

# COMPUTER APPLICATIONS AND WEB TECHNOLOGIES

Cascade Campus  
MAHB, Room 202  
971-722-5316

Rock Creek Campus  
Building 3, Room 201  
971-722-7770

Southeast Campus  
Student Commons Room 214  
971-722-6031 or 971-722-6146

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

[pcc.edu/programs/computer-applications/](http://pcc.edu/programs/computer-applications/)

## CAREER AND PROGRAM DESCRIPTION

*As of October 5, 2019, this program is no longer accepting new students.*

Portland Community College offers associate degrees and certificates within the Computer Applications & Web Technologies (formerly *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 towards the Administrative Assistant Degree.

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

State-approved Career Pathway Certificates vary in length but are designed to be completed in 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 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.

**Administrative Office Professional:** An administrative office professional coordinates various office support services and frequently supervises office support staff. This professional also establishes short range and long range plans for the office. This degree requires excellent communication and organizational skills. Students who successfully complete the Administrative Office Professional degree will develop skills and knowledge appropriate to an entry-level office position as an administrative assistant leading to managerial responsibilities. This is a statewide program that provides connected instruction and a pathway for completion between participating Oregon community colleges. Students may start at any participating college but transfer and complete credits at any appropriate college.

**Web Development and Design:** The field of Web Development and Design represents a rapidly growing career and technology

segment of industry. This program prepares students to create and support websites using current industry standards and technology. Students will plan, create, manage, and market web-based business operations, products, and services. These skills are transferable to a wide variety of web-related careers. This interdisciplinary AAS degree 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 website maintenance and development.

In addition to fundamental web development and design skills, students have the opportunity to select their electives from one of the following focus areas:

- Design
- Development
- Business
- Video

All students are advised to consult with a program advisor on their selection of electives.

**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.

**The Web Development and Design Certificate:** Intended to meet business career needs for entry-level positions that assist website developers, HTML programmers, web designers, web producers, and web technologists. Certificate completers will be able to create functional websites and assist in the production of professional dynamic websites. Administrative support personnel and entrepreneurs will gain the necessary skills to develop and manage departmental and personal websites.

## DEGREES AND CERTIFICATES OFFERED

### ASSOCIATE OF APPLIED SCIENCE DEGREE

Administrative Assistant  
Administrative Office Professional  
Website Development and Design

### ONE-YEAR CERTIFICATE

Administrative Assistant  
Website Development and Design

### LESS THAN ONE-YEAR CERTIFICATE

Virtual Specialist

### LESS THAN ONE-YEAR: CAREER PATHWAY CERTIFICATE

Administrative Assistant: Administrative Support  
Administrative Assistant: Business Office Assistant  
Administrative Assistant: Computer Software Fundamentals  
Website Development and Design Certificate: Web Assistant I  
Website Development and Design Certificate: Web Assistant II

## Academic Prerequisites

- All programs of study in CAS/OS recommend placement in IRW 115 or (WR 115 and RD 115), MTH 20 and keyboarding by touch or CAS 121. Additional skill requirements are specified in course descriptions. Placement examinations to assist students in selecting appropriate writing and mathematics courses are required prior to registration.

**Academic Requirements**

- All courses in the degrees and certificates within the CAS/OS program must be completed with a grade of 'C' or 'P' or better.
- Students must meet PCC's writing and math competencies prior to graduation. See academic requirements in this catalog.

**Non-Academic Prerequisites**

- Students with questions about entry-level readiness should arrange to meet with a department advisor.

**Non-Academic Requirements**

- None

**ASSOCIATE OF APPLIED SCIENCE DEGREE**

Administrative Assistant (p. 2)  
 Administrative Office Professional (p. 2)  
 Website Development and Design (p. 3)

**ADMINISTRATIVE ASSISTANT 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 four courses of General Education. Math/computation competency is met through the courses in the program of study indicated with a § symbol. Students should consult with program advisors for course planning. As of October 5, 2019, this program is no longer accepting new students.

Code	Title	Credits
BA 111	Introduction to Accounting §	3
BA 177	Payroll Accounting	3
or BA 228	Computer Accounting Applications	
BA 205	Business Communication Using Technology	4
BA 285	Human Relations-Organizations	3
CAS 109	Beginning PowerPoint	1
CAS 123	Professional Document Formatting	3
CAS 133	Basic Computer Skills/Microsoft Office (or 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
OS 131	10-key on Calculators	1
OS 220	Business Editing Skills	4
OS 240	Filing and Records Management	4
OS 245	Office Systems and Procedures	4
OS 280F	Cooperative Education: Administrative Assistant	4
WR 121	College Composition	4
Admin Asst Business Electives		6
Admin Asst Degree Electives		14
General Education: 4 courses		
<b>Total Credits</b>		<b>90</b>

§ Course cannot be substituted for another course.

