skills-competency-award/>)

Credit Courses

Computer Information Systems (CIS)

CIS 101 Introduction to Computers and Information Systems (4 Units)
Hours: 72 (72 lecture)

Introduction to the role of computer information systems within modern organizations. Topics include hardware and software functions, programming, systems development and networks. Students use computers for programming as well as popular microcomputer applications such as word processing, spreadsheets and database management.

SBCC General Education: SBCCGE Area D2

Transfer Information: CSU Transferable, UC Transferable

UC Transfer Limit: CIS 101 combined with CS 101: maximum credit, one course.

C-ID: BUS 140, ITIS 120.

CIS 107 Introduction to Database Systems (4 Units)

Course Advisories: CIS 101.

Hours: 72 (72 lecture)

Introduction to relational database management concepts. Includes database creation, manipulation, modification and reporting; queries using SQL and Query-by-Example (QBE); and database design and normalization.

Transfer Information: CSU Transferable, UC Transferable

C-ID: ITIS 180.

CIS 111 Computer User Support (2 Units)

Course Advisories: CIS 101.

Hours: 36 (36 lecture)

Computer user support methodologies; focus on understanding interpersonal skills required for user support.

Transfer Information: CSU Transferable

CIS 112 Help Desk Concepts (2 Units)

Course Advisories: CIS 101.

Hours: 36 (36 lecture)

Introduction to computer help desk methodologies using the ITIL framework.

Transfer Information: CSU Transferable

CIS 114 Virtualization Concepts (2 Units)

Course Advisories: CIS 218.

Hours: 36 (36 lecture)

Introduction to virtualization concepts, with an overview of virtualization products. Creation, configuration and management of virtual machines. Provides occupational preparation for information systems professionals such as PC support personnel, computer programmers, network/systems managers and related technical and operations administration personnel.

Transfer Information: CSU Transferable, UC Transferable

CIS 115 Cloud Computing Essentials (2 Units)

Course Advisories: CIS 112 and CIS 101.

Hours: 36 (36 lecture)

Introduction to cloud computing. Implementation, management, security and privacy issues associated with cloud computing. Provides occupational preparation for information systems professionals such as PC support personnel, computer programmers, network/system managers and related technical and operations administration personnel.

Transfer Information: CSU Transferable

CIS 116 Cloud Implementation (3 Units)

Course Advisories: CIS 114 and CIS 115.

Hours: 54 (54 lecture)

Implementing cloud services in the enterprise. Provides occupational preparation for information systems professionals such as PC support personnel, computer programmers, network/system managers, and related technical and operations administration personnel.

Transfer Information: CSU Transferable

CIS 117 Introduction to SQL Programming (2 Units)

Course Advisories: CIS 101.

Hours: 36 (36 lecture)

Incorporate SQL to retrieve, insert, update and delete information from relational databases. Create row and aggregate functions, inner and outer joins, set operations, subqueries and parameter queries.

Transfer Information: CSU Transferable

CIS 119 Introduction To Programming Using Visual Basic (4 Units)

Course Advisories: CIS 101.

Hours: 72 (72 lecture)

Fundamental programming concepts and application development for students new to programming. Covers flowcharting and pseudocode; algorithms and program structure; control structures; objects, events and variables; modular design, sub-programs and functions; and file processing.

Transfer Information: CSU Transferable, UC Transferable

CIS 120 Introduction to NoSQL Databases (2 Units)

Course Advisories: CIS 107 or CIS 117.

Hours: 36 (36 lecture)

Introduction to NoSQL databases. Fundamentals of NoSQL databases and survey of NoSQL products.

Transfer Information: CSU Transferable, UC Transferable

CIS 181 Technical And Professional Writing (3 Units)

Same as: ENG 181

Hours: 54 (54 lecture)

Writing course designed to teach professional-level written communication in technical fields.

Transfer Information: CSU Transferable

CIS 200 Windows PowerShell (2 Units)

Course Advisories: CIS 218.

Hours: 36 (36 lecture)

Automate system administration functions in Windows using Windows PowerShell. Provides occupational preparation for information systems professionals, such as PC support personnel, computer programmers, network/systems managers and related technical and operations-administration personnel.

Transfer Information: CSU Transferable

CIS 201 UNIX/LINUX System Administration (4 Units)

Course Advisories: CIS 218 or CS 130.

Hours: 72 (72 lecture)

Introduction to UNIX and Linux system administration. Occupational preparation for PC-support personnel, programmers and network systems managers.

Transfer Information: CSU Transferable, UC Transferable

C-ID: ITIS 155.

CIS 206 MS Windows Server System Administration (4 Units)

Course Advisories: CIS 218.

Hours: 72 (72 lecture)

Introduction to Microsoft Windows Server, with emphasis on system administration. Provides occupational preparation for information systems professionals, such as PC support personnel, computer programmers, network/systems managers, and related technical and operations administration personnel.

