

COMPUTER APPLICATIONS AND OFFICE SYSTEMS

Cascade Campus
Moriarty Arts and Humanities Bldg (MAHB), Room 105
971-722-5317

Southeast Center
Mt. Tabor Hall (MTH), Room 116
971-722-6295

Rock Creek Campus
Building 3, Room 201
971-722-7235

Sylvania Campus
Technology Classroom Building (TCB), Room 312
971-722-4393 or 971-722-4287

www.pcc.edu/programs/computer-applications/

CAREER AND PROGRAM DESCRIPTION

Portland Community College offers associate degrees and certificates of study within the Computer Applications and Office Systems Department. Associate degree programs may be completed in approximately two years and the certificate programs may be completed in approximately one year, assuming the student is enrolled on a full-time basis.

Students completing the Administrative Assistant Certificate will have also completed the first year's work toward the Administrative Assistant Degree.

All courses and programs of study in CAS/OS require placement in WR 115 and MTH 20 and keyboarding by touch or CAS 121. Additional skill requirements are specified in course descriptions. Students with questions about entry-level readiness should arrange to meet with a department advisor. Placement examinations to assist students in selecting appropriate writing and mathematics courses are required prior to registration. Students must meet PCC's writing and math competencies prior to graduation. See academic requirements in this catalog.

Due to the rapid changes in employment opportunities, technological advances, and certifying agency regulations, these programs are subject to change.

State-approved Certificates of Completion are designed to be completed in as short as one term but less than one year. These certificates help students attain skills for targeted entry-level jobs in specific areas of computer applications, office systems, and web development. The credits earned will provide a convenient pathway for students who wish to continue to pursue the one-year certificates and two-year AAS degrees in the program.

Administrative Assistant: An administrative assistant possesses advanced knowledge of popular software applications, excellent communication and interpersonal skills. An administrative assistant is prepared to make decisions, set priorities and establish work flow. Students who successfully complete the AAS, Administrative Assistant Degree will develop skills and knowledge appropriate to an entry-level office position as an administrative assistant. The program emphasis is on using business software, communications, Internet, and emerging technologies. All CAS/OS courses applied to this degree must be passed with a "C" or better.

Administrative Office Professional: Coordinates various office support services and frequently supervises office support staff.

Establishes short range and long range plans for the office. This degree requires excellent communication and organizational skills. Students who successfully complete the AAS, Administrative Office Professional degree will develop skills and knowledge appropriate to an entry-level office position as an administrative assistant leading to managerial responsibilities. All CAS/OS courses applied to this degree must be passed with a "C" or better.

Web Site Development and Design: Represents a significant and growing industry segment that combines computer programming, extensive knowledge of software applications and proficiency in multimedia techniques. This program prepares students to plan, create, manage, supervise, and market web-based business operations, products, and services. These skills are transferable to a wide variety of web-related careers. The Computer Applications/Office Systems (CAS/OS), Computer Information Systems (CIS) and Multi-Media (MM) Departments have partnered to create an Associate of Applied Science (AAS) degree option. This interdisciplinary degree option combines back-end programming and development skills with front-end design skills to prepare students for a wide variety of web-related careers. Furthermore, students in this program will learn the designing, implementing, testing, and troubleshooting skills needed for web site construction and e-commerce applications, as well as incorporating multimedia techniques into web sites with audio and video applications. All CAS/OS courses applied to this degree must be passed with a "C" or better. In addition to foundational web design and development skills, this degree has two distinct focuses for students to choose from:

Web Development – This emphasis will focus on web application development, networking, and server setup.

Web Design – This emphasis will focus on multimedia, graphical as well as layout aspects of web site design.

Administrative Assistant Certificate: Intended to meet business career needs for entry-level administrative assistants, secretaries, receptionists, file clerks and data entry personnel. Workers in these positions may perform a wide variety of duties such as working with office technology to produce and file business documents, greeting the public, planning and scheduling, accounting, and creating web pages. All CAS/OS courses applied to this certificate must be passed with a "C" or better.

The Web Site Development and Design Certificate: Intended to meet business career needs for entry-level positions that assist web site developers, HTML programmers, web designers, web producers, and web technologists. Certificate completers will be able to create functional web sites and assist in the production of professional dynamic web sites. Administrative support personnel and entrepreneurs will gain the necessary skills to develop and manage departmental and personal web sites. All CAS/OS courses applied to this certificate must be passed with a "C" or better.

