

# COMPUTER INFORMATION SYSTEMS

## Career Opportunities

### A.S./Certificate Level

Office Manager	Word Processor
Office Clerk	Administrative Aide
Receptionist	Data Entry Operator
Medical Office Assistant	Secretary
Junior Programmer	Microcomputer Specialist
Filing Clerk	Systems Analyst
Software Engineer	Tech Support Specialist
Applications Programmer	
Customer Service Support Representative	
Typist/Office Machines Operator	

### B.S. Level

Computer Consultant	Corporate Trainer
Sales	Instructor
Information Systems Manager	

## Faculty

### Full-Time

Hank Bouma  
Diane Eberhardy  
Carmen Guerrero  
Maria Pinto-Casillas  
Vish Viswanatha

### Part-Time

Aziz Awwad	Richard Carmichael
Billy Davis	Leonard Gilmore
Sandy Iverson	Carol Jablonicky
P.J. Manning	Gracia Marks
Dolly Montalvo	Joe Piantino
Kathlynn Spencer	Ray Tafoya
Cherri Ziegler	Alexandra Zuromski

## ◆ Administrative Assistant

### Associate in Science Degree

#### Certificate of Achievement

This program is designed for students who wish to prepare for positions as administrative assistants or secretaries and work closely with management in a business, professional, educational, or industrial office.

#### Required Courses:

	Units
CIS R001A/B	Keyboarding I/II 1/1
CIS R002	Keyboarding Speed & Accuracy 2
CIS R003A	Filing 1/2
CIS R003B	Ten-Key Calculators 1/2
CIS R003K	Proofreading Skills 2
CIS R008	Machine Transcription 2
CIS R009	Office Procedures 3
CIS R020B	Introduction to the Internet/WWW 1
CIS R021A	Introduction to Windows 1
CIS R023A	Excel I 3
CIS R024A	Access 3
CIS R026B	Microsoft Word 3
BUS R030	Business Mathematics 3
BUS R140	Business Communications 3

### Complete a minimum of three units from the following:

BUS R001	Preparation for Accounting	3
BUS R101A	Accounting Principles I	3
CIS R023B	Excel II	3
CIS R025A	PowerPoint	2
CIS R026A	WordPerfect	3
BUS R020	Introduction to the Medical Office	1
BUS R021	Medical Terminology	3
BUS R120	Introduction to Business	3

**Total Required Units 32**

## ◆ Computer Information Systems

### Associate in Science Degree

#### Certificate of Achievement

This program is designed for students interested in learning basic computer information systems concepts, principles, and techniques. Students will be prepared to enter the field of information systems technology as business applications specialists and junior programmers. This program is oriented to applying computer information systems skills to a business, industry, or government environment using microcomputer systems.

#### Required Courses:

	Units
BUS R101A	Accounting Principles I 3
BUS R120	Introduction to Business 3
BUS R140	Business Communications 3
CIS R024A	Access 3
CIS R100	Introduction to Computer Information Systems 3
CIS R101	Programming Principles and Design 3
CIS R110A	VISUAL BASIC Programming I 3
CIS R111A	C++ Programming for Business Applications 3
CIS R120	Systems Analysis & Design 3
CIS R020B	Introduction to the Internet/WWW 1

**Total Core Units 28**

Complete a minimum of three units from the following courses:

BUS R180	Introduction to International Business	3
BUS R181C	International Management	3
CIS R023A	Excel I	3
CIS R025A	Presentation Graphics Using PowerPoint	2
CIS R025L	Presentation Software Lab	1
CIS R027B	Web Pages with HTML	3
CIS R060	Networking Essentials	4
CIS R110B	VISUAL BASIC Programming II	3
CIS R110C	VISUAL BASIC for ACCESS	3
CIS R112A	JAVA Programming I	3
CIS R114A	COBOL Programming I	3

**Total Required Units 31 - 32**

## ◆ Office Microcomputers

### Associate in Science Degree

#### Certificate of Achievement

This program is designed for students who wish to prepare for office positions as computer operators, word processors, or word processing administrative assistants. This program permits flexibility in specialization with accounting, office skills and/or advanced programming skills.