**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 93 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. In addition to required courses in the program of study, students must satisfy MTH 58/65 competency. Students should consult with program advisors for course planning. As of October 5, 2019, this program is no longer accepting new students.

**Administrative Office Professional Degree Courses**

Code	Title	Credits
BA 101	Introduction to Business	4
BA 111	Introduction to Accounting	3
BA 205	Business Communication Using 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 Website Creation: Dreamweaver	3
or CAS 111W	Beginning Website Design: WordPress	
CAS 122	Keyboarding for Speed and Accuracy	3
CAS 133	Basic Computer Skills/Microsoft Office	4
CAS 140	Beginning Access	3
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 and Records Management	4
OS 245	Office Systems and Procedures	4
OS 280F	Cooperative Education: Administrative Assistant	4
WR 121	College Composition	4
General Education		16
<b>Total Credits</b>		<b>93</b>

**WEBSITE DEVELOPMENT AND DESIGN AAS DEGREE**

Minimum 97 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of four courses of General Education. Some courses specified within the program may be used as General Education. In addition to required courses in the program of study, students must satisfy MTH 58/65 competency. Students should consult with program advisors for course planning. As of October 5, 2019, this program is no longer accepting new students.

**Website Development and Design Degree Courses**

Code	Title	Credits
BA 205	Business Communication Using Technology	4
or WR 227	Technical and Professional Writing 1	
BA 223	Principles of Marketing	4
CAS 101	Introduction to Website Development & Design	1
CAS 110	Introduction to Web Graphics	1
CAS 111W	Beginning Website Design: WordPress	3
CAS 180	Search Engine Optimization-SEO	3
CAS 181D	CMS Website Creation: Drupal	3
CAS 206	Principles of HTML and CSS	4
CAS 213	JavaScript and JQuery for Designers	4
CAS 215	Intermediate CSS and Preprocessors	4
CAS 222	Integrated Website Design	4
CAS 225	PHP and MySQL for Designers	4
CAS 242	UX/UI Design for the Web	3
CAS 280W	Cooperative Education: Web Site Development	4
CAS 285	Capstone for Website Development/Design	3
CIS 133W	JavaScript for Web Developers	4
WR 121	College Composition	4
Choose one of the following:		3
BA 235	Social Media Marketing	
BA 250	Small Business Management	
OS 250	Creating a Virtual Office	
Website Development and Design Electives		21
General Education: 4 courses		
<b>Total Credits</b>		<b>93</b>

**WEBSITE DEVELOPMENT AND DESIGN ELECTIVES**

Code	Title	Credits
ART 115	Basic Design - 2D Foundations	3
ART 116	Basic Design - Color Foundations	3
ART 140A	Digital Photography I	3
BA 101	Introduction to Business	4
BA 207	Introduction to E-Commerce	4
BA 235	Social Media Marketing	4
BA 239	Advertising	3
BA 250	Small Business Management	3
BA 255	Project Management - Business Environments	4
CAS 118	Beginning Photoshop	3
CAS 140	Beginning Access	3
CAS 175E	Intro Web Animation	3
CAS 181D	CMS Website Creation: Drupal	3
CAS 211W	WordPress Customizations and Theme Building	3
CAS 220	Project Management - Beginning MS Project	3
CAS 233	Beginning Illustrator	3
CAS 265	Emerging Web Tools and Trends	3
CAS 280W	Cooperative Education: Web Site Development	1-4

CIS 120	Computer Concepts I	4
CIS 121	Computer Concepts II	4
CIS 122	Introduction to Programming Logic	4
CIS 125D	Database Application Development I	4
CIS 133J	Java Programming I	4
CIS 133W	JavaScript for Web Developers	4
CIS 135M	Mobile Application Programming for Android	4
CIS 179	Data Communication Concepts I	4
CIS 195P	PHP Web Development I	4
CIS 233J	Java Programming II	4
CIS 233W	JavaScript for Web Developers II	4
CIS 243		4
CIS 245	Project Management - Information Systems	4
CIS 275	Data Modeling and SQL Introduction	4
CIS 276	Advanced SQL	4
CIS 295P	PHP Web Development II	4
MM 110	Introduction to Multimedia	1
MM 120	Multimedia Design	2
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	2D Game Graphics & Animation I	3
MM 235	Digital Video Editing and Production	4
MM 236	Video Compression and Streaming on the Internet	3
MM 241		4
MM 270	Writing for Multimedia	3
MSD 279	Project Management - Intro	4
OS 250	Creating a Virtual Office	4
OS 251	Virtual Office Concepts	4