Computer Applications and Office Systems Career Pathways: All CAS/OS courses applied to these certificates must be passed with a "C" or better.

DEGREES AND CERTIFICATES OFFERED

Associate of Applied Science Degree

Computer Applications/Office Systems:
Administrative Assistant

Administrative Office Professional
Web Site Development & Design

One-Year Certificate

- Administrative Assistant
- Web Site Development & Design

Less than One-Year Certificate

- Virtual Assistant

Less than One-Year: Career Pathway Certificate

- Basic Computer Literacy
- Word Processing
- Spreadsheet
- Office Assistant
- Web Assistant I
- Web Assistant II

ADMINISTRATIVE ASSISTANT AAS DEGREE

Minimum 93 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program advisors for course planning.

Administrative Assistant Degree Credit Summary

CAS	19
OS	18
General Education	16
Admin Asst Degree Electives	12
BA	10
CAS/Admin Asst Degree Electives	4
MTH	4
WR	4
Admin Asst Business Electives	6
Credit Total 93	

Administrative Assistant Courses

BA 111	Introduction to Accounting	3
BA 205	Solving Communication Problems with Technology	4
BA 285	Human Relations-Organizations	3
CAS 123	Production Keyboarding	3
CAS 133	Basic Computer Skills/Microsoft Office or	4
Admin Asst Degree Electives		(4)
CAS 140	Beginning Access	3
CAS 170	Beginning Excel	3
CAS 216	Beginning Word	3
CAS 217	Intermediate Word	3
CAS 246	Integrated Computer Projects	4
MTH 30	Business Math	4
OS 131	10-Key on Calculators	1
OS 220	Business Editing Skills	4
OS 240	Filing & Records Management	4
OS 245	Office Systems and Procedures	4
OS 280F	CE: Administrative Assistant	4
OS 280G	CE: Administrative Assistant-Seminar	1
WR 121	English Composition	4
Admin Asst Business Electives		6
Admin Asst Degree Electives		12
General Education		16

Administrative Assistant Business Electives

Any BA course in addition to the required BA courses from the Administrative Assistant certificate. May not include BA 131 if CAS 133 was taken.

Administrative Assistant Degree Electives

May take any CAS/OS course in addition to the required CAS/OS courses from the Administrative Assistant degree or certificate. CIS 178 may be taken as a CAS/OS Elective.

ADMINISTRATIVE OFFICE PROFESSIONAL AAS DEGREE

Minimum 90 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program advisors for course planning.

Administrative Office Professional Degree Credit Summary

BA	27
CAS	26
OS	17
General Education	16
WR	4
Credit Total 90	

Administrative Office Professional Courses

BA 101	Introduction to Business	4
BA 111	Introduction to Accounting	3
BA 205	Solving Communication Problems with Technology	4
BA 206	Management Fundamentals	3
BA 224	Human Resource Management	3
BA 226	Business Law I	4
BA 228	Computer Accounting Applications	3
BA 285	Human Relations-Organizations	3
CAS 111D	Beginning Web Site Creation: Dreamweaver 3 or	
CAS 111E	Beginning Web Site Creation: Expression Web	(3)
CAS 122	Keyboarding for Speed and Accuracy	3
CAS 133	Basic Computer Skills/Microsoft Office	4
CAS 170	Beginning Excel	3
CAS 171	Intermediate Excel	3
CAS 216	Beginning Word	3
CAS 217	Intermediate Word	3
CAS 246	Integrated Computer Projects	4
OS 131	10-Key on Calculators	1
OS 220	Business Editing Skills	4
OS 240	Filing & Records Management	4
OS 245	Office Systems and Procedures	4
OS 280F	Cooperative Education	4
WR 121	English Composition	4
General Education		16

WEB SITE DEVELOPMENT AND DESIGN AAS DEGREE

Minimum 93 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Some courses specified within the program may be used as General Education. Students should consult with program advisors for course planning.

