



CIS 14A Visual Basic .NET Programming I 5 Units

(Formerly Computer Information Systems 14.)
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Four hours lecture, three hours laboratory.
Programming in Visual Basic. Emphasis on Windows programming using the Visual Basic environment. The development of well-structured VB projects using forms, buttons, labels, picture boxes, and text boxes.

CIS 14B Visual Basic Programming II 5 Units

(Formerly Computer Information Systems 58A.)
Prerequisite: Computer Information Systems 14A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Four hours lecture, three hours laboratory.
Develop professional looking and deployable visual basic applications using advanced controls, graphical controls, user-created classes, the data control object, building help files, and accessing the Windows API functions.

CIS 14C Visual Basic Programming III 5 Units

(Formerly Computer Information Systems 58B.)
Prerequisite: Computer Information Systems 14B.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Computer Information Systems 89A.
Four hours lecture, three hours laboratory.
Develop professional looking and deployable visual basic applications using OLE concepts, building ActiveX components, building ActiveX controls. Access, create, and update databases using ActiveX Data Objects (ADO). Create VB applications for the Web.

CIS 15AG Introduction to Computer Programming Using C 6 Units

(Student may receive credit for either Computer Information Systems 15AG and 15BG, or Computer Information Systems 26A.)
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Computer Information Systems 50; Mathematics 105 or 114; Computer Applications and Office Systems 70AA.
Four hours lecture, six hours laboratory.
Problem solving, algorithms and structured program design. Programming, testing and debugging of well-structured programs in C. Introduction to data types. Expressions, control structures and functions. One-dimensional arrays.

CIS 15BG Intermediate Problem Solving in C 5 Units

(Student may receive credit for either Computer Information Systems 15AG and 15BG, or Computer Information Systems 26A, but not both.)
Prerequisite: Computer Information Systems 15AG.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Four hours lecture, three hours laboratory.
A systematic approach to the design, construction and management of computer programs, emphasizing design, programming style, documentation, testing and debugging techniques. Strings, multidimensional arrays and structures. Pointers: their use in arrays, parameters and dynamic allocation. Introduction to linked lists.

CIS 15C Data Structures 5 Units

Prerequisites: Computer Information Systems 15BG or 26A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Four hours lecture, three hours laboratory.
Stacks, queues, linked lists, trees, and graphs; internal and external sorting; use of recursion; hashing; structured programming; and abstract data type concepts; team project.

CIS 18A Introduction to UNIX 4 Units

(Formerly Computer Information Systems 82A.)
Advisory: Computer Information Systems 50; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Three hours lecture, three hours laboratory.
Basic features of the UNIX operating system including text editing, text file manipulation, electronic mail, Internet utilities, directory structures, input/output handling, and introduction to shells.

CIS 18B Advanced UNIX 4 Units

(Formerly Computer Information Systems 82B.)
Prerequisite: Any introductory programming course and Computer Information Systems 18A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Three hours lecture, three hours laboratory.
Regular expressions, grep, sed, and awk.

CIS 18C Shell Programming 4 Units

(Formerly Computer Information Systems 82C.)
Prerequisite: Any introductory programming course and Computer Information Systems 18B.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Three hours lecture, three hours laboratory.
Programming in Bourne Shell, Korn Shell, and C Shell.

CIS 19A PERL for Beginning Programmers 5 Units

(Formerly Computer Information Systems 55A.)
(Student may receive credit for either Computer Information Systems 19A and 19B or Computer Information Systems 33A, but not both.)
Prerequisite: Computer Information Systems 18A.
Advisories: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Mathematics 105 or 114; Computer Applications and Office Systems 70AA.
Four hours lecture, three hours laboratory.
Problem solving, algorithms and structured program design. Programming, testing, and debugging of PERL programs. Elemental data types and operators, basic loops and control structures, elementary list processing and arrays, basic hashes and hash function, regular expressions and text parsing.

CIS 19B Intermediate PERL Programming 5 Units

(Formerly Computer Information Systems 55B.)
(Student may receive credit for either Computer Information Systems 19A and 19B, or Computer Information Systems 33A, but not both.)
Prerequisite: Computer Information Systems 19A.
Advisories: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Mathematics 105 or 114; Computer Applications and Office Systems 70AA.
Four hours lecture, three hours laboratory.
Intermediate programming and problem solving with PERL. Advanced features of the PERL programming language; design and debug complex PERL scripts. Advanced regular expressions, memory variables in substitution and match expressions, advanced list functions (splice, grep, map, match-global, match-tagged-field), advanced hash uses, complex file and directory manipulation including recursive directory descent subs, reference variables, referenced parameters, data structures, and sorting.