#### Required Courses:

	Units
CIS R001A/B	Keyboarding I/II 1/1
CIS R002	Keyboarding Speed & Accuracy 2
CIS R003K	Proofreading Skills 2
CIS R020B	Introduction to the Internet/WWW 1
CIS R021A	Introduction to Windows 2
CIS R023A	Excel I 3

CIS R024A	Access	3
CIS R026B	Microsoft Word	3
CIS R100	Introduction to Computer Information Systems	3
CIS R101	Programming Principles and Design	3
CIS R110A	VISUAL BASIC Programming I	3
BUS R140	Business Communications	3
Complete one of the following courses:		
CIS R110B	VISUAL BASIC Programming II	3
CIS R110C	VISUAL BASIC for ACCESS	3
BUS R101A	Accounting Principles I	3
<b>Total Required Units</b>		<b>33</b>

## ◆ Office Occupations Preparation Program

### Certificate of Completion

(Awarded by the Department)

Receive a Certificate of Completion after 15 units! The Office Occupations Program is designed for students interested in obtaining entry-level employment in an office. The program can be completed in 13 weeks! Keyboarding is a skill needed to succeed in the program. If a student does not type 20 wpm then enrollment in CIS R001A, Keyboarding I is required.

Required Courses:		Units
BUS R041	Basic Business English	3
CIS R026B	Microsoft Word	3
CIS R021	Windows Basics	½
CIS R002	Keyboarding Speed & Accuracy	2
CIS R003A	Filing	½
CIS R003P	Job Skills	2
CIS R003D	Office Communications and Interpersonal Skills	2
CIS R023	Microsoft Excel Basics	½
CIS R003B	Ten-Key Calculators	½
CIS R007L	Office Preparation Lab	1
<b>Total Required Units</b>		<b>15</b>

For additional information on the program call 986-5800, Ext. 1979.

## Computer Information Systems Courses

### OFFICE AUTOMATION

#### CIS R001A—Keyboarding I 1 unit

½ hour lecture, 1½ hours lab weekly

This course provides instruction on letter, number, symbol, and special keys and develops fundamental skills in the operation of the keyboard. (2)

#### CIS R001B—Keyboarding II 1 unit

Prerequisites: CIS R001A.

½ hour lecture, 1½ hours lab weekly

This course provides instruction on the formatting of reports, business letters, envelopes, memos, and tables. It will also provide drill work to improve both speed and accuracy in keyboarding techniques. (2)

#### CIS R002—Keyboarding Speed & Accuracy 2 units

Prerequisites: CIS R001A.

1 hour lecture, 3 hours lab weekly

This course is designed to improve speed and accuracy in using the keyboard through development of proper techniques. It is for students who know the keyboard but need more work on speed and/or accuracy. Drills for speed development and accuracy will be self-paced. This course may be taken three times. (2)

#### CIS R003A—Filing ½ unit

1½ hours laboratory weekly

This course is a quick but thorough review of filing procedures and principles. Students will learn alphabetic and government filing procedures. (2)

#### CIS R003B—Ten-Key Calculators ½ unit

1½ hours laboratory weekly

This course includes practical business problems that can be solved on the ten-key calculator. Students will learn to operate the ten-key keyboard by touch through individualized instruction. Drill and review will round out the operator's training. (2)

#### CIS R003C—Business Vocabulary ½ unit

1½ hours laboratory weekly

This course gives instruction in learning to spell the words most commonly used in business and for mastering vocabulary for business communications. This course is required for the \*Office Technology Customer Service certificate and degree. (2)

#### CIS R003D—Office Communications and Interpersonal Skills 2 units

2 hours lecture weekly

This course has been designed for students who want to learn effective communication and interpersonal skills to enhance on-the-job communication. Topics will include listening skills; non-verbal and face-to-face communications; e-mail, voice mail, and fax communications; Internet research; intercultural and diversity communications; ethical and legal guidelines in communication; development of skills necessary to deal with difficult people; conflict resolution; and the development of telephone communication skills. Not applicable for degree credit. (2)

#### CIS R003K—Proofreading Skills 2 units

Prerequisites: BUS R040 or ENGL R066 or equivalent.

Advisory: CIS R001A and CIS R001B.

2 hours lecture weekly

This course provides skill development in proofreading with emphasis on finding and correcting typographical, grammatical, formatting, and content errors. This course is required for the Administrative Assistant, \*Office Technology Customer Service, and Office Microcomputers certificates and degrees. (2)

#### CIS R003L—Telephone Techniques ½ unit

1½ hours lab weekly

This course is designed to train students to use a telephone professionally and efficiently in a business environment. The emphasis is on the importance of positive telephone skills to develop and maintain a positive company image and provide reliable service. This course is required for the \*Office Technology Customer Service certificate and degree. (2)

#### CIS R003P—Job Skills 2 units

2 hours lecture weekly

This course will teach students basic job skills such as attitude, work habits, interpersonal skills, decision-making techniques, proper dress, stress management, and promotion. This class is required for the \*Office Technology Customer Service certificate and degree. Field trips may be required. (2)

\*The Office Technology—Customer Service Curriculum program requirements have been temporarily suspended. For further information, please contact the Occupational Ed. & Econ. Dev. division office.