Web Site Development and Design: Development Emphasis

Development Emphasis Electives	28
CAS	21
CIS	12
Remaining General Education	8
BA	7
BA/CIS	4
MSD	4
WR	4
BA/MM/WR	3
MM	3
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Credit Total	94

Web Site Development and Design: Design Emphasis

Design Emphasis Electives	27
CAS	21
CIS	12
Remaining General Education	8
BA	7
BA/CIS	4
MSD	4
WR	4
BA/MM/WR	3
MM	3
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Credit Total	93

Web Site Development and Design Courses

BA	101	Introduction to Business	4
BA	205	Solving Communication Problems with Technology	4
	or		
MM	270	Writing for Multimedia	(3)
	or		
WR	227	Technical and Professional Writing I	(4)
BA	207	Introduction to E-Commerce	4
	or		
CIS	243	E-ssentials of E-Commerce Information Systems	(4)
BA	223	Principles of Marketing	3
	or		
BA	239	Advertising	(3)
CAS	111D	Beginning Web Site Creation: Dreamweaver	3
CAS	206	Principles of X/HTML	4
CAS	208	Beginning PhotoShop for the Web	3
CAS	211D	Intermediate Dreamweaver	3
CAS	215	CSS and Dynamic HTML	4
CAS	280W	CE: Web Site Development	4
CIS	120	Computer Concepts I*	4
CIS	121	Computer Concepts II*	4
CIS	178	Applied Internet Concepts	4
MM	110	Introduction to Multimedia	1
MM	120	Multimedia Design	2
MSD	279	Project Management-Intro	4
WR	121	English Composition	4
Development Emphasis Requirements			28
	or		
Design Emphasis Requirements			27
General Education			8

*Could be used as general Education

Development Emphasis Electives

CAS	213	Enhancing Web Pages with JavaScript	4
	or		
CIS	233S	Internet Web Page Scripting	(4)

CAS	214	Beginning ColdFusion	4
	or		
CIS	234S	Web Application Development Using .NET	(4)
	or		
CIS	195P	PHP Web Development I	(4)
	or		
CAS	225	Introduction to PHP	(4)
CIS	122	Software Design*	4
CIS	133B	Introduction to Visual Basic .NET Programming	4
	or		
CIS	133J	Java Programming I	(4)
CIS	125D	Database Application Development I	4
CIS	179	Data Communications I	4
CIS	287I	Web Server Administration	4

Design Emphasis Electives

ART	115	Basic Design*	3
ART	116	Basic Design*	3
CAS	175	Introduction to Flash	3
CAS	180	Search Engine Optimization	3
CAS	181	Web Site Creation Using CMS	3
CAS	275	Intermediate Flash	3
MM	130	Multimedia Graphic Video and Audio Production	3
MM	140	Multimedia Authoring I	3
MM	160	Marketing Yourself as a Multimedia Professional	2
MM	220	Multimedia Design II	3
MM	230	Graphics for Multimedia	4
MM	231	Vector Graphics & Animation for the World Wide Web	3

*Could be used as General Education

ADMINISTRATIVE ASSISTANT ONE-YEAR CERTIFICATE

Minimum 52 credits. Students must meet certificate requirements.

Administrative Assistant Certificate Credit Summary

CAS	13
OS	13
BA	10
CAS/Admin Asst Certificate Elective	4
General Education	4
MTH	4
WR	4
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Credit Total	52

Administrative Assistant Certificate Courses

BA	111	Introduction to Accounting	3
BA	205	Solving Communication Problems with Technology	4
BA	285	Human Relations-Organizations	3
CAS	123	Production Keyboarding	3
CAS	133	Basic Computer Skills/Microsoft Office	4
	or		
Administrative Assistant Certificate Elective Course			(4)
CAS	170	Beginning Excel	3
CAS	216	Beginning Word	3
CAS	246	Integrated Computer Projects	4
MTH	30	Business Math	4
OS	131	10-Key on Calculators	1

OS	220	Business Editing Skills	4
OS	240	Filing & Records Management	4
OS	245	Office Systems and Procedures	4
WR	121	English Composition	4
General Education			4

Administrative Assistant Certificate Electives List

May take any CAS/OS course in addition to the required CAS/OS courses from the Administrative Assistant certificate. CIS 178 may be taken as a CAS/OS Elective.

WEB SITE DEVELOPMENT AND DESIGN ONE-YEAR CERTIFICATE

51 minimum credits. Students must meet certificate requirements.