CIS 21JA Introduction to 8086/8087/8088 Assembly Language 5 Units

Advisory: Computer Information Systems 15A or 15AG; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Mathematics 105 or 114.
Three hours lecture, six hours laboratory.
Syntax and semantics of 8086/8087/8088 assembly language; standard instruction set; selected pseudo and macro instructions; arrays; 186, 286, 386, 486 and pentium features.

CIS 21JB Advanced Programming (8086/8087/8088/8089 Assembly Language) 5 Units

Prerequisites: Computer Information Systems 21JA.
Advisories: Computer Information Systems 15A or 15AG; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Mathematics 105 or 114.
Three hours lecture, six hours laboratory.
Theory and application of advanced programming techniques, with emphasis on combining multiple modules in a single program, inter-program connection, interrupt level programming and macro writing. Recursive and Reentrant techniques.

CIS 26A C as a Second Programming Language 5 Units

(Student may receive credit for either Computer Information Systems 15AG and 15BG, or 26 A.)
Prerequisite: An introductory programming language course.
Advisory: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163; Computer Information Systems 50; Mathematics 105 or 114.
Four hours lecture, three hours laboratory.
An introduction to the C programming language and its applications. Topics covered include basic input/output, structured program design and implementation, basic control structures and keywords, arrays and pointers, character and string manipulation, arithmetic expressions, and functions and program modularization. (CAN CSCI 16)