**CIS R007—Office Preparation 1-12 units***Lecture and/or lab hours as required by unit formula.*

This course is for students with little or no previous business training who have immediate job goals in mind. The course offers training in various office skills (keyboarding, calculators, oral communications, business letter writing, filing, spelling, English, punctuation, math review, office procedures, and job search techniques) necessary for employment as an office clerk, a clerk typist, a receptionist, or other entry-level office occupation. The program is self-paced and operates on an open-entry, open-exit enrollment plan. A Certificate of Completion may be earned for completing 24 units. Students may receive from one to twelve units per semester depending on completion of course work. Course may be repeated (three repetitions for a maximum of 24 units). Repetition is only for completing and learning new skills—no successfully completed subjects may be repeated. Contact Admissions Office for vacancy information. (1)

**CIS R007L—Office Preparation Lab 1 unit***3 hours lab weekly*

This course is for students who need more time and additional instructor assistance to complete assigned course work from the Office Occupations Preparation Program. This course is also for students who need to complete unfinished course work in the program, e.g., returning students. Not applicable for degree credit. Course may be taken three times. (1)

**CIS R008—Machine Transcription 2 units***Prerequisites: CIS R001B.**Advisory: CIS R003K and a typing speed of 40 wpm.**2 hours lecture weekly*

This course teaches transcription of dictation from cassettes to achieve mailable documents. It includes a brief review of grammar and spelling. This course is required for the Administrative Assistant certificate and degree. (2)

**CIS R009—Office Procedures 3 units***Prerequisites: CIS R001B.**Advisory: CIS R003K.**3 hours lecture weekly*

This course provides instruction and practical applications in current office techniques including office organizations, time management, telephone procedures, origination of correspondence, records management, mail handling, job skills, human relations, and stress management. This is a good "finishing course" after having taken separate skill courses. Field trips may be required. (2)

**WORD PROCESSING****CIS R020A—Introduction to Microcomputers 2 units***2 hours lecture weekly*

This course will provide beginning students with a basic understanding of the concepts and terminology relating to microcomputers and will provide them with a survey of popular microcomputer applications programs. Students will be introduced to and obtain hands-on experience with microcomputers, operating systems, word processing, spreadsheets, and database management applications. (2)

**CIS R020B—Introduction to the Internet/WWW 1 unit***1 hour lecture weekly*

This course provides an overview of Internet services, telecommunications services, data services, and wide-area computer networking services. Particular emphasis is placed on electronic mail, commercial data services, and Internet services, and how these services can be accessed and explored by businesses and individuals. Not applicable for degree credit. (2)

**CIS R021—Windows Basics ½ unit***½ hour lecture weekly*

This is an introductory course designed to provide an overview of the Microsoft Windows operating system. It is designed for the office professional or any personal computer user with no Windows experience. This course emphasizes Windows basics such as desktop management, Explorer, My Computer, and Control Panel. Field trips may be required. Not applicable for degree credit. (2)

**CIS R021A—Introduction to Windows 1 unit***1 hour lecture weekly*

In this course, students will learn to manage files and to use Windows tools, accessories, and applications. This course is suitable for students wishing to learn more about system software. Not applicable for degree credit. (2)

**CIS R021B—Windows Installation ½ unit***½ hour lecture weekly*

This course will teach students to install and manage a Windows based operating system. Students will get a top-line overview of what to expect from an operating system. An understanding of what Windows can do for either the power or novice user. (2)

**CIS R022A—Microsoft Office 3 units***Advisory: CIS R021A.**3 hours lecture weekly*

This is a survey course and is designed to teach the fundamentals of Microsoft Office; Microsoft Word, a word processing program; Microsoft Excel, a spreadsheet program; Microsoft Access, a database program; and Microsoft PowerPoint, a graphic presentations program. This course will also acquaint the student with the proper methods for solving computer applications problems and the integrated solutions to these problems through the use of object linking and embedding (OLE). (2)