Web Site Development and Design Certificate Credit Summary

CAS	22
Website D&D Certificate Electives	12
BA/CIS	4
CIS	4
BA	3
BA/MM	3
MM	3
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	Credit Total 51

Web Site Development and Design Certificate Courses

BA	205	Solving Communication Problems with Technology	4
		or	
MM	270	Writing for Multimedia	(3)
BA	207	Introduction to E-Commerce	4
		or	
CIS	243	E-ssentials of E-Commerce Information Systems	(4)
BA	223	Principles of Marketing	3
		or	
BA	239	Advertising	(3)
CAS	111D	Beginning Web Site Creation: Dreamweaver	3
CAS	175	Introduction to Flash	3
CAS	206	Principles of XHTML	4
CAS	208	Beginning Photoshop for the Web	3
CAS	211D	Intermediate Dreamweaver	3
CAS	215	CSS and Dynamic HTML	4
CAS	280W	CE: Web Site Development	2
CIS	178	Applied Internet Concepts	4
MM	110	Introduction to Multimedia	1
MM	120	Multimedia Design	2
Web Site Development and Design Certificate Electives			12

Web Site Development and Design Certificate Electives

CAS	110	Introduction to Web Graphics Using Fireworks	1
CAS	111F	Beginning Web Site Creation: Frontpage	3
CAS	180	Search Engine Optimization	3
CAS	181	Web Site Creation using CMS	3
CAS	213	Enhancing Web Pages with JavaScript	4
CAS	214	Beginning ColdFusion	4
CAS	225	Introduction to PHP	4
CAS	246	Integrated Computer Projects	4
CAS	275	Intermediate Flash	3
MM	130	Multimedia Graphics Video & Audio Production	3

MM	140	Multimedia Authoring I	3
MM	230	Graphics for Multimedia	4
MM	231	Vector Graphics & Animation for the World Wide Web	3

VIRTUAL ASSISTANT LESS THAN ONE YEAR CERTIFICATE

Minimum 27 credit hours. Students must meet all certificate requirements.

Virtual Assistant Certificate Credit Summary

OS	13
BA	7
CAS	7
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	Credit Total 27

Virtual Assistant Certificate Courses

BA	111	Introduction to Accounting	3
BA	205	Solving Communication Problems with Technology	4
CAS	111D	Beginning Web Site Creation: Dreamweaver	3
CAS	246	Integrated Computer Projects	4
OS	250	Creating a Virtual Office	4
OS	251	Virtual Office Concepts	4
OS	280F	CE: Administrative Assistant	4
OS	280G	CE: Administrative Assistant-Seminar	1

COMPUTER APPLICATIONS AND OFFICE SYSTEMS CAREER PATHWAY CERTIFICATES

BASIC COMPUTER LITERACY: CAREER PATHWAY CERTIFICATE

Minimum 13 credits. The Basic Computer Literacy Certificate is a Career Pathway. All courses are contained in the Administrative Assistant AAS Degree.

CAS	122	Keyboarding for Speed and Accuracy	3
CAS	133	Basic Computer Skills/Microsoft Office ¹	4
CAS	170	Beginning Excel	3
CAS	216	Beginning Word	3

¹If a student already has knowledge of basic computer skills they may take a class from Administrative Assistant Certificate electives list.

WORD PROCESSING: CAREER PATHWAY CERTIFICATE

Minimum 26 credits. The Word Processing Certificate is a Career Pathway. All courses are contained in the Administrative Assistant AAS Degree.

CAS	122	Keyboarding for Speed and Accuracy	3
CAS	123	Production Keyboarding	3
CAS	170	Beginning Excel	3
CAS	216	Beginning Word	3
CAS	217	Intermediate Word	3
CAS	231	Publisher	3
OS	220	Business Editing Skills	4
WR	121	English Composition or higher	4

SPREADSHEET: CAREER PATHWAY CERTIFICATE

Minimum 27 credits. The Spreadsheet Certificate is a Career Pathway. All courses are contained in the Administrative Assistant AAS Degree.

BA	111	Introduction to Accounting	3
CAS	122	Keyboarding for Speed and Accuracy	3
CAS	140	Beginning Access	3
CAS	170	Beginning Excel	3
CAS	171	Intermediate Excel	3
CAS	216	Beginning Word	3
	or		
CAS	217	Intermediate Word	(3)
MTH	30	Business Mathematics	4
OS	131	10-Key on Calculators	1
WR	121	English Composition or higher	4

OFFICE ASSISTANT: CAREER PATHWAY CERTIFICATE

Minimum 43 credits. The Office Assistant Certificate is a Career Pathway. All courses are contained in the Administrative Assistant and AAS Degree.