**ONE-YEAR CERTIFICATE**

- Administrative Assistant (p. 3)
- Website Development and Design (p. 4)

**LESS THAN ONE-YEAR CERTIFICATE**

- Virtual Specialist (p. 5)

**LESS THAN ONE-YEAR: CAREER PATHWAY CERTIFICATE**

- Administrative Assistant: Administrative Support (p. 5)
- Administrative Assistant: Business Office Assistant (p. 5)
- Administrative Assistant: Computer Software Fundamentals (p. 5)
- Website Development & Design: Web Assistant I (p. 5)
- Website Development & Design: Web Assistant II (p. 6)

**ADMINISTRATIVE ASSISTANT ONE-YEAR CERTIFICATE**

Minimum 51 credits. Students must meet certificate requirements. As of October 5, 2019, this program is no longer accepting new students.

**Administrative Assistant Certificate Courses**

Code	Title	Credits
BA 111	Introduction to Accounting §	3
BA 205	Business Communication Using Technology §	4
BA 285	Human Relations-Organizations §	3
CAS 109	Beginning PowerPoint	1
CAS 123	Professional Document Formatting	3
CAS 133	Basic Computer Skills/Microsoft Office (or Administrative Assistant Certificate Elective Course)	4
CAS 140	Beginning Access	3
CAS 170	Beginning Excel	3
CAS 216	Beginning Word	3
CAS 246	Integrated Computer Projects	4
OS 131	10-key on Calculators	1
OS 220	Business Editing Skills	4
OS 240	Filing and Records Management	4
OS 245	Office Systems and Procedures	4
WR 121	College Composition	4
Administrative Assistant Degree Elective or General Education		3
<b>Total Credits</b>		<b>51</b>

§ Course contains Related Instruction and cannot be substituted with another course; Related Instruction details can be viewed here.

**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.

**WEBSITE DEVELOPMENT AND DESIGN ONE-YEAR CERTIFICATE**

Minimum 52 credits. Students must meet certificate requirements. As of October 5, 2019, this program is no longer accepting new students.

**Website Development and Design Certificate Courses**

Code	Title	Credits
BA 205	Business Communication Using Technology § <sup>1</sup>	4
or WR 227	Technical and Professional Writing 1	
CAS 101	Introduction to Website Development & Design	1
CAS 110	Introduction to Web Graphics	1
CAS 111W	Beginning Website Design: WordPress §	3
CAS 180	Search Engine Optimization-SEO §	3
CAS 181D	CMS Website Creation: Drupal	3
CAS 206	Principles of HTML and CSS §	4
CAS 213	JavaScript and JQuery for Designers §	4
CAS 215	Intermediate CSS and Preprocessors	4
CAS 222	Integrated Website Design	4
CAS 225	PHP and MySQL for Designers	4
CAS 242	UX/UI Design for the Web	3
CAS 280W	Cooperative Education: Web Site Development	2
Choose one of the following:		3

BA 235	Social Media Marketing	
BA 250	Small Business Management	
OS 250	Creating a Virtual Office	
Website Development and Design Electives		9
<b>Total Credits</b>		<b>52</b>

§ Course contains Related Instruction and cannot be substituted with another course; Related Instruction details can be viewed here.  
<sup>1</sup> Must choose BA 205 or WR 227. No other options can be used.