Transfer Information: CSU Transferable

C-ID: ITIS 155.

CIS 209 Visual Basic .Net Programming (4 Units)

Course Advisories: CIS 119.

Hours: 72 (72 lecture)

Windows programming using Visual Basic forms, controls, menus, procedures, arrays and error-handling techniques. Accessing files and databases. Designed for students familiar with programming concepts but little or no experience with Visual Basic.

Transfer Information: CSU Transferable, UC Transferable

CIS 213 MS Exchange Server Administration (3 Units)

Course Advisories: CIS 206.

Hours: 54 (54 lecture)

Introduction to Microsoft Exchange Server with emphasis on system administration. Provides occupational preparation for information systems professionals, such as PC support personnel, computer programmers, network/systems managers and related technical and operations/administration personnel.

Transfer Information: CSU Transferable

CIS 218 MS Windows Desktop System Administration (4 Units)

Course Advisories: CIS 101.

Hours: 72 (72 lecture)

Introduction to Microsoft Windows desktop system administration. Provides occupational preparation for information systems professionals, such as PC support personnel, computer programmers, network/systems managers, and related technical and operations administration personnel.

Transfer Information: CSU Transferable

CIS 219 VMware vSphere System Administration (3 Units)

Course Advisories: CIS 114 and either CIS 201 or 206.

Hours: 54 (54 lecture)

Introduction to VMware vSphere system administration. Provides occupational preparation for information systems professionals, such as PC support personnel, computer programmers, network/systems managers and related technical and operations administration personnel.

Transfer Information: CSU Transferable

CIS 220 Introduction To Electronic Commerce (3 Units)

Same as: MKT 220

Hours: 54 (54 lecture)

Survey of electronic commerce and the use of the Internet to conduct business. Includes an interdisciplinary exploration of the issues, trends, opportunities and technologies which shape electronic commerce.

Transfer Information: CSU Transferable

CIS 222 MS Azure Cloud Administration (3 Units)

Course Advisories: CIS 114 and CIS 116 and CIS 206.

Hours: 54 (54 lecture)

Introduction to configuration and administration of Microsoft Azure cloud services. Provides occupational preparation for information systems professionals, such as PC support personnel, computer programmers, network/systems managers and technical and operations administration personnel.

Transfer Information: CSU Transferable

CIS 224 Apache Web Server Administration (2 Units)

Course Advisories: CIS 201 or 206.

Hours: 36 (36 lecture)

Install, configure and trouble-shoot the Apache Web Server on multi-platform environments.

Transfer Information: CSU Transferable

CIS 228 Apple macOS System Administration (4 Units)

Course Advisories: CIS 101.

Hours: 72 (72 lecture)

Introduction to macOS desktop and server administration. Provides occupational preparation for information systems professionals, such as PC support personnel, network/systems managers and related technical and operations administration personnel.

Transfer Information: CSU Transferable

CIS 231 SQL Server Design And Programming (3 Units)

Course Advisories: CIS 117 or CIS 107 and CIS 119.

Hours: 54 (54 lecture)

Designing and implementing SQL Server databases. Programming in Transact-SQL. Designed for students and professionals seeking Microsoft certification.

Transfer Information: CSU Transferable

CIS 232 SQL Server Database Administration (3 Units)

Course Advisories: CIS 206 and CIS 231.

Hours: 54 (54 lecture)

Administering, backing up and recovering SQL Server databases. Designed for students and professionals seeking Microsoft certification.

Transfer Information: CSU Transferable, UC Transferable

CIS 234 Oracle Design and Programming (4 Units)

Course Advisories: CIS 117 or CIS 107.

Hours: 72 (72 lecture)

Programming in SQL and creating basic PL/SQL procedures. Designed for students and professionals seeking Oracle certification.

Transfer Information: CSU Transferable

CIS 235 Oracle PL/SQL Programming (4 Units)

Course Advisories: CIS 234.

Hours: 72 (72 lecture)

Programming PL/SQL procedures, functions, triggers, packages and object types in Oracle's SQL*Plus and Procedure Builder environments. Designed for students and professionals seeking Oracle certification.

Transfer Information: CSU Transferable

CIS 236 Oracle Database Administration (3 Units)

Course Advisories: CIS 201 or CIS 206 or CIS 234.

Hours: 54 (54 lecture)

Administering, backing up and recovering Oracle databases. Designed for students and professionals seeking Oracle certification.

Transfer Information: CSU Transferable, UC Transferable

CIS 237 Advanced SQL Programming (2 Units)

Course Advisories: CIS 107 or CIS 117.

Hours: 36 (36 lecture)

Using SQL to clean and consolidate data; perform correlated subqueries and recursive common table expression retrievals; write SQL queries; and access object-relational data, query within JSON string fields.