BA	205	Solving Communication Problems with Technology	4
CAS	109	Beginning PowerPoint	1
CAS	123	Production Keyboarding	3
CAS	140	Beginning Access	3
CAS	170	Beginning Excel	3
	or		
CAS	171	Intermediate Excel	(3)
CAS	216	Beginning Word	3
CAS	217	Intermediate Word	3
CAS	246	Integrated Computer Projects	4
OS	220	Business Editing Skills	4
OS	240	Filing & Records Management	4
OS	245	Office Systems and Procedures	4
OS	280F	CE: Administrative Assistant	2
OS	280G	CE: Administrative Assistant - Seminar	1
WR	121	English Composition or higher	4

WEB ASSISTANT I: CAREER PATHWAY CERTIFICATE

Minimum 12 credits. The Web Assistant I Certificate is a Career Pathway. All courses are contained in the Website Development and Design AAS Degree.

CAS	110	Introduction to Web Graphics Using Fireworks	1
	or		
CAS	208	Beginning Photoshop for the Web	(3)
CAS	111D	Beginning Web Site Creation: Dreamweaver	3
CAS	206	Principles of X/HTML	4
CAS	211D	Intermediate Dreamweaver	3
CAS	280W	CE: Web Site Development	1

WEB ASSISTANT II: CAREER PATHWAY CERTIFICATE

Minimum 24 credits. The Web Assistant II Certificate is a Career Pathway. All courses are contained in the Website Development and Design AAS Degree.

CAS	110	Introduction to Web Graphics Using Fireworks	1
	or		
CAS	208	Beginning Photoshop for the Web	(3)
CAS	111D	Beginning Web Site Creation: Dreamweaver	3
CAS	175	Introduction to Flash	3
CAS	206	Principles of X/HTML	4
CAS	211D	Intermediate Dreamweaver	3
CAS	213	Enhancing Web Pages w/ JavaScript	4
CAS	214	Beginning ColdFusion	4
CAS	280W	CE: Web Site Development	2

COURSE DESCRIPTION

CAS 103 Introduction to Windows 1.00 Hands-on introduction to the Microsoft Windows operating system on Personal Computers. Includes file management, basic word processing, using the mouse with Windows, other Accessories, and some basic features of the Control Panel and System Tools. Recommend: Placement into RD 115 or WR 115. Audit available.

CAS 104 Basic Internet Skills 1.00 Hands-on course with emphasis on terminology, web browsers, search techniques, and communication tools. May include independent web-based learning. Audit available.

CAS 106 Introduction to X/HTML 1.00 Beginning hands-on course for creating simple web pages with X/HTML. Basic concepts of X/HTML tags and file transfer protocol (FTP) will be emphasized using a text editor and an FTP application. Recommended: CAS 103 or equivalent file management experience, placement into RD 115 or WR 115. Note: Students pursuing a web certificate or degree should take CAS 206 or CAS 111D instead. Audit available.

CAS 109 Beginning PowerPoint 1.00 Hands-on introduction to the Microsoft PowerPoint program. Includes creating multimedia slideshows for presentations to be delivered on a projection system, personal computer, or automated to run independently on a kiosk. Different types of presentations are covered including informational, educational, business, personal and entertainment. Topics include animations, transitions, and designs. Recommended: Placement into RD 115 or WR 115. Audit available.

CAS 110 Introduction to Web Graphic-Fireworks 1.00 Basic introduction to the features of Adobe Fireworks. Introduces basic drawing and photo manipulation tools and how to create graphics for web sites. Recommended: CAS 111D or equivalent. Note: Students pursuing a web certificate or degree should take CAS 208. Audit available.

CAS 111D Beginning Web Site Creation: Dreamweaver 3.00 Introduces basic elements of web site creation using Dreamweaver. Includes web terminology, basic X/HTML, uploading pages to a server (FTP), site management, tables, layers, styles sheets (CSS), rollovers, optimizing graphics, and accessibility. Recommended: CAS 133 or equivalent file management and word processing experience, placement into RD 115 or WR 115. Audit available.

CAS 111E Beginning Web Site Creation: Expression Web 3.00 Introduces basic elements of web site creation using Microsoft Expression Web. Includes web terminology, basic X/HTML, uploading pages to a server (FTP), site management, tables, layout, style sheets (CSS), rollovers, optimizing graphics, and accessibility. Recommended: CAS 133 or equivalent file management and word process experience, placement into RD 115 or WR 115. Audit available.

