



**CURRICULUM GUIDE
2009-2010**

**COMPUTER SCIENCE
CERTIFICATES OF ACCOMPLISHMENT**

**Including Cisco Certified Network Associate; Computer and Information Literacy;
Computer Applications in Biotechnology; Computer Programming;
Data Communications and Web Programming; Database Administration;
Desktop Support Technician; Internet Applications Development;
Java Developer; Linux+, Linux/UNIX Administration;
Microsoft Certified Systems Administrator (MCSA);
Microsoft Certified Systems Engineer (MCSE); Network Technician;
Office Computer Applications; Office Support; 3D Modeling and Animation;
Web Content; Web Delivery; Web Design; Web Infrastructure**

Requirements for Certificate of Accomplishment:

- a) Complete satisfactorily the courses listed for the particular certificate.
- b) Complete at least 50% of the required units at Ohlone College.
- c) Maintain a 2.0 grade point average.

CISCO CERTIFIED NETWORK ASSOCIATE

Upon completion of the Cisco Certified Network Associate Certificate of Accomplishment students will have gained the expertise they need to pass the test required to achieve Cisco Certified Networking Associate (CCNA) status. CCNA Certification skills include the ability to install, configure, and operate simple-routed LAN, routed WAN, and switched LAN networks.

| | | |
|-----------|--------------------------------|----------|
| CNET-154 | Network Technician Training OR | 4 |
| CNET-155A | Network Fundamentals AND | (4) |
| CNET-155B | Routing Protocols and Concepts | (4) |
| CNET-156A | LAN Switching and Wireless | 2 |
| CNET-156B | WAN Design and Support | <u>2</u> |
| | | 8-12 |

COMPUTER AND INFORMATION LITERACY

This certificate will provide literacy in the area of computers and information technology.

| | | |
|----------|--|----------|
| CAOT-153 | Introduction to Internet | 1 |
| CS-101 | Introduction to Computers and Information Technology | 3 |
| CS-101L | Computer Applications | 2 |
| CS-102 | Introduction to Computer Programming Using C++ OR | 4 |
| CS-104A | Introduction to .NET Programming | (4) |
| CS-152 | Data Communications | <u>2</u> |
| | | 12 |

COMPUTER APPLICATIONS IN BIOTECHNOLOGY

The field of computer applications in biotechnology is a complex hybrid of two distinct scientific disciplines—computer technology and bioscience. This certificate is designed to provide an understanding of bioinformatics and other computer related subjects to students with some computer and/or life science background. This program is useful for students who desire to explore this new information science in which computers help to simulate, visualize, and analyze genetic and biological information. It also provides an introduction to the fundamental scientific and computational concepts, methods, and tools central to the growing field of computer applications in biotechnology.

| | | |
|-------------------|-------------------------------------|------------|
| BIOT-112 | Introduction to Bioinformatics | 2 |
| BIOT-121 | Biotechnology Careers | 1 |
| CS-131/BIOT-131 | Computing Concepts in Biotechnology | 4 |
| CS-133/BIOT-133 | Introduction to SAS Programming | 3 |
| CS-141B/BIOT-141B | SAS Graphing and ODS OR | 2 |
| CS-143/BIOT-143 | Advanced SAS Programming OR | (3) |
| CS-133A/BIOT-133A | Data Analysis Using SAS | <u>(3)</u> |
| | | 12-13 |

COMPUTER PROGRAMMING

Upon completion of the Computer Programming Certificate students will be capable of writing high-level language programs in procedural and event-driven languages and will be able to do some object-oriented programming as well.

| | | |
|---------|--|------------|
| CS-102 | Introduction to Computer Programming Using C++ | 4 |
| CS-104A | Introduction to .NET Programming | 4 |
| CS-116 | Object-Oriented Programming Using C++ OR | 4 |
| CS-170 | Java Programming | (4) |
| CS-118 | Introduction to Assembly Language Programming OR | 4 |
| CS-124 | Programming with Data Structures | <u>(4)</u> |
| | | 16 |