CIS 26B	Advanced C Programming	5 Units	CIS 50	Introduction to Computers, Data Processing, and Applications	3 Units
<i>Prerequisites: Computer Information Systems 26A or Computer Information Systems 15BG.</i>			<i>Advisory: English Writing 100B and Reading 100, (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture.</i>		
<i>Advisories: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163; Mathematics 105 or 114. Three hours lecture, six hours laboratory.</i>			Computer information systems (IS) basic terms and concepts. Important IS trends. Using systems development to build information systems. Survey of functions and components of an information system including applications software, systems software, telecommunications, networks, the Internet and Web. Social and organization issues.		
Applications of advanced features of C and the C-library functions including binary and random-access input/output, dynamic data structures, bit manipulation, string parsing and string-to-numeric conversion, event and error processing, function pointers, recursion, and variable-length argument list functions.					
CIS 27	Programming in C++ for C Programmers	5 Units	CIS 51	Introduction to Computer Science	4 Units
<i>Prerequisite: Computer Information Systems 15C or 26B.</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Four hours lecture.</i>		
<i>Advisory: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163.</i>			Introduction to computer hardware and software, data representation, number representation, computer organization, and computer networks. Introduction to data organization, and data structure and abstract data types. Discussion of file structures and database.		
<i>Four hours lecture, three hours laboratory.</i>					
A comprehensive introduction to the C++ programming language and its applications.					
CIS 28	Object Oriented Analysis and Design With C++	5 Units	CIS 52G	Advanced C++ Programming	4 Units
<i>(Formerly Computer Information Systems 79.)</i>			<i>(Formerly Computer Information Systems 52.)</i>		
<i>Prerequisites: Computer Information Systems 27 or equivalent experience.</i>			<i>Prerequisite: Computer Information Systems 27.</i>		
<i>Four hours lecture, three hours laboratory.</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture, three hours laboratory.</i>		
Object oriented analysis and design methods using an Object Oriented programming language, with emphasis on practical applications of the basic techniques.			Advanced topics in C++ including preferred practices and styles, Templates, Manipulators, Exceptions, Garbage Collection, Container design, Multiple Inheritance, namespaces and analysis of design, and implementation for efficiency and maintainability.		
CIS 31	Operating System Concepts	5 Units	CIS 52H	Programming with Microsoft Foundation Class Library (MFC) Using Visual C++	4 Units
<i>Advisory: Computer Information Systems 15BG, and Computer Information Systems 211A or 211A.</i>			<i>Prerequisite: Computer Information Systems 27.</i>		
<i>Five hours lecture.</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Computer Applications and Office Systems 102T; or experience using the Windows Operating System.</i>		
Concepts and use of operating systems: multiprogramming and multiprocessing systems; mutual exclusion, indefinite delay and deadlock; scheduling considerations and input/output management.			<i>Three hours lecture, three hours laboratory.</i>		
CIS 33A	Programming in PERL	5 Units	How to use MFC (version 5.0 or higher) and the Visual C++ development environment to create professional GUI based applications using: app and class wizard, common controls, dialogs, menus, tool bars, status bars, document and view architecture, graphic device interface, file mechanism, and custom controls.		
<i>(Formerly Computer Information Systems 33.)</i>					
<i>(Student may receive credit for either Computer Information Systems 33A or Computer Information Systems 19A and 19B, but not both.)</i>					