CAS 111F Beginning Web Site Creation: FrontPage 3.00 Introduces basic elements of web site creation using FrontPage. Includes web terminology, basic X/HTML, uploading pages to a server, site management, tables, layers, style sheets, rollovers, optimizing graphics, and accessibility. Recommended: Basic working knowledge of Windows, word processing, browsers and file management. Placement into RD 115 or WR 115. Audit available.

CAS 121 Beginning Keyboarding 3.00 Learn to key alphabetic portion of computer keyboard by touch. Introduces the numeric portion of the keyboard. Develop or refine basic keyboarding techniques and increase speed and accuracy. Produce basic business and academic documents using a word processor. Recommended: Placement into RD 90 or WR 90 or above. Additional lab hours may be required, consult instructor. Audit available.

CAS 121A Beginning Keyboarding 1.00 Key alphabetic portion of computer keyboard by touch. Develop or refine basic keyboarding techniques. Recommended: Placement into RD 90 and WR 90 or above. Additional lab hours may be required, consult instructor. Audit available.

CAS 122 Keyboarding for Speed and Accuracy 3.00 Develops confidence, endurance, and control for accurate keyboarding while increasing keyboarding speed. Develops ability to proofread documents accurately and efficiently. Keying by touch is essential. Recommended: Placement into RD 115 or WR 115. Additional lab hours may be required, consult instructor. Audit available.

CAS 123 Production Keyboarding 3.00 Rapid keyboarding and accurate proofreading of business letters, memos, reports, and tables. Increased speed and accuracy of keyboarding skills. Recommended: Placement into RD 115 or WR 115; CAS 216; OS 120, keying 45 wpm by touch; or instructor permission. Prerequisite: CAS 216. Additional lab hours may be required, consult instructor. Audit available.

CAS 133 Basic Computer Skills/Microsoft Office 4.00 Hands-on computer literacy course for beginners. Includes mouse and windows basics and file management. Use MS Word, Excel, Access, PowerPoint, email, and Internet basics. An overview of the MyPCC Portal website is also included. Course covers the Internet and Computing Core (IC3) program content. Recommended: RD 115 or WR 115. Keyboarding by touch recommended. Additional Lab hours required. Audit available.

CAS 135 Keeping Your Computer Healthy 3.00 Practical computer course demonstrating ways of using a Windows computer effectively, and maintaining it to operate smoothly, efficiently and securely. Explores issues such as protection from viruses, spyware and adware; data backup and recovery; organizing your files; connecting to the Internet; setting up a home network; customizing your Windows interface; installing/uninstalling software; speeding up Windows; maintaining and optimizing your PC to run at its best. Ideal for personal use or small business owners. Recommended: RD 115 or WR 115 and CAS 133. Audit available.

CAS 137 Basic Web Design Skills/Adobe 3.00 Introduces the basic features of Adobe Creative Suite, producing a simple, multi-page website using Dreamweaver, Photoshop, Flash, Fireworks, Bridge, and Acrobat. Develops familiarity with the web design process. Includes basic web terminology, uploading pages to a server (FTP), and optimizing graphics. Recommended: CAS 133 or equivalent file management and word processing experience, placement into RD 115 or WR 115. Audit available.

CAS 140 Beginning Access 3.00 Hands-on microcomputer course covering beginning database management concepts including tables, forms, reports, queries and basic macros. Stresses a working knowledge of database management vocabulary. Emphasizes efficient use of Access toolbars and menus. Database design issues are discussed but not emphasized. Recommended: Placement into RD 115 or WR 115. Audit available.

CAS 150 Introduction to Speech Recognition 1.00 Use Speech Recognition software to input information into the computer. Students will train the software to his/her voice and learn voice commands to edit, format, and produce documents. Computer literacy required. Recommended: CAS 133 and placement into RD 80. Audit available.

CAS 151 Microsoft Outlook 1.00 Introductory course in Microsoft Outlook, a tool for sending and receiving e-mail, organizing schedules and events, and maintaining Contacts lists, to-do lists, and tasks. Emphasizes the Outlook skills necessary in business environments. Recommended: Placement into RD 115 or WR 115. Audit available.