DATA COMMUNICATIONS AND WEB PROGRAMMING

This certificate will provide students with information and skills in data communications and Internet programming.

| | | |
|----------|--|----------|
| CAOT-153 | Introduction to Internet | 1 |
| CS-152 | Data Communications | 2 |
| CS-175 | Script Technology for Web Development | 4 |
| CS-176 | Introduction to PERL CGI Programming Development | <u>4</u> |
| | | 11 |

DATABASE ADMINISTRATION

Database Administration certification combines training, experience, and testing to ensure that students have a strong foundation and expertise in the industry's most advanced database management system.

| | | |
|----------|---|----------|
| CNET-135 | Database Fundamentals I: Database Architecture and Administration | 2 |
| CNET-136 | Database Fundamentals II: Database Backup and Recovery | 2 |
| CNET-137 | Introduction to SQL | 4 |
| CNET-138 | PL/SQL Programming | <u>4</u> |
| | | 12 |

DESKTOP SUPPORT TECHNICIAN

This certificate will assist students in offering frontline or helpdesk support to end-users, assist computer users in getting the most from their computer products, and lead them through various procedures, helping them to fix problems. This support is conducted over the telephone, one-on-one, or in a small group training session.

| | | |
|-----------|--|----------|
| CNET-105 | PC Hardware and Software | 4 |
| CNET-160A | Microsoft Client Operating Systems | 2 |
| CNET-161A | Desktop Support I – Supporting Users | 2 |
| CNET-161B | Desktop Support II – Supporting Applications | <u>2</u> |
| | | 10 |

INTERNET APPLICATIONS DEVELOPMENT

This certificate provides students with knowledge and skills in Internet applications programming and development.

| | | |
|--------|--|------------|
| CS-170 | Java Programming | 4 |
| CS-175 | Script Technology for Web Development OR | 4 |
| CS-178 | XML | <u>(3)</u> |
| | | 7-8 |

JAVA DEVELOPER

Upon completion of the Java Developer Certificate Program students will be capable to develop advanced Java programs and applications for the client-server computing, the Internet, and the Web Services with JSP, J2EE, and EJB.

| | | |
|--------|------------------|----------|
| CS-170 | Java Programming | 4 |
| CS-172 | Servlets and JSP | 4 |
| CS-173 | Java EE and EJB | 4 |
| CS-178 | XML | <u>3</u> |
| | | 15 |

LINUX+

Preparation for the current CompTIA Linux+ credential. Linux+ certified individuals can explain fundamental management of Linux systems from the command line, demonstrate knowledge of user administration, understand file permissions, software configurations, and management of Linux-based clients, server systems and security.

| | | |
|-----------|--------------------------------------|----------|
| CNET-140A | Linux Installation and Configuration | 2 |
| CNET-140B | Linux System Administration | 2 |
| CNET-150 | Network Operating Systems | <u>4</u> |
| | | 8 |

LINUX/UNIX ADMINISTRATION

This program series targets both beginning and intermediate Linux/UNIX users who want to acquire advanced system administration skills and to back up those skills with a Certificate of Accomplishment.

| | | |
|-----------|--------------------------------------|----------|
| CNET-140A | Linux Installation and Configuration | 2 |
| CNET-140B | Linux System Administration | 2 |
| CNET-142A | Linux Networking | 2 |
| CNET-142B | Linux Security | 2 |
| CNET-146 | Introduction to UNIX/Linux | 3 |
| CNET-147 | UNIX/Linux Shell Scripting | <u>4</u> |
| | | 15 |

MICROSOFT CERTIFIED SYSTEMS ADMINISTRATOR (MCSA)

The Microsoft Certified Systems Administrator (MCSA) certification helps you advance your career by ensuring that you have the skills you need to manage and troubleshoot network environments running on the Windows operating system.