**WEBSITE DEVELOPMENT AND DESIGN ELECTIVES**

Code	Title	Credits
ART 115	Basic Design - 2D Foundations	3
ART 116	Basic Design - Color Foundations	3
ART 140A	Digital Photography I	3
BA 101	Introduction to Business	4
BA 207	Introduction to E-Commerce	4
BA 235	Social Media Marketing	4
BA 239	Advertising	3
BA 250	Small Business Management	3
BA 255	Project Management - Business Environments	4
CAS 118	Beginning Photoshop	3
CAS 140	Beginning Access	3
CAS 175E	Intro Web Animation	3
CAS 181D	CMS Website Creation: Drupal	3
CAS 211W	WordPress Customizations and Theme Building	3
CAS 220	Project Management - Beginning MS Project	3
CAS 233	Beginning Illustrator	3
CAS 265	Emerging Web Tools and Trends	3
CAS 280W	Cooperative Education: Web Site Development	1-4
CIS 120	Computer Concepts I	4
CIS 121	Computer Concepts II	4
CIS 122	Introduction to Programming Logic	4
CIS 125D	Database Application Development I	4
CIS 133J	Java Programming I	4
CIS 133W	JavaScript for Web Developers	4
CIS 135M	Mobile Application Programming for Android	4
CIS 179	Data Communication Concepts I	4
CIS 195P	PHP Web Development I	4
CIS 233J	Java Programming II	4
CIS 233W	JavaScript for Web Developers II	4
CIS 243		4
CIS 245	Project Management - Information Systems	4
CIS 275	Data Modeling and SQL Introduction	4
CIS 276	Advanced SQL	4
CIS 295P	PHP Web Development II	4
MM 110	Introduction to Multimedia	1
MM 120	Multimedia Design	2
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	2D Game Graphics & Animation I	3
MM 235	Digital Video Editing and Production	4
MM 236	Video Compression and Streaming on the Internet	3
MM 241		4
MM 270	Writing for Multimedia	3
MSD 279	Project Management - Intro	4
OS 250	Creating a Virtual Office	4
OS 251	Virtual Office Concepts	4

**VIRTUAL SPECIALIST LESS THAN ONE YEAR CERTIFICATE**

Minimum 22 credits. Students must meet all certificate requirements. *As of October 5, 2019, this program is no longer accepting new students.*

**Virtual Specialist Certificate Courses**

Code	Title	Credits
BA 111	Introduction to Accounting	3
BA 205	Business Communication Using Technology	4
BA 235	Social Media Marketing	4
CAS 111W or CAS 111D	Beginning Website Design: WordPress Beginning Website Creation: Dreamweaver	3
CAS 246	Integrated Computer Projects	4
OS 250	Creating a Virtual Office	4
<b>Total Credits</b>		<b>22</b>

**ADMINISTRATIVE ASSISTANT: ADMINISTRATIVE SUPPORT CAREER PATHWAY CERTIFICATE**

Minimum 26 credits. Students must meet all certificate requirements. The Administrative Support Certificate is a Career Pathway. All courses are contained in the Administrative Assistant AAS Degree. *As of October 5, 2019, this program is no longer accepting new students.*

**Administrative Support Certificate Courses**

Code	Title	Credits
CAS 122	Keyboarding for Speed and Accuracy	3
CAS 123	Professional Document Formatting	3
CAS 170	Beginning Excel	3
CAS 216	Beginning Word	3
CAS 217	Intermediate Word	3
OS 220	Business Editing Skills	4
WR 121	College Composition	4
Administrative Assistant Degree Electives		3
<b>Total Credits</b>		<b>26</b>

**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 ASSISTANT: BUSINESS OFFICE ASSISTANT CAREER PATHWAY CERTIFICATE**

Minimum 27 credits. Students must meet all certificate requirements. The Business Office Assistant Certificate is a Career Pathway. All courses are contained in the Administrative Assistant AAS Degree. *As of October 5, 2019, this program is no longer accepting new students.*

**Business Office Assistant Certificate Courses**

Code	Title	Credits
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 or CAS 217	Beginning Word Intermediate Word	3
CAS 246	Integrated Computer Projects	4
OS 131	10-key on Calculators	1
WR 121	College Composition	4
<b>Total Credits</b>		<b>27</b>

**ADMINISTRATIVE ASSISTANT: COMPUTER SOFTWARE FUNDAMENTALS CAREER PATHWAY CERTIFICATE**

Minimum 13 credits. Students must meet all certificate requirements. The Computer Software Fundamentals Certificate is a Career Pathway. All courses are contained in the Administrative Assistant AAS Degree. *As of October 5, 2019, this program is no longer accepting new students.*

**Computer Software Fundamentals Certificate Courses**

Code	Title	Credits
CAS 122	Keyboarding for Speed and Accuracy	3
CAS 133	Basic Computer Skills/Microsoft Office <sup>3</sup>	4
CAS 170	Beginning Excel	3
CAS 216	Beginning Word	3
<b>Total Credits</b>		<b>13</b>

<sup>3</sup> If a student already has knowledge of basic computer skills they may substitute a class from the Administrative Assistant Certificate Elective list.