CAS 170 Beginning Excel 3.00 An in-depth, hands-on course that presents beginning spreadsheet concepts. Use Excel efficiently to design and create accurate professional worksheets for use in business and industry. Includes entering data; creating formulas; professional formatting; creating charts; creating, sorting, and filtering lists; creating and using templates; and working with functions. Focus on ways to ensure accuracy including proofreading techniques and critical thinking to determine what data to present and how to present it. Recommended: Placement into RD 115 or WR 115. Additional lab hours may be required. Audit available.

CAS 170A Beginning Excel 1.00 Hands-on opportunity covering basic concepts of using a spreadsheet program on a microcomputer. Includes moving around the spreadsheet, entering data, formatting, and printing. Stresses a working knowledge of spreadsheet vocabulary. Recommended: Placement into RD 115 or WR 115. Additional lab hours may be required, consult instructor. Audit available.

CAS 171 Intermediate Excel 3.00 An in-depth, hands-on course that presents advanced features of Excel to design and create accurate, professional worksheets for use in business and industry. Includes financial, logical, statistical, lookup, and database functions; pivot tables; "what-if" analysis with data tables; importing data; complex graphs; macros; and solver features. Focus on ways to ensure accuracy including proofreading techniques and critical thinking to determine what data to present and how to present it. Prerequisite: CAS 170 or instructor permission. Audit available.

CAS 175 Introduction to Flash 3.00 Creating and editing animated movies using basic features of Adobe Flash. Covers shape and motion tweening, masks, symbols and basic ActionScripting. The Flash program is broken down into smaller parts so students can learn to use this complex program. Emphasizes how to use software. Recommended: CAS 133 or equivalent file management and word processing experience, placement into RD 115 or WR 115. Audit available.

CAS 180 Search Engine Optimization-SEO 3.00 Elevate your website to the number one position in a search by implementing the most effective and up-to-date techniques for optimizing the searchability of web pages on the Internet. Students will create a tailored Search Engine Optimization (SEO) strategy: on-page and off-page search engine optimization, META data research and analysis, traffic generation, online tools and SEO software. Covers client side SEO. Recommended: CAS 111D, CAS 111E, CAS 111F or CAS 206 or equivalent. Audit available.

CAS 181 Web Site Creation using CMS - Content Management Systems 3.00 Create sophisticated, dynamic, interactive and fully functional web sites using a Content Management System (CMS), such as Joomla or Drupal. Topics include installing and modifying templates, creating efficient site navigation using menus, organizing a dynamic site using components and modules, and storing and responding to data submitted from a form. Recommended: CAS 111D, CAS 206, and CAS 215. Audit available.

CAS 206 Principles of X/HTML 4.00 Thorough exploration of X/HTML using an HTML editor. Includes web terminology, basic X/HTML, uploading pages to a server (FTP), site management, link, lists, tables, forms, working with web graphics, accessibility, and introduction to style sheets (CSS). Students will create a multi-page web site using these technologies. Recommended: CAS 133 or equivalent file management and word processing experience, placement into RD 115 or WR 115. Audit available.

CAS 208 Beginning Photoshop for the Web 3.00 Introduces basic painting and drawing features in Adobe Photoshop to create and refine graphics for websites. Introduces basic painting and drawing tools, and export options for the web. Emphasizes using the Photoshop interface efficiently. Recommend: MM 120. Prerequisite: CAS 111D or CAS 111E or CAS 206 or permission of the instructor. Audit available.

CAS 211D Intermediate Dreamweaver 3.00 Plan and publish professional web sites using the intermediate/advanced features of Dreamweaver. Includes behaviors, templates, inserting audio and video, Spry tools, advanced form features and Extensions. Recommended: CAS 111D or equivalent. Audit available.

CAS 213 Enhancing Web Pages with JavaScript 4.00 Thorough introduction to the JavaScript language. Add interactivity to web pages and perform a variety of techniques such as validating form input, manipulating browser windows and page content, security issues, and event handling such as mouse-overs and click events. No prior programming experience is required. Recommended: CAS 206 or equivalent HTML coding skills. Audit available.

CAS 214 Beginning ColdFusion/CFML 4.00 Develop dynamic web sites that run on ColdFusion or one of its Open Source competitors. Dramatically reduce development time with CFML, a simplified tag-based coding language. Learn server-side techniques such as responding to data submitted from forms, passing information between web pages, retrieving information from a database, managing sessions, and displaying text/images on the screen in response to user requests. Create dynamic E-Commerce or business web site using CFML. Recommended: CAS 213 or CIS 233S or equivalent scripting skills. Audit available.