**CIS R023—Microsoft Excel Basics ½ unit***½ hour lecture weekly*

This is an introductory level course designed to provide an overview of Microsoft Excel for Windows. This course is designed for the office professional or other serious personal computer user who has no Windows and/or spreadsheet experience. This course emphasizes preparation of basic spreadsheets. Not applicable for degree credit. (2)

**CIS R023A—Excel I 3 units***3 hours lecture weekly*

This course provides instruction in Microsoft Excel, concentrating on the development of an understanding and working knowledge of the business and practical applications of a spreadsheet. This course is a prerequisite for CIS R023B and the Microsoft Office User Specialist Certification Exam. (2)

**CIS R023B—Microsoft Excel II 3 units***Prerequisites: CIS R023A.**3 hours lecture weekly*

This course provides instruction using a hands-on approach to develop expertise in advanced Microsoft Excel applications such as database management, Visual Basic macro programming, workbook, map, and chart creation and interpretation, creation of hyperlinks and preparation for the Microsoft Office User Specialist Certification Exam. Not applicable for degree credit. (2)

**CIS R024A—Microsoft Access 3 units***Advisory: CIS R021A.**3 hours lecture weekly*

Students taking this course will use Access to design forms and reports for the retrieving and viewing of information commonly used to manage organizational data. Students will use built-in templates that enable them to build attractive and useful database objects. (2)

**CIS R025A—Microsoft PowerPoint** **2 units**

*Advisory: CIS R021A.  
2 hours lecture weekly*

This course instructs students in the creation of professional looking presentations such as overheads, electronic slides, and 35mm slides on a computer using features such as outlining, graphing, drawing, clip art, presentation management, and Wizards (a tutorial approach to creating presentations). (2)

**CIS R026—Preparation for Microsoft Word** **½ unit**

*½ hour lecture weekly*

This is an introductory course designed to provide an overview of Microsoft Word for Windows. It is designed for the office professional or other serious personal computer user with little or no word processing experience. This course emphasizes using Microsoft Word to produce memos, letters, and reports. Not applicable for degree credit. (2)

**CIS R026B—Microsoft Word** **3 units**

*Advisory: CIS R021A.  
3 hours lecture weekly*

This course includes instruction and practical experience using basic Microsoft Word functions while learning job-related skills. Students will take advantage of the many new capabilities of word processing in a Windows environment. (2)

**CIS R027A—Web Page Development** **1 unit**

*Advisory: CIS R020B.  
1 hour lecture weekly*

This course provides instruction in the development of personal web pages using Corel Suite, Microsoft Office products, and Internet freeware. (2)

**CIS R027B—Web Pages with HTML I** **3 units**

*Advisory: CIS R020B.  
3 hours lecture weekly*

This course provides instruction in the development of HTML documents and creation of a web page using many of the HTML elements of design and publication. Not applicable for degree credit. (2)

**CIS R027C—Microsoft FrontPage** **3 units**

*Advisory: CIS R020B.  
3 hours lecture weekly*

This course provides instruction in the development of web pages using Microsoft FrontPage. Students will develop personal and commercial web pages as well as publish a web page to the World Wide Web. Ideal course for anyone wishing to publish a web page quickly and easily. (2)

**CIS R028A—Desktop Publishing** **3 units**

*Prerequisites: CIS R026A or CIS R026B.  
3 hours lecture weekly*

This course will include instruction and practical experience in using desktop publishing functions. Students will learn job-related skills up to modification of style sheets and page layouts. Creation of a publication, brochure, advertisements, charts, tables, and presentations will also be included in this course. The use of scanning techniques to produce publications and the generation of indexes and tables of contents will also be included throughout this course. (2)

**CIS R028B—Aldus PageMaker** **3 units**

*Prerequisites: CIS R026B.  
Advisory: CIS R021A.  
3 hours lecture weekly*

This course offers instruction and practical experience in desktop publishing functions using Aldus PageMaker and job-related skills through the page composition step of a publishing system. (2)

**CIS R028C—Adobe Photoshop** **3 units**

*Advisory: CIS R021A and CIS R027B.  
3 hours lecture weekly*

This course teaches the basic skills needed for web and graphic design using Adobe Photoshop and Image Ready. Students will learn basic image manipulation in a computer environment with an emphasis on mastering the fundamentals of color management, scanning, photo retouching, imaging, special effects, filters and masks. Students will also use the computer to modify and create page and web layouts, pictorial images and designs. Not applicable for degree credit. (2)