Transfer Information: CSU Transferable, UC Transferable

CIS 238 Data Warehousing SQL Server (3 Units)

Course Advisories: CIS 107 or CIS 117.

Hours: 54 (54 lecture)

Using Microsoft SQL Server to create data warehouses and analyze warehoused data.

Transfer Information: CSU Transferable

CIS 239 Crystal Reports (2 Units)

Course Advisories: CIS 107, CIS 117.

Hours: 36 (36 lecture)

Developing database-independent reports using Crystal Reports.

Transfer Information: CSU Transferable

CIS 243 Systems Analysis and Design (4 Units)

Course Advisories: CIS 101.

Hours: 72 (72 lecture)

Analyzing and designing information systems. Information gathering, cost-benefit analysis, systems modeling techniques and prototyping.

Transfer Information: CSU Transferable, UC Transferable

CIS 245 IT Project Management (4 Units)

Course Advisories: CIS 101.
Hours: 72 (72 lecture)
Introduction to information technology project management.
Transfer Information: CSU Transferable

CIS 246 Management of Information Technology (3 Units)

Course Advisories: CIS 101.
Hours: 54 (54 lecture)
Introduction to the management of information technology.
Transfer Information: CSU Transferable

CIS 251 Advanced SQL Server Programming (4 Units)

Course Advisories: CIS 231.
Hours: 72 (72 lecture)
SQL Server programming using advanced features of Transact-SQL.
Coding functions, procedures and triggers using Common Language
Runtime integration are explored.
Transfer Information: CSU Transferable

CIS 252 MySQL Design and Programming (3 Units)

Course Advisories: CIS 107 or 117.
Hours: 54 (54 lecture)
Programming in SQL and creating basic procedures and functions
in MySQL. Designed for students and professionals seeking MySQL
certification.
Transfer Information: CSU Transferable, UC Transferable

CIS 253 Business Intelligence with Microsoft SQL Server (4 Units)

Course Advisories: CIS 238.
Hours: 72 (72 lecture)
Implementing and designing business intelligence solutions with
Microsoft SQL Server. Provides occupational preparation for information
systems professionals, such as PC support personnel, computer
programmers, network/systems managers, and related technical and
operations administration personnel.
Transfer Information: CSU Transferable

CIS 254 MongoDB Design and Programming (3 Units)

Course Advisories: CIS 120.
Hours: 54 (54 lecture)
Designing and programming using MongoDB document database.
Transfer Information: CSU Transferable, UC Transferable

CIS 255 Apache Cassandra Design and Programming (3 Units)

Course Advisories: CIS 120.
Hours: 54 (54 lecture)
Designing and programming an Apache Cassandra database.
Transfer Information: CSU Transferable, UC Transferable

CIS 258 Data Analytics with R (3 Units)

Course Advisories: CIS 101.
Hours: 54 (54 lecture)
Introduction to R programming concepts for data analytics. Includes data
types in R, data structures, importing and manipulating data, computing
basic descriptive statistics, and data visualization fundamentals.
Transfer Information: CSU Transferable, UC Transferable

CIS 262 VMware Desktop Administration (3 Units)

Course Advisories: CIS 219 CIS 206.
Hours: 54 (54 lecture)
Virtual desktop administration using VMware Horizon View. Provides
occupational preparation for information systems professionals, such
as PC-support personnel, computer programmers, network/systems
managers, and related technical and operation administration personnel.
Transfer Information: CSU Transferable

CIS 263 Microsoft System Center Configuration Manager Administration (3 Units)

Course Advisories: CIS 206.
Hours: 54 (54 lecture)
Administering and deploying Microsoft System Center Configuration
Manager. Provides occupational preparation for information systems
professionals, such as PC support personnel, computer programmers,
network/systems managers, and related technical and operations
administration personnel.
Transfer Information: CSU Transferable

CIS 264 AWS Cloud Computing Architecture (3 Units)

Course Advisories: CIS 116.
Hours: 54 (54 lecture)
Introduction to Amazon Web Services cloud architecture and
implementation. Provides occupational preparation for information
systems professionals such as network/systems managers and related
technical and operations administration personnel.
Transfer Information: CSU Transferable

CIS 265 Google Cloud Computing Architecture (2 Units)

Course Advisories: CIS 116.
Hours: 36 (36 lecture)
Introduction to Google Cloud architecture and implementation. Provides
occupational preparation for information systems professionals such
as network/systems managers and related technical and operations
administration personnel.
Transfer Information: CSU Transferable

CIS 290 Work Experience In Computer Information Systems (1-4 Units)

Hours: 216 (216 lab)
Supervised employment for students whose career objectives, course
of study and employment complement each other. Students must
accomplish specific course objectives. Class meetings on campus are
scheduled each semester. Course restricted to 3 repetitions
Transfer Information: CSU Transferable