| | | |
|-----------|---|---|
| CNET-160A | Microsoft Client Operating Systems | 2 |
| CNET-162A | Microsoft Server Operating Systems | 2 |
| CNET-162B | Windows Network Infrastructure Administration | 2 |

Choose one course from the following:

| | | |
|-----------|---|------------|
| CNET-165A | Designing a Secure Microsoft Windows Network OR | 2 |
| CNET-167A | Network Application Administration I - Email (Exchange 2003) OR | (2) |
| CNET-168A | Network Application Administration II - Database (SQL) OR | <u>(2)</u> |
| | | 8 |

MICROSOFT CERTIFIED SYSTEMS ENGINEER (MCSE)

For network professionals Microsoft offers the Microsoft Certified Systems Engineer (MCSE) credential. MCSEs are qualified to effectively plan, implement, maintain, and support information systems in a wide range of computing environments using the Microsoft Windows 2008 Server and the Microsoft Back Office integrated family of server products.

| | | |
|-----------|---|---|
| CNET-160A | Microsoft Client Operating Systems | 2 |
| CNET-162A | Microsoft Server Operating Systems | 2 |
| CNET-162B | Windows Network Infrastructure Administration | 2 |
| CNET-164A | Microsoft Directory Services | 2 |

Choose any two of the following courses:

| | | |
|-----------|---|----------|
| CNET-163 | Planning a Microsoft Windows Networks Infrastructure | 2 |
| CNET-164B | Designing Microsoft Windows Directory Services Infrastructure | 2 |
| CNET-165A | Designing a Secure Microsoft Windows Network | 2 |
| CNET-165B | Microsoft Internet Security and Acceleration Server (ISA) | 2 |
| CNET-165C | Administering Security for Windows 2003 | 2 |
| CNET-167A | Network Application Administration I - Email (Exchange 2003) | 2 |
| CNET-168A | Network Application Administration II - Database (SQL) | <u>2</u> |
| | | 12 |

NETWORK TECHNICIAN

Network Technicians assist in the installation, configuration, testing, maintenance, and troubleshooting of LANs and/or WANs. They are responsible for routine tasks such as adding new accounts, assigning passwords, and keeping a variety of logs. They should have knowledge of networking fundamentals; connecting to a WAN; basic security and wireless concepts; routing and switching fundamentals; the TCP/IP and OSI models; IP addressing; WAN technologies; operating and configuring IOS devices; configuring RIPv2, static and default routing; implementing NAT and DHCP; and configuring simple networks.

| | | |
|----------|-----------------------------|----------|
| CNET-105 | PC Hardware and Software | 4 |
| CNET-150 | Network Operating Systems | 4 |
| CNET-154 | Network Technician Training | <u>4</u> |
| | | 12 |

OFFICE COMPUTER APPLICATIONS

Upon completion of the Office Computer Applications Certificate of Accomplishment students will have a broad understanding of today's computers and information technology. Students will have the ability to use a wide variety of business software such as word processing, spreadsheet, database, presentation, and desktop publishing. In addition, students will be introduced to Windows, Accounting, and the Internet.

| | | |
|-----------|---|------------|
| BA-109A | Computerized Accounting for Personal Finance OR | 1.5 |
| BA-109B | Computerized Accounting for Small Business | (1.5) |
| CAOT-134A | Beginning Microsoft Access | .5 |
| CAOT-153 | Introduction to Internet | 1 |
| CAOT-172A | Beginning Word | .5 |
| CAOT-187 | PowerPoint Presentations | .5 |
| CAOT-188 | Desktop Publishing with QuarkXPress | 2 |
| CAOT-193A | Beginning Excel | .5 |
| CAOT-193B | Intermediate Excel | .5 |
| CAOT-194A | MS Office Advanced OR | 2 |
| CS-101L | Computer Applications | <u>(2)</u> |
| | | 9 |