**CIS R040—PC Upgrade** **1½ units**

*1 hour lecture, 1½ hours lab weekly*

This course is designed for persons with little or no previous exposure to computers and whose goals include learning about and working with networks, personal computers, and computer components. The student will work with PC components in a laboratory environment. Topics include the history of computing, internal operations, alternative operating systems, Internet options, and networking. DOS commands will be used to demonstrate basic operations and configurations of a PC. Field trips may be required. (2)

**CIS R041—Computer Applications for Legal Assisting** **3 units**

*3 hours lecture weekly*

This course trains the legal assistant to use a variety of computer software packages. Students will become familiar with word processing, data bases, and spreadsheets. Retrieval, timekeeping, billing, document search, and time management software packages will be used also. This course covers topics related to a law practice and is best suited to legal assistants or research assistants. Field trips may be required. (2)

**CIS R042A—Computerized Accounting** **2 units**

*Prerequisites: BUS R001 and CIS R020A.  
Corequisites: CIS R042L.  
2 hours lecture weekly*

This course will provide an in-depth study of financial accounting using microcomputer software systems. Students will learn to become occupationally competent in the use of at least one of several general ledger or write-up software systems currently available. (2)

**CIS R042L—Computerized Accounting Lab** **1 unit**

*Corequisites: CIS R042A.  
3 hours lab weekly*

This course provides laboratory experience to accompany CIS R042A. (2)

**CIS R049—Computer Lab** **1 unit**

*3 hours lab weekly*

This course provides computer access for students enrolled in any courses other than computer-related courses as well as for those students who are enrolled in computer-related courses who would like to earn credit for the time they spend in a computer lab completing their work/assignments. This course cannot be substituted for courses that have a computer lab component associated with a computer-type class. Not applicable for degree credit. Course may be taken four times. (1)

**CIS R080—Introduction to Oracle: SQL** **3 units**

*Advisory: CIS R021A.  
3 hours lecture weekly*

This course introduces students to relational database concepts and database design techniques, utilizing Oracle's database management product. This course concentrates on the nonprocedural relational database language, SQL (Structured Query Language) and the SQL\*Plus environment. (2)

**CIS R081—Oracle PL/SQL Programming 3 units***3 hours lecture weekly*

This is the second course in a series of courses designed to provide students with classroom and laboratory experience utilizing Oracle's PL/SQL, Programming Language/Structured Query Language. Programming PL/SQL procedures, functions, packages, triggers and object types in Oracle's SQL\*Plus and Procedure Builder environment. (2)

**CIS R090A—Office Automation Internship 1-6 units***Prerequisites: CIS R026A or CIS R026B.**3-18 hours lab weekly as required by unit formula*

Students will receive hands-on experience in office automation to enhance their opportunity for success by bridging the gap between educational theory and on-the-job practice. Field trips may be required. Course may be taken two times. (1)

**CIS R098—Short Courses in Computer Information Systems ½-10 units***Lecture and/or lab hours as required by unit formula*

This class offers courses in specialized topics designed to inform or update interested persons in various disciplines within the field of computer information systems. Unit credit determined by length of course. Field trips may be required. (2)

**INFORMATION PROCESSING****CIS R100—Introduction to Computer Information Systems 3 units***3 hours lecture weekly*

This is a computer literacy course presenting students with a comprehensive introduction to principles of computers and electronic data processing (with special emphasis on business applications). In addition to considering the historical development of computers and some social implications of the computer revolution, students will be introduced to terminology and concepts relating to computer hardware and data communications technology, programming languages, data organization, and the software/systems development process. Hands-on training with microcomputers is included. (2)

*Transfer credit: UC, CSU***CIS R101—Programming Principles and Design 3 units***Prerequisites: CIS R100.**3 hours lecture weekly*

This is a language-independent introductory course in computer program design and development. Emphasis is on basic analytical and problem-solving techniques of algorithm development. Students will utilize program specification sheets, structure charts, flowcharts, and pseudo-code in developing designs for business applications programs. Structured programming techniques will be stressed throughout the course. It is recommended that this course be taken prior to or concurrent with the first course taken in a computer programming language. Field trips may be required. (2)

*Transfer credit: UC, CSU***CIS R110A—VISUAL BASIC Programming I 3 units***Prerequisites: CIS R021A and CIS R101.**3 hours lecture weekly*

This is a beginning programming course. Students enrolled in VISUAL BASIC Programming I will use an object-oriented/event-driven approach to learning programming concepts. Students will develop objects such as dialog boxes, command buttons, menus, and list boxes commonly used in the Windows environment with an emphasis on creating well-structured program forms. (2)