**WEBSITE DEVELOPMENT & DESIGN: WEB ASSISTANT I CAREER PATHWAY CERTIFICATE**

Minimum 12 credits. Students must meet all certificate requirements. The Web Assistant I Certificate is a Career Pathway. All courses are contained in the Website Development and Design AAS Degree. *As of October 5, 2019, this program is no longer accepting new students.*

**Web Assistant I Certificate Courses**

Code	Title	Credits
CAS 101	Introduction to Website Development & Design	1
CAS 110	Introduction to Web Graphics	1
CAS 111W	Beginning Website Design: WordPress	3
CAS 180	Search Engine Optimization-SEO	3

CAS 206	Principles of HTML and CSS	4
Total Credits		12

**Website Development & Design: Web Assistant II Career Pathway Certificate**

Minimum 23 credits. Students must meet all certificate requirements. The Web Assistant II Certificate is a Career Pathway. All courses are contained in the Website Development and Design AAS Degree. *As of October 5, 2019, this program is no longer accepting new students.*

**Web Assistant II Certificate Courses**

Code	Title	Credits
CAS 101	Introduction to Website Development & Design	1
CAS 110	Introduction to Web Graphics	1
CAS 111W	Beginning Website Design: WordPress	3
CAS 180	Search Engine Optimization-SEO	3
CAS 206	Principles of HTML and CSS	4
CAS 213	JavaScript and JQuery for Designers	4
CAS 215	Intermediate CSS and Preprocessors	4
CAS 242	UX/UI Design for the Web	3
Total Credits		23

**CAS 100A. Computer Success Skills. 3 Credits.**  
Introduces essential computer skills to develop a basic understanding of computers, file management and word processing. Includes an overview of Internet basics and an introduction to the online platform D2L. Covers current computer vocabulary, basic computer tasks, and keyboarding skills. Recommended: (WR 80 and RD 80) or (ESOL 252 and ESOL 250) or equivalent placement. Audit available.

**CAS 101. Introduction to Website Development & Design. 1 Credit.**  
Explores the different roles, skill sets, jobs, and tools associated with the website development and design industry. Introduces the Website Development & Design program, including course options, software, and equipment requirements. Introduces online portfolio requirements for Website Development & Design program. Recommended: CAS 133 or equivalent file management and word processing experience, placement into RD 115 or WR 115.

**CAS 103. Introduction to Windows. 1 Credit.**  
Introduces the Microsoft Windows operating system on personal computers. Includes file management, basic word processing, accessories, and introduction to the PCC portal. Recommended: Placement into RD 115 and WR 115. Audit available.

**CAS 104. Basic Internet Skills. 1 Credit.**  
Introduces web terminology, web browsers, search techniques, and communication tools. Audit available.

**CAS 106. Introduction to HTML. 1 Credit.**  
Introduces basic concepts of creating simple web pages with HTML. Develops knowledge of working with HTML tags using a text editor, and file transfer Protocol (FTP) using an FTP application. Recommended: Placement into RD 115 and WR 115; CAS 103 or CAS 133 or equivalent file management experience. Note: Students pursuing a web certificate or degree should take CAS 206. Audit available.

**CAS 109. Beginning PowerPoint. 1 Credit.**  
Introduces the basic features of Microsoft PowerPoint, producing multimedia slideshows for presentations to be delivered on a projection system, personal computer, or automated to run independently on a kiosk. Explores informational, educational, business, and personal presentations. Includes animations, transitions, and designs. Recommended: Placement into RD 115 and WR 115. Audit available.

**CAS 110. Introduction to Web Graphics. 1 Credit.**  
Introduces the creation of graphics for use on websites using industry-standard graphics editing software. Includes creating vector-based and pixel-based graphics, optimizing images for websites, selecting appropriate image file formats, and performing basic photo editing. Recommended: placement into RD 115 and WR 115. Audit available.

**CAS 111D. Beginning Website Creation: Dreamweaver. 3 Credits.**  
Introduces basic elements of website creation using Adobe Dreamweaver. Includes web terminology, basic HTML, uploading pages to a server (FTP), site management, tables, layout, stylesheets (CSS), rollovers, optimizing graphics, and accessibility. Recommended: CAS 110 and CAS 133 or equivalent file management and word processing experience; placement into RD 115 and WR 115. Audit available.

**CAS 111W. Beginning Website Design: WordPress. 3 Credits.**  
Introduces the creation of sophisticated, dynamic, interactive and fully functional websites using WordPress, a Content Management System (CMS). Includes installing and modifying themes, creating efficient site navigation using menus and categories, organizing a site, enhancing a site with plugins and widgets, integrating a blog, and creating user functionality with user logins. Covers basic HTML and CSS and site planning. Recommended: placement into RD 115 and WR 115. Audit available.

**CAS 118. Beginning Photoshop. 3 Credits.**  
Introduces the creation of professional graphic images using Adobe Photoshop, Camera Raw and Bridge. Includes image resolution, file formats, copyright issues, and using various tools and features. Recommended: CAS 133 or equivalent file management skills. Audit available.