<i>Prerequisite: Computer Information Systems 18C; or Computer Information Systems 18A and either Computer Information Systems 15BG or 26A.</i>					
<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture, six hours laboratory.</i>					
A complete coverage of the core PERL language. Topics covered will include basic loops and control structures, the elemental data types and operators, subroutines and variable scoping, regular expressions and text parsing, manipulation of files and directories, advanced list processing with grep and map, references, built-in functions and core modules, and advanced input/output including random-access files and formatting.					
CIS 33B	Advanced PERL Programming	5 Units	CIS 53	Distributed Processing Using Java	4 Units
<i>(Formerly Computer Information Systems 54.)</i>			<i>(Formerly Computer Information Systems 53B.)</i>		
<i>Prerequisite: Computer Information Systems 15BG; or Computer Information Systems 26A and either Computer Information Systems 33A or 19B.</i>			<i>Prerequisite: Computer Information Systems 35B.</i>		
<i>Four hours lecture, three hours laboratory.</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture, three hours laboratory.</i>		
Exploration of advanced topics from the core PERL distribution and essential non-core modules. Topics include reference-based data structures, object-oriented programming, connecting to SQL-based relational databases, non-relational database and file structures, process creation and management, and TCP/IP Client/Server programming.			Distributed computing using Java features including: JDBC, client-server sockets, Java Servlets, Java Server Pages, RMI, CORBA IDL, and Enterprise JavaBeans.		
CIS 35A	Introduction to Java Programming	4 Units	CIS 56G	Introduction to the UNIX Operating System	1 Unit
<i>(Formerly Computer Information Systems 35.)</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Two hours lecture-laboratory.</i>		
<i>Prerequisite: Computer Information Systems 15BG or 26A.</i>			<i>Pass-No Pass (P-NP) course.</i>		
<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture, three hours laboratory.</i>			Introduction to UNIX operating system file editing, file and text manipulation commands.		
Introduction to Java programming. Computing context, primitive types, flow of control constructs, operators, text I/O, objects and classes, interfaces, packages, GUI, exceptions, and threads.					
CIS 35B	Advanced Java Programming	4 Units	CIS 57	Web Site Administration	4 Units
<i>(Formerly Computer Information Systems 53A.)</i>			<i>Advisories: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Computer Information Systems 66 and 89A.</i>		
<i>Prerequisite: Computer Information Systems 35A.</i>			<i>Three hours lecture, three hours laboratory.</i>		
<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture, three hours laboratory.</i>			Introduction to establishing, configuring, managing and controlling access to Internet servers.		
Inner classes, collections, exceptions, I/O, reflection, cloning, JavaBeans, Swing, and threads.					
CIS 35B	Advanced Java Programming	4 Units	CIS 63	Systems Design	4 Units
<i>(Formerly Computer Information Systems 53A.)</i>			<i>Prerequisite: Computer Information Systems 15BG (may be taken concurrently).</i>		
<i>Prerequisite: Computer Information Systems 35A.</i>			<i>Advisory: Computer Information Systems 50; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture, three hours laboratory.</i>		
<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture, three hours laboratory.</i>			Current tools of structured systems analysis and design: data flow diagrams, structure charts, HIPO charts, VTOCs, data structure/dictionaries, decision trees and tables, pseudo code.		
Current tools of structured systems analysis and design: data flow diagrams, structure charts, HIPO charts, VTOCs, data structure/dictionaries, decision trees and tables, pseudo code.					