CAS 215 Cascading Style Sheets (CSS) and Dynamic HTML 4.00 Create complex Cascading Style Sheets (CSS files) that format web pages according to industry and accessibility standards, work in multiple browsers, and separate content from presentation. Develop web pages using XHTML, Dreamweaver, or another HTML editor that can be customized by the user. Create stunning, interactive web pages using CSS and Dynamic HTML. Recommended: CAS 206, CAS 111D or equivalent HTML coding skills. Audit available.

CAS 216 Beginning Word 3.00 Create, edit, and print documents such as letters, memos, and manuscripts; produce multi-page documents; use headers and footers; become familiar with the program's writing tools and basics of enhancing documents; and produce merged copy. Recommended: Placement into RD 115 or WR 115, and keyboarding 25 words per minute. Audit available.

CAS 216A Beginning Word 1.00 Develops introductory skill in the use of a word processing program. Includes creating, editing, and printing basic documents such as letters and memos and become familiar with the program's writing tools. Recommended: Placement into RD 115 or WR 115; keyboarding 25 words per minute. Additional lab hours may be required, consult instructor. Audit available.

CAS 217 Intermediate Word 3.00 Review basic features and develop additional skill using Word. Enhance documents through special formatting features such as graphic lines and images, Word Art, and clipart; work with headers and footers in multi-page documents; create and format tables; use advanced merge; create documents with newspaper columns; and create and use fill-in forms. Recommended: Placement into RD 115 or WR 115; CAS 216; or instructor permission. Additional lab hours may be required, consult instructor. Audit available.

CAS 220 Project Management - Beginning MS Project 3.00 Provides an in-depth introduction to MS Project, including building entry tables, generating reports, resolving resource and time conflicts, importing data, tracking budgets and creating master projects from sub-projects. Use MS Project effectively to design and create accurate Gantt charts for use in project management. Recommend: Experience with project management or MSD 279. Working knowledge of Windows and file management. This course is part of the Project Management series of classes that includes MSD 279, BA 255, and CIS 245. Audit available.

CAS 225 Introduction to PHP 4.00 Introduction to the popular server-side application PHP. Designed to take students from an understanding of client-side web programming such as JavaScript and introduces them to server-side concepts. Topics include an introduction to server-side programming, syntax, variables, operators, functions, form processing, and simple database retrieval queries using MySQL. Includes basic security issues and a brief introduction to object-oriented PHP in preparation for the CIS series of PHP classes. Recommended: CAS 206 and CAS 213 and CIS 122, or equivalent experience. Audit available.

CAS 231 Publisher 3.00 Students will use desktop publishing software program to design and create effective publications that combine text graphics, illustrations, and/or photographs such as announcements, fliers, advertisements, and reports. Create, import, and manipulate text, graphics, and/or templates through program tools and features. Recommended: Placement into RD 115 or WR 115; prior knowledge and use of Windows technology and CAS 216 or instructor approval. Audit available.

CAS 232 Desktop Publishing: InDesign 3.00 Use InDesign, a desktop publishing software, to design and create effective publications such as announcements, fliers, advertisements, and reports. Create, import, and manipulate text and/or graphics through use of software features. Recommended: Placement into RD 115 or WR 115 and prior knowledge and use of Windows technology and CAS 216. Audit available.

CAS 246 Integrated Computer Projects 4.00 Apply previous computer and business knowledge to create individual and group projects using software found in today's workplace. Use integrated software (i.e. MS Office) to learn skills such as linking and embedding, e-mail, Internet, FAX and scanners. Recommended: 3 credits of word processing and 3 credits of spreadsheet or instructor permission. Additional lab hours may be required, consult instructor. Audit available.

CAS 275 Intermediate Flash 3.00 Moves beyond the basic Flash interface to introduce intermediate level Flash concepts to students. Create a Flash Web site and work on more complicated animations and effects. Incorporate video and sound. Includes working with frame labels, nested movie clip symbols, some ActionScript to support Web site creation. Emphasizes how to use the software. Recommend: CAS 111D and CAS 175 or equivalent. Audit available.

CAS 280W Cooperative Education: Web Site Development Provides field experience for students related to web site development. Recommended: Satisfactory progress through two terms of web site classes or equivalent experience. Audit available.