*Transfer credit: UC, CSU***CIS R110B—VISUAL BASIC Programming II 3 units***Prerequisites: CIS R110A.**3 hours lecture weekly*

Students enrolled in VISUAL BASIC Programming II will use an object-oriented/event-driven approach to learning programming concepts. Students will develop and support objects such as menus, list boxes, forms, financial functions, timer controls, arrays, graphics control, and database control commonly used in the Windows environment. (2)

*Transfer credit: UC, CSU***CIS R110C—VISUAL BASIC for ACCESS 3 units***Prerequisites: CIS R024A, CIS R100, and CIS R110A.**3 hours lecture weekly*

This course is the study of the principles of design, implementation, and maintenance of a database management system. VISUAL BASIC for ACCESS (VBA) is used to generate application programs for creating, updating, and retrieving data from a microcomputer database management system. Emphasis is on systematic application development in Microsoft ACCESS using VBA statements, as well as writing, debugging, and maintaining multi-user applications. Course coverage includes using event-driven programming and ACCESS events; enhancing ACCESS applications through macros, menus, and toolbars; working with VBA modules, functions, and subroutines; using objects and methods in VBA; and protecting data integrity in a multi-user environment. (2)

*Transfer credit: UC, CSU***CIS R111A—C++ Programming for Business Applications 3 units***Prerequisites: CIS R101.**3 hours lecture weekly*

This course is designed to provide fundamental training in the use of the C++ programming language. Structured program design techniques are emphasized. Students will design and implement a series of business oriented, interactive, and file-based programming projects. Field trips may be required. (2)

*Transfer credit: UC, CSU***CIS R112A—JAVA Programming I 3 units***Prerequisites: CIS R101.**3 hours lecture weekly*

This course is intended for people who have no previous programming experience. The JAVA programming language is an object-oriented language and is the language of the World Wide Web. Because JAVA supports the programming of graphical interfaces and use of computer networks, students will develop web-based objects for personal and commercial use. Field trips may be required. (2)

*Transfer credit: UC, CSU***CIS R112B—JAVA Programming II 3 units***Prerequisites: CIS R112A.**3 hours lecture weekly*

This is the second course in the JAVA sequence of courses. Students taking this course will complete their knowledge and understanding of the programming language JAVA by using advanced applications such as the development of a graphical interface and Object-Oriented design. Field trips may be required. (2)

*Transfer credit: UC, CSU***CIS R120—Systems Analysis & Design 3 units***Prerequisites: CIS R100 and CIS R110A.**3 hours lecture weekly*

Students will learn computer information processing system analysis and design of subsystems within a business organization. Different types of information systems such as inventory, financial, production, personnel, and marketing are covered. The concept of fully integrated systems is included. Field trips may be required. (2)

*Transfer credit: CSU*

**CIS R189—Topics in Computer Information Systems** **1/2-10 units**

*Lecture and/or lab hours as required by unit formula*

This class offers specialized topics designed to inform or update interested persons in various disciplines within the field of business and computer information systems. Unit credit is determined by length of course. Field trips may be required. (2)

*Transfer credit: CSU*

**CIS R190A—Internship in Computer Information Systems** **1-3 units**

*Prerequisites: CIS R110A or CIS R111A.*

*3-9 hours lab weekly as required by unit formula*

Students will receive hands-on experience in computer operations and programming in the information processing system installation of a local business. Field trips will be required. Course may be taken two times. (1)

*Transfer credit: CSU*

**CIS R198—Short Courses in Computer Information Systems** **1/2-10 units**

*Lecture and/or lab hours as required by unit formula*

This class offers courses in selected areas of business and computer information systems to meet specific needs of college or community as required or requested by persons whose needs are not met by regular course offerings. (2)

*Transfer credit: CSU*

**CIS R199—Directed Studies in Computer Information Systems** **1-3 units**

*Prerequisites: Completion of at least one full semester of a computer programming language or a minimum of 12 units in computer applications.*

*3-9 hours lab weekly as required by unit formula*

This course is designed for students interested in furthering their knowledge of computer information systems on an independent study basis. Assignments may include writing programs for campus use. Field trips may be required. Course may be taken two times. (1)

*Transfer credit: CSU*

**NOTE:** The courses listed below have been temporarily suspended. For further information, please contact the Occupational Ed. & Econ. Dev. division office.

BIS R163 Data Base Management

CIS R007B Office Preparation, Bilingual

CIS R114A COBOL Programming I

CIS R114B COBOL Programming II