- CIS 64A Data Base Management Systems 4 Units**
(Formerly Computer Information Systems 64.)
Prerequisite: Computer Information Systems 15C.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Three hours lecture, three hours laboratory.
Rudiments of data base design, implementation and use. Basic understanding of various data modeling techniques. Overview and comparison of data base management systems. Emphasis on relational data bases; introduction to SQL.
- CIS 64B Introduction to SQL 4 Units**
Prerequisite: Computer Information Systems 64A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Three hours lecture, three hours laboratory.
Introduction to Oracle SQL, DML processing techniques, DDL techniques, selecting and sorting data, Joins, SQL functions, Oracle objects, Oracle data processing concepts to maintain large database systems.
- CIS 64C Introduction to PL/SQL 4 Units**
Prerequisite: Computer Information Systems 64B.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Three hours lecture, three hours laboratory.
Oracle PL/SQL features cover Data Definition and Data Manipulation using Expressions, Control Structures, and Oracle Objects. Error handling, Pre-defined packages, Triggers, Transactions and advanced PL/SQL features.
- CIS 64D Database Tuning 3 Units**
Prerequisite: Computer Information Systems 64C.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Three hours lecture.
Emphasis on importance of Performance Tuning, techniques for tuning several Oracle components, optimizing database for high volume transactions and Data Warehouses.
- CIS 66 Introduction to Data Communication and Networking 5 Units**
Advisory: Computer Information Systems 50 or 91; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Five hours lecture.
Concepts of communication, data communications and networks. Overview of connectivity options, common protocols, local and wide area networks, and internetworking.
- CIS 67A Local Area Networks 4 Units**
Advisory: Computer Information Systems 66.
Four hours lecture.
Fundamental concepts of Local Area Network architecture and protocols. Emphasis on basic concepts needed to design, configure, and implement Local Area Networks. Emphasis on the evolution of fast Ethernet, ATM, and wireless LANs.
- CIS 67B Introduction to Wide Area Networking 4 Units**
Advisory: Computer Information Systems 67A.
Four hours lecture.
Fundamental concepts of telephony, telecommunication, and wide area networking. Emphasis on analog and digital transmission techniques. Emphasis on circuit-switching and packet-switching. Exploration of optimization in telecommunication.
- CIS 68A Networking Laboratory (Cisco Routers) 2 Units**
(Formerly Computer Information Systems 68.)
Prerequisite: Computer Information Systems 66 and 75A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Language 4.
Four hours lecture-laboratory.
Experimenting with router configuration and operating system. Configuring TCP/IP protocols on routers. Configuring routers for wide area networks such as X.25, Frame Relay, and PPP.
- CIS 73 UNIX Systems Programming 5 Units**
(Formerly Computer Information Systems 26C.)
Prerequisite: Computer Information Systems 18A and 26B.
Four hours lecture, three hours laboratory.
Systems programming in the UNIX and Posix environments. Emphasis on low-level UNIX/Posix system calls from C programs and Shell scripts. Differences in major UNIX/Posix environments (SVR4, BSD, standard Posix, Windows NT).
- CIS 74 Computer Software Quality Assurance 4 Units**
Advisory: Computer Information Systems 50.
Four hours lecture.
Analysis of types of software; software development life cycle; top down design and structures programming; modularization; standards and practices; software configuration management; software testing; documentation; software error types, causes; software quality assurance plans and procedures; software discrepancy reports, analysis; software visibility for managers.
- CIS 75A Internet Concepts and TCP/IP Protocols 5 Units**
Prerequisite: Computer Information Systems 66.
Advisory: Computer Information Systems 67B; Computer Information Systems 26A or 15AG; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Five hours lecture.
The architecture and underlying protocols of the Internet. The Internet will be examined as a layered product. Layers discussed will include mid-level packet delivery and address computation and high-level client/server applications using the TCP/IP Protocol Suite.
- CIS 75B Internet Programming With TCP/IP 5 Units**
Prerequisite: Computer Information Systems 26B and 75A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Four hours lecture, three hours laboratory.
An introduction to writing client/server applications using the TCP/IP protocol suite. All server classes, -- 'well known,' iterative, concurrent, and polling -- will be explored and used. Typical Internet programming problems will be addressed including resource availability, machine addressing, and differences in data representation between communicating computers.
- CIS 75C A Practicum in Enterprise Security 6 Units**
Prerequisite: Computer Information Systems 75A or equivalent experience.
Advisories: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Mathematics 105 or 114.
Four hours lecture, six hours laboratory. (Students work in groups with Mentor available online.)
Learn how to secure your Network Enterprise and learn to balance Network Security with Emergency Response. Network Security Personnel in charge of implementing and maintaining Security Policy would benefit from this course as well as technologists wanting to broaden their impact.
- CIS 76 Introduction to Network Security 4 Units**
Prerequisite: Computer Information Systems 75A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Mathematics 101 or 112.
Four hours lecture.
Network security using the standard protocols and algorithms. All four aspects of security (privacy, integrity, authentication, and nonrepudiation) will be discussed and solutions explained. Security in the Internet and E-commerce is emphasized.
- CIS 79 Managing Technology Projects 5 Units**
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Four hours lecture, three hours laboratory.
Introduction to the theory and practice of the design and management of technology projects including planning, performing, and monitoring of projects. Subjects explored are estimating costs and schedules, analyzing client expectations, guiding diverse groups of people toward a common goal, while earning a profit. Use of common software packages for project management.
- CIS 86 Computer Accounting Systems 4 Units**
Advisories: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Accounting 1A; Mathematics 11.
(Also listed as Accounting 86. Student may enroll in either department but not both, for credit.)
Three hours lecture, two hours lecture-laboratory.
Fundamentals of computerized accounting using integrated general ledger software packages and electronic spreadsheet software. Conversion of a manual system to a computer system.
- CIS 89A World Wide Web Page Development 3 Units**
(Formerly Computer Information Systems 89.)
Advisories: Computer Applications and Office Systems 70AA; Computer Information Systems 56G or 82A; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4).
Two hours lecture, three hours laboratory.
Fundamentals of Web page design and creation: designing, encoding and maintaining home pages on the World Wide Web using HTML and other available tools.