**CAS 121. Beginning Keyboarding. 3 Credits.**  
Covers the skills necessary to touch type on the computer keyboard using correct techniques. Includes the development of speed and accuracy. Covers the production of basic business and academic documents. Recommended: Placement into RD 90 and WR 90 or above. Audit available.

**CAS 121A. Beginning Keyboarding. 1 Credit.**  
Introduces the alphabetic portion of computer keyboard by touch. Develops and improves basic keyboarding techniques. Recommended: Placement into RD 90 and WR 90 or above. Audit available.

**CAS 122. Keyboarding for Speed and Accuracy. 3 Credits.**  
Develops confidence, endurance, and control for accurate keyboarding while increasing keyboarding speed. Develops ability to proofread documents accurately and efficiently. Requirement: Keyboarding by touch. Recommended: Placement into RD 90 and WR 90 or above. Audit available.

**CAS 123. Professional Document Formatting. 3 Credits.**  
Covers formatting, proofreading, and editing to produce business documents such as professional reports, meeting & events materials, and business letters utilizing a variety of software technologies. Focuses on improving and increasing speed and accuracy of keyboarding skills for document production. Recommended: Placement into RD 115 and WR 115 or higher; OS 220; keying 40 wpm by touch. Prerequisite: CAS 216 or instructor permission. Audit available.

**CAS 133. Basic Computer Skills/Microsoft Office. 4 Credits.**  
Introduces the basic features of Microsoft Office, Windows basics, and file management. Develops familiarity with Word, Excel, Access, PowerPoint, email, and Internet basics. Provides an overview of the MyPCC Portal website. Covers components of the Internet and Computing Core (IC3) program content. Recommended: RD 115 and WR 115 and keyboarding by touch. Audit available.

**CAS 137. Basic Web Design Skills/Adobe. 3 Credits.**  
Introduces the basic features of Adobe Creative Cloud software including Bridge, Photoshop, Dreamweaver, Illustrator, and Acrobat. Includes using the software to edit photos, create basic websites, design web graphics, and organize web projects. Recommended: CAS 133 or equivalent file management and word processing experience and placement into RD 115 and WR 115. Audit available.

**CAS 140. Beginning Access. 3 Credits.**  
Introduces the basic features of Microsoft Access. Covers 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. Discusses database design issues. Recommended: Placement into RD 115 and WR 115. Audit available.

**CAS 151. Microsoft Outlook. 1 Credit.**  
Introduces the basic features of Microsoft Outlook to send and receive e-mail, organize schedules and events, and maintain contact lists, to-do lists, and tasks. Emphasizes the Outlook skills necessary in business environments. Recommended: Placement into RD 115 and WR 115. Audit available.

**CAS 170. Beginning Excel. 3 Credits.**

Introduces the basic features of Microsoft Excel and spreadsheet concepts to design and create accurate professional worksheets for use in business and industry, and academic environments. Includes entering data; creating formulas; professional formatting; creating charts; creating, sorting, and filtering tables; creating and using templates; and working with functions. Focuses 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, WR 115 and MTH 20. Audit available.

**CAS 170A. Beginning Excel. 1 Credit.**

Introduces the basic features of Microsoft Excel. Includes moving around the spreadsheet, entering data, formatting, and printing. Stresses a working knowledge of spreadsheet vocabulary. Recommended: Placement into RD 115 and WR 115. Audit available.

**CAS 171. Intermediate Excel. 3 Credits.**

Introduces advanced features of Excel to design and create accurate, professional worksheets for use in business and industry. Includes financial, logical, lookup, data analysis and database functions; pivot tables; 'what-if' analysis with data tables; importing data; complex graphs; and macros; and solver features. Focuses 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 175E. Intro Web Animation. 3 Credits.**

Introduces the creation of animated and interactive web content using industry-standard software that can be viewed on any web supported device. Includes producing animated and interactive web projects using text, shapes, and imagery. Prerequisite: CAS 206. Audit available.

**CAS 180. Search Engine Optimization-SEO. 3 Credits.**

Introduces current techniques, skills and concepts used to optimize the searchability of web pages on the Internet. Covers the creation of a tailored Search Engine Optimization (SEO) strategy, including on-page and off-page search engine optimization, meta data research and analysis, traffic generation, online tools and SEO software. Explores client side SEO. Audit available.

**CAS 181D. CMS Website Creation: Drupal. 3 Credits.**

Introduces the creation of sophisticated, dynamic, interactive and fully functional websites using Drupal, a content management system (CMS). Includes setting up a Drupal website in a remote server environment, working with modules, creating efficient site navigation using menus, and organizing a site using modules, blocks, nodes, content types and fields. Also includes enhancing a site with additional content types, modules and themes, and creating user functionality with user logins. Recommended: placement into RD 115 and WR 115. Audit available.