OFFICE SUPPORT

Upon completion of the Office Support Certificate of Accomplishment students will have gained a knowledge of how a business functions and human relations in business. In addition, students will have acquired basic office support skills.

| | | |
|--------------------|-------------------------------------|----------|
| BA-116 | Business English and Communication | 4 |
| CAOT-110A, B, or C | Beginning Keyboarding I, II, or III | 1 |
| CAOT-193A | Beginning Excel | .5 |
| CS-101L | Computer Applications | <u>2</u> |
| | | 7.5 |

3D MODELING AND ANIMATION

This certificate provides students with technical and aesthetic skills needed for animation and 3D modeling.

| | | |
|---------|------------------------------------|----------|
| MM-102A | Multimedia I | 4 |
| MM-115 | 3D Animation | 3 |
| MM-116 | 3D Modeling | 3 |
| MM-117 | Advanced 3D Modeling and Animation | <u>3</u> |
| | | 13 |

WEB CONTENT

This is the third of three Web Certificates, which together prepare students for a broad and specific readiness in dynamic Web technology, from administration to development and interface. Web Content specializes on the user interface aspect of the Web.

| | | |
|---|---------------------------------------|-------|
| CS-162 | XHTML | 4 |
| CS-178 | XML | 3 |
| Choose 9-10 units from the following courses: | | 9-10 |
| MM-102A | Multimedia I | (4) |
| CS-175 | Script Technology for Web Development | (4) |
| CS-179 | Dynamic Web with ColdFusion | (3) |
| MM-103A | Introduction to Flash: Animation AND | (.5) |
| MM-103B | Intermediate Flash: Interactivity | (.5) |
| | | 16-17 |

WEB DELIVERY

This is the second of three Web Certificates, which together prepare students for a broad and specific readiness in dynamic Web technology, from administration to development and interface. Web Delivery specializes on programming languages currently driving the data on the Web.

| | | |
|---|--|----------|
| Choose 16 units from the following courses: | | |
| CS-104A | Introduction to .NET Programming | 4 |
| CS-104B | Advanced .NET Programming | 4 |
| CS-104C | ASP.NET Programming | 4 |
| CS-121 | Applied Programming in Visual C++ | 4 |
| CS-122 | C#.NET Programming | 4 |
| CS-149 | PERL Programming | 4 |
| CS-170 | Java Programming | 4 |
| CS-172 | Servlets and JSP | 4 |
| CS-176 | Introduction to PERL CGI Programming Development | <u>4</u> |
| | | 16 |

WEB DESIGN

This certificate provides students with knowledge, skills, and hands-on experience using industry standard software to create web sites that are attractive, accessible, and functional. The curriculum emphasizes design principles applied to layouts, graphics, animations, and interactive applications for the Web.

| | | |
|---------|---------------------------------|----------|
| MM-102A | Multimedia I | 4 |
| MM-104 | Advanced Interactivity in Flash | 3 |
| MM-105 | Web Site Design | 4 |
| MM-106 | Advanced Web Site Design | <u>3</u> |
| | | 14 |

WEB INFRASTRUCTURE

This is the first of three Web Certificates, which together prepare students for a broad and specific readiness in dynamic Web technology, from administration to development and interface. Web Infrastructure specializes on Web server administration, the backbone of the Web.

| | | |
|--------------------------------------|--------------------------------------|------------|
| CNET-140A | Linux Installation and Configuration | 2 |
| CNET-140B | Linux System Administration | 2 |
| CNET-150 | Network Operating Systems | 4 |
| CNET-160A | Microsoft Client Operating Systems | 2 |
| CNET-162A | Microsoft Server Operating Systems | 2 |
| Choose one of the following courses: | | 3-4 |
| CS-104D | Web Services for .NET | (4) |
| CNET-137 | Introduction to SQL | (4) |
| CNET-157 | TCP/IP and Internetworking | <u>(3)</u> |
| | | 15-16 |