CIS 89B	Server Programming for the World Wide Web	5 Units	CIS 97XN	Topics in Computer Information Systems Development (Intermediate XML)	2 Units
<i>Prerequisites: Computer Information Systems 33A and 89A. Four hours lecture, three hours laboratory. Fundamentals of server-side programming via the CGI protocol and the Perl programming language. Students will create Web pages and server-side CGI scripts which interact with them.</i>			<i>Prerequisite: Computer Information Systems 97XM and Computer Information Systems 15AG or 14A. Two hours lecture. Fundamental concepts of XSL and conversion of XML documents into other standardized formats using XSLT and XSLFO.</i>		
CIS 89C	Client-Side Programming With JavaScript	3 Units	CIS 97YM	Topics in Computer Information Systems (Exchange Server 5.5 Concepts and Administration)	3 Units
<i>Prerequisites: Computer Information Systems 89A, and any introductory programming course. Advisory: Computer Information Systems 18A. Two hours lecture, three hours laboratory. Fundamentals of client-side programming for Web pages requiring data collection or other user interaction. Students will create Web pages that execute on the client (personal system) using JavaScript.</i>			<i>Prerequisite: Computer Information Systems 156B. Three hours lecture. The goal of this course is to provide Exchange Server administrators with the skills required to perform day-to-day management of an established Exchange Server organization.</i>		
CIS 94	Introduction to Internet and World Wide Web	1 Unit	CIS 97YN	Topics in Computer Information Systems (Introduction to UNIX Systems Administration)	3 Units
<i>Advisory: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163. (Also listed as Computer Applications and Office Systems 94. Student may enroll in either department, but not both, for credit.) Two hours lecture-laboratory. Pass-No Pass (P-NP) course. Introduction to using the Internet. Topics include an overview of the World Wide Web, e-mail, news groups, bulletin boards, World Wide Web browsers, basic web page elements and exploration of virtual communities.</i>			<i>Prerequisite: Computer Information Systems 18A. Advisory: Computer Information Systems 18B. Three hours lecture. Introduction to UNIX Systems Administration details and concepts. System startup, shutdown, adding users, managing processes, backups and file system management. A brief introduction to Network administration.</i>		
CIS 96	Special Projects in Computer Information Systems	1 Unit	CIS 97YW	Topics in Computer Information Systems (Windows Programming with C# and C++)	3 Units
CIS 96X		2 Units	<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Computer Applications and Office Systems 102T or experience using the Windows Operating System. Three hours lecture, three hours laboratory. Using the Visual .NET Framework development environment to create professional GUI based applications using: C# and managed C++, GUI design principals, forms, common controls, data grids, file serialization, event handling and custom controls.</i>		
CIS 96Y		3 Units	<i>Prerequisites: Computer Information Systems 15C and consent of the Computer Information Systems Department. Approved Special Projects contract required. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours laboratory for each unit of credit. (Any combination of Computer Information Systems 96, 96X, and 96Y may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.) Design, implement, and document a special computer project.</i>		
CIS 97XH	Topics in Computer Information Systems Development (Advanced World Wide Web Page Development)	2 Units	CIS 97ZI	Topics in Computer Information Systems (Microsoft Exchange Server 2000)	4 Units
<i>Prerequisite: Computer Information Systems 89A. Two hours lecture. Advanced Web page development. Designing, encoding and maintaining Web documents on the World Wide Web using HTML. The use of Cascading style sheets, JavaScript style sheets and other available tools.</i>			<i>Prerequisite: Education or experience in data processing appropriate to the topic. Four hours lecture. Provides Windows 2000 system administrators the skills and knowledge to design, plan, implement, and support Microsoft Exchange 2000 Server. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.</i>		
CIS 97XJ	Topics in Computer Information Systems (Wireless Web Sites)	2 Units	CIS 100	Open Computer Information Systems Laboratory	1 Unit
<i>Prerequisite: Education or experience in data processing appropriate to the topic. Two hours lecture. Understand the emerging standards on the Wireless Web. Understanding the Wireless Applications Protocol (WAP). Developing the Wireless Web using the Wireless Markup Language (WML). Use of emulators to create content appropriate to the devices. Server-side scripting is presented to show how to make the best use of server resources to deliver powerful content.</i>			<i>Corequisite: Computer Information Systems 100 students must also enroll in another Computer Information Systems programming class. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours laboratory. (May be taken six times for credit.) Pass-No Pass (P-NP) course. Use of the computer laboratory facilities in conjunction with a Computer Information Systems programming class.</i>		
CIS 97XK	Topics in Computer Information Systems (Introduction to WMLScript)	2 Units	CIS 108	End-User Security Basics	4 Units
<i>Prerequisite: Wireless Web Sites (WAP and WML). Two hours lecture. Fundamentals of WMLScript which is used to specify application content for narrowband devices like cellular phones and pagers. Students will use emulators to create WAP pages that execute on the client device to check emulators to create WAP pages that execute on the client device to check the validity of user input, access to facilities of the device, and generate messages and dialogs locally.</i>			<i>Advisories: Computer Applications and Office Systems 90G or equivalent; English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163. (Also listed as Computer Applications and Office Systems 108. Student may enroll in either department, but not both, for credit.) Four hours lecture. Beginner's computer security course for small office or home users (end-users). Learn to stop hackers, worms, viruses, spyware, web bugs and identity theft. Learn vulnerabilities found in web browsers, email and operating systems. Protect against online purchase dangers, install firewalls, manage cookies, restrict ports, analyze log files, evaluate wireless networks and examine encryption.</i>		
CIS 97XM	Topics in Computer Information Systems Development (Introduction to XML)	2 Units	CIS 111	Open Computer Information Systems Fortran Laboratory	1 Unit
<i>Prerequisite: Computer Information Systems 89A. Two hours lecture. Fundamental concepts of XML including document and language creation and implementation.</i>			<i>Advisories: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4); Mathematics 1A. Three hours laboratory. Pass-No Pass (P-NP) course. Use of the computer laboratory facilities.</i>		



