



COURSE LIST

The Course List displayed here is for the most recent version of the program only. Current students should always consult their Individualized Education Plan (IEP) on [myDawson](#).

Term 1

COURSE NUMBER	COURSE NAME	C - L - H	HRS	—
Concentration				
401-910-DW	Administration	1 - 2 - 1	45	—
Description: The course will introduce office productivity software. It will include word processing, spreadsheet, and presentation software, as well as cloud applications commonly used to share and synchronize documents. Basic business concepts and terminology are introduced.				
420-110-DW	Programming I	3 - 3 - 3	90	—
Description: The course will introduce the student to the basic building blocks (sequential, selection and repetitive control structures) and modules (methods and classes) used to write a program. The student will use the Java programming language to implement the algorithms studied. The array data structure is introduced, and student will learn how to program with objects.				
420-120-DW	Web Development I	3 - 2 - 3	75	—

Description:

The course will introduce foundational web development skills while exploring the role of Web browsers and servers, protocols of the Web, and Web domains. Students will learn to apply HTML, CSS, and basic JavaScript to develop Web applications containing various media and publish them using Web development tools.

420-140-DW	Infrastructure I	3 - 2 - 3	75	—
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Description:

The course will examine the layers of computer systems - hardware, operating system, and application software. This course will have the student gain hands-on experience using hardware components that comprise a computer to assemble a complete system. The student will learn to install, maintain, configure and troubleshoot operating systems and application software. This course explores the concepts, terminology, and fundamental features of operating systems, and students are introduced to both the Windows and Linux operating systems.

General Education				
603-101-MQ	Intro to College English	2 - 2 - 4	60	—

Please see the English Department's offering of courses.

345-101-MQ	Knowledge	3 - 1 - 3	60	—
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Please see the Humanities Department's offering of courses.

109-10x-MQ	Phys Ed 101 or 102	0 - 1 - 1	30	—
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Choose one course from the list of options below:

- 109-101-MQ: Physical Activity and Health
- 109-102-MQ: Physical Activity and Effectiveness

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Term 2

COURSE NUMBER	COURSE NAME	C - L - H	HRS	—
Concentration				
201-920-DW	Applied Mathematics for Computer Science	3 - 2 - 3	75	—
Description: This course will help students to acquire the necessary fundamental mathematical knowledge which represents the foundation for several courses in the Computer Science Program including the Linear Algebra course. For that purpose the goals of the course are: to review some important concepts of algebra and to ensure competency in proper algebraic manipulations, to introduce the concept of function, to ensure competency in the notation, properties and operations of functions in general, and of linear, quadratic, exponential and logarithmic functions in particular, to introduce the trigonometric functions and to ensure competency in interpreting their properties and applications.				
420-210-DW	Programming II	3 - 3 - 3	90	—
Description: The course will introduce the student to basic object-oriented methodology in order to design, implement, use and modify classes, to write programs in the Java language that perform interactive processing, array and string processing, and data validation. Object-oriented features such as encapsulation and inheritance will be explored.				
420-231-DW	Database I	3 - 3 - 3	90	—
Description: The course will teach tools and techniques for database design and the use of Structured Query Language (SQL). This course will cover the fundamental concepts of the relational data model; the use of selected data modeling methodologies; and data normalization techniques to create robust relations.				

The syntax and semantics of SQL, to create and maintain relational databases will be studied.

420-240-DW	Infrastructure II	3 - 2 - 2	75	—
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Description:

This course will explore the Linux operating system in detail. The student will interact with Linux operating system via command-line interface, with emphasis on bash shell commands, the vi editor, utilities and bash scripts to construct and use command sequences to manipulate data and perform basic system administration tasks. The student will install, configure and manage Linux.

General Education

345-102-MQ	World Views	3 - 0 - 3	45	—
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Please see the Humanities Department's offering of courses.

109-10x-MQ	Phys Ed 101 or 102	0 - 1 - 1	30	—
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Choose one course from the list of options below:

- 109-101-MQ: Physical Activity and Health
- 109-102-MQ: Physical Activity and Effectiveness

602-10x-MQ	French Block A	2 - 1 - 3	45	—
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Please see the French Department's offering of courses.

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Term 3

COURSE NUMBER	COURSE NAME	C - L - H	HRS	—
Concentration				
201-NYC-05	Linear Algebra	3 - 2 - 3	75	—
Description:		Systems of linear equations and elementary operations, matrices and determinants, vectors, lines, planes and vector spaces are studied in this course.		
420-310-DW	Programming III	3 - 3 - 3	90	—
Description:		The course will enhance the students' knowledge of object-oriented programming and Java to produce stand-alone applications employing reusable objects, data structures and the Java collections framework. The concepts of inheritance, polymorphism, data abstraction and programming to interfaces are used to design software. Students are introduced to software version control and effective team collaboration.		
420-320-DW	Web Development II	3 - 3 - 3	90	—
Description:		The course will build upon the students' knowledge of HTML5, CSS and JavaScript to create interactive web applications with AJAX and web APIs. This course focuses on the fundamental concepts of the JavaScript language.		
420-331-DW	Database II	3 - 3 - 3	90	—
Description:		This course will introduce the student to the Oracle environment for building, deploying, hosting, and managing enterprise-class applications. The student will use SQL and PL/SQL to build and manage a database. In addition, the student will complete a case study which involves requirements analysis and data modeling, implemented using PL/SQL and Java.		
General Education				
603-10x-DW	English 102 or 103	2 - 2 - 3	60	—

Choose one course from the list of options below:

- 603-102-MQ: Literary Genres
- 603-103-MQ: Literary Themes

[Click here for information about English courses.](#)

COM-001-03	Complementary 1	2 - 1 - 3	45	—
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Term 4

COURSE NUMBER	COURSE NAME	C - L - H	HRS	—
Concentration				
420-410-DW	Programming IV	3 - 3 - 3	90	—

Description:

The course will focus on the construction of stand-alone applications that requires the design and implementation of multiple classes. The student will study standard data structures and their relevant use in the manipulation and management of data in applications. The student will learn to use databases from within an application and will work individually on a project to develop a complete software application.

420-420-DW	Web Development III	3 - 3 - 3	90	—
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Description:

The student