**CAS 206. Principles of HTML and CSS. 4 Credits.**

Introduces HTML using an HTML editor. Includes web terminology, HTML5, uploading pages to a server (FTP), site management, links, lists, tables, forms, video, iframes, working with graphics, and accessibility. Introduces stylesheets (CSS) and responsive (mobile) web design. Covers the creation of multipage websites using these technologies. Recommended: CAS 133 or equivalent file management and word processing experience, and placement into RD 115 and WR 115. Audit available.

**CAS 211W. WordPress Customizations and Theme Building. 3 Credits.**

Covers the modification and customization of existing WordPress themes using child themes. Includes using a responsive HTML5/CSS3 framework to create new, unique themes. Explores editing and updating the Theme Customizer and other dashboard enhancements. Introduces the creation of menu capability, page templates, widgets, sidebars and other widget areas. Covers WordPress PHP functions and hooks. Includes e-commerce, translation, and SEO concepts. Includes creating basic plugins, security and techniques for backing up and moving WordPress sites. Recommended: CAS 111W, CAS 206, and CAS 213 or a working knowledge of WordPress, HTML5, CSS3 and basic JavaScript or PHP programming concepts and placement into RD 115 and WR 115. Audit available.

**CAS 213. JavaScript and JQuery for Designers. 4 Credits.**

Develops skills to write scripts that create interactive effects on websites using JavaScript and jQuery. Introduces programming concepts and terminology. Explores a variety of common user interface (UX/UI) effects on websites. Enhances critical thinking through the process of writing and troubleshooting JavaScript and jQuery on web pages. Uses the current versions of HTML and CSS. Prerequisite: CAS 206 or instructor permission. Audit available.

**CAS 215. Intermediate CSS and Preprocessors. 4 Credits.**

Extends skills in CSS to an intermediate/advanced level. Includes responsive design, grids, transitions/transforms, and CSS preprocessors, such as SASS or LESS, to save time, improve code organization, and make sites easier to maintain. Recommended: Placement into RD 115 and WR 115. Prerequisite: CAS 206 or instructor permission. Audit available.

**CAS 216. Beginning Word. 3 Credits.**

Introduces the basics of Microsoft Word to 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 and WR 115; keyboarding 25 words per minute. Audit available.

**CAS 216A. Beginning Word. 1 Credit.**

Introduces the basics of Microsoft Word to create, edit, and print basic documents such as letters and memos and become familiar with the program's writing tools. Recommended: Placement into RD 115 and WR 115; keyboarding 25 words per minute. Audit available.

**CAS 217. Intermediate Word. 3 Credits.**

Introduces additional concepts of Microsoft Word to enhance documents through advanced features. Includes working with images; creating/using styles; formatting multi-page documents using advanced features of headers/footers and section breaks; integrating software to create and format tables and charts; using advanced mail merge; creating documents with columns; creating and using fill-in forms. Recommended: Placement into RD 115 and WR 115. Prerequisites: CAS 216 or instructor permission. Audit available.

**CAS 220. Project Management - Beginning MS Project. 3 Credits.**

Introduces MS Project, including building entry tables, generating reports, resolving resource and time conflicts, importing data, and tracking budgets. Includes the design and creation of accurate Gantt charts for use in project management. Recommend: Placement into RD 115 and WR 115; 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 222. Integrated Website Design. 4 Credits.**

Reinforces industry-standard practices for creating professional websites. Focuses on user acceptance testing, usability testing, social media integration, accessibility, form processing using a database, JavaScript/jQuery interactivity and mobile-first web design. Includes troubleshooting of existing websites and working in production/development environments. Prerequisite: CAS 215 and (CAS 213 or CIS 133W) and (CAS 225 or CIS 195P). Audit available.

**CAS 225. PHP and MySQL for Designers. 4 Credits.**

Develops skills to create server-side scripts using PHP. Introduces server-side programming concepts and terminology. Explores a variety of server-side techniques and MySQL database manipulation. Covers the installation of PHP and MySQL. Uses the current versions of HTML and CSS. Prerequisite: CAS 213 or CIS 133W or instructor permission. Audit available.

**CAS 231. Publisher. 3 Credits.**

Introduces Microsoft Publisher to design and create effective publications that combine text graphics, illustrations, and/or photographs such as announcements, fliers, advertisements, and reports. Covers the processes to create, import, and manipulate text, graphics, and/or templates through program tools and features. Recommended: Placement into RD 115 and WR 115; prior knowledge and use of Windows technology. Audit available.