CIS 156A Microsoft Windows NT 4.0 Network Administration 2 Units

Prerequisite: Computer Applications and Office Systems 102T. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Two hours lecture.
Provide critical lecture and demonstration of day-to-day administration of single-user, single-domain, or enterprise networks. Course uses Microsoft official curriculum to help students achieve Microsoft Windows NT certification.

CIS 156B Microsoft Windows NT 4.0 Technical Support 3 Units

Prerequisite: Computer Information Systems 156A. Three hours lecture.
Oversee the installation, configuration, networking, integration and support for Microsoft Windows NT.

CIS 171A Windows 2000 Professional 3 Units

Prerequisite: Computer Information Systems 156A. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture.
Provides Windows 2000 system administrators the knowledge and skills to setup, configure, use, and support Windows 2000 professional software. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 171B Windows 2000 Server 4 Units

Prerequisite: Computer Information Systems 171A. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Four hours lecture.
Provides Windows 2000 system administrators the knowledge and skills to setup, configure, use, and support Windows 2000 Server software. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 171C Windows XP Professional 3 Units

Prerequisite: Computer Information Systems 171A. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture.
A student proficient in Windows 2000 Professional will acquire the knowledge to aid in passing the Microsoft Windows XP Professional certification exam. Course covers new features of Windows XP operating system. Students must have computer access to e-mail and to the World Wide Web.

CIS 171D Windows 2003 Server 4 Units

Prerequisite: Computer Information Systems 171A. Advisory: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163. Four hours lecture.
This course provides Windows 2003 system administrators the knowledge and skills to setup, manage, and maintain Windows 2003 Server software. Course provides the information necessary to help pass the Microsoft Certification Exam 70-290: Managing and Maintaining a Microsoft Windows Server 2003 Environment.

CIS 172 Administer Windows 2000 Network Infrastructure 3 Units

(Formerly Computer Information Systems 97YR.) Prerequisite: Computer Information Systems 171B. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture.
Install, manage, monitor, configure, and troubleshoot DNS, DHCP, Remote Access, Network Protocols, IP Routing, and WINS in a Windows 2000 network infrastructure. Manage, monitor, and troubleshoot network Address Translation and Certificate Services. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 172A Implement Windows 2003 Network Infrastructure 4 Units

Prerequisite: Computer Information Systems 171D. Advisory: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163. Four hours lecture.
Provides Windows 2003 system administrators the knowledge to implement, manage, and maintain IP addresses, name resolution, network security measure, routing and remote access, and monitoring and troubleshooting network infrastructure. Course provides the information necessary to help pass the Microsoft Certification Exam 70-291: Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure.

CIS 173 Windows 2000 Active Directory Services 3 Units

(Formerly Computer Information Systems 97YQ.) Prerequisite: Computer Information Systems 171B. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture.
Provides Windows 2000 system administrators the knowledge and skills to manage Windows 2000 Server Directory Services. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 174 Active Directory Design 3 Units

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture.
Design a Directory Services infrastructure including multi-domain logical structure and site topology and Active Directory Replication plan based on the physical structure of the enterprise. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 174A Plan Windows 2003 Active Directory Infrastructure 4 Units

Prerequisite: Computer Information Systems 171D. Advisory: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163. Four hours lecture.
Provides Windows 2003 system administrators the knowledge to plan, implement, maintain, and troubleshoot Active Directory infrastructure; plan user, computer, and group strategies; and plan, implement, and manage Group Policy. Course provides the information necessary to help pass the Microsoft Certification Exam 70-294: Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure.

CIS 175 Windows 2000 Network Security 3 Units

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours lecture.
Provides students with the knowledge and skills necessary to design a security framework for small, medium, and enterprise networks using Microsoft Windows technologies. Students will know how to provide secure access to local network users, to remote users and remote offices, between private and public networks, and provide secure access to partners. Group Policy, site topology, virtual Private Networks (VPNs), e-commerce, printer security, and security for non-Microsoft clients are also taught in the course. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 175A Design Windows 2003 Network Security 3 Units

Prerequisite: Computer Information Systems 171D. Advisories: English Writing 100A and Reading 201 (or Language Arts 200), or English as a Second Language 161, 162 and 163. Three hours lecture.
Provides Windows 2003 system administrators the knowledge to design a secure network infrastructure. Course covers modeling threats, and analyzing security risks in order to meet business requirements for securing computers in a networked environment. Course provides the information necessary to help pass the Microsoft Certification Exam 70-298: Designing Security for a Microsoft Windows Server 2003 Network.

CIS 197 Open Computer Information Systems Topics Laboratory 1 Unit

Corequisite: Computer Information Systems 197 students must also enroll in any Computer Information Systems topics course with a laboratory. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 (or English as a Second Language 4). Three hours laboratory. (May be taken up to six times as long as the topics/projects are different each time.) Pass-No Pass (P-NP) course.
Use of the facilities of the computer laboratory in conjunction with a Computer Information Systems topics course. Required of all Computer Information Systems 97, 97X, 97Y, and 97Z students using the De Anza computer laboratory for a Computer Information Systems topics class.