**CAS 232. Desktop Publishing: InDesign. 3 Credits.**

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

**CAS 233. Beginning Illustrator. 3 Credits.**

Introduces Adobe Illustrator to create vector graphics and illustration components for the web. Covers the processes to create, import and manipulate text and/or graphics through the use of software features. Recommended: CAS 133 or equivalent file management experience. Audit available.

**CAS 242. UX/UI Design for the Web. 3 Credits.**

Introduces user experience (UX) and user interface (UI) design for the web. Covers gathering requirements, research, project management and user-centric design concepts to produce HTML and CSS web pages that display accurately on any web-supported device. Includes the creation of user personas, content inventories, mood boards, and low and high fidelity wireframes. Covers web standards for color management, design principles, and usability best practices. Prerequisite: CAS 110, CAS 206. Prerequisite/concurrent: CAS 215. Audit available.

**CAS 246. Integrated Computer Projects. 4 Credits.**

Builds upon previous computer and business knowledge to create individual and group projects using software found in today's workplace. Uses integrated software (i.e. MS Office) and current technology to further develop professional software skills. Prerequisite: CAS 216 and CAS 170 or instructor permission. Recommended: CAS 109, CAS 140, CAS 171, and CAS 217. Audit available.

**CAS 265. Emerging Web Tools and Trends. 3 Credits.**

Explores emerging tools and trends in website development and design and their applicability to employment. Prerequisites: CAS 206 and CAS 215. Audit available.

**CAS 280W. Cooperative Education: Web Site Development. 1-4 Credit.**

Provides field experience related to web site development. Recommended: Satisfactory progress through two terms of website classes or equivalent experience. Prerequisite: Instructor permission required. Audit available.

**CAS 285. Capstone for Website Development/Design. 3 Credits.**

Encompasses producing a dynamic web project using industry standard software and technical tools. Includes planning, production, project review, and peer critiques. Includes completion of an online portfolio showcasing coursework artifacts from all completed courses. Includes development of a self-marketing statement emphasizing student web focus area. Prerequisite: CAS 180 and CAS 242 and CAS 222 and department approval.

**OS 131. 10-key on Calculators. 1 Credit.**

Develops 10-key skills by touch. Recommended: Placement into RD 115, WR 115, and MTH 20. Audit available.

**OS 220. Business Editing Skills. 4 Credits.**

Develops skills necessary for editing, transcribing, and writing memos, letters and email. Emphasis: punctuation, capitalization, spelling, grammar, and word use. Recommended: Placement into WR 121, keyboard by touch. Audit available.

**OS 240. Filing and Records Management. 4 Credits.**

Develops skills for indexing, coding, and cross-referencing documents to be filed. Includes requisitions and charge-outs, records transfer, various filing systems, and an overall view of the role of records management in business including electronic and image records. Recommended: RD 115; WR 115; and CAS 133 or CAS 140. Audit available.

**OS 245. Office Systems and Procedures. 4 Credits.**

Develops the skills of an administrative professional for current business practices. Uses computer technology for tasks such as scheduling, email, and faxing. Develops communication, organization and prioritizing skills, telephone techniques, problem solving, and analytical abilities. Analyzes current trends in workplace ethics and the multi-cultural workplace. Develops workplace readiness and applies job search skills for current job market. Prerequisites: CAS 216 and OS 220. Audit available.

**OS 250. Creating a Virtual Office. 4 Credits.**

Covers all aspects of creating an office for a virtual specialist. Includes developing an individual business plan, creating a marketing plan incorporating a social media marketing strategy, establishing a fee rate range, identifying software requirements, planning a company website, legal requirements, insurance issues, negotiating contracts, and creating a file management system. Recommended: CAS 246. Audit available.

**OS 251. Virtual Office Concepts. 4 Credits.**

Introduces the concepts and skills needed to become a successful virtual assistant. Covers time management, business relationships, telephone techniques, telecommuting, ethics, conflicts, stress management, separating home and office life, networking with other virtual assistants, virtual assistant associations, conducting virtual meetings, legal requirements, insurance issues, negotiating contracts, and creating business webpage and electronic portfolio. Prerequisite: OS 250 or instructor permission. Recommended: CAS 111D. Audit available.

**OS 280F. Cooperative Education: Administrative Assistant. 1-4 Credit.**

Provides field experience for the administrative assistant. Recommended: RD 115, WR 115 and satisfactory progress through at least 15 credit hours of CAS/OS courses, or instructor permission required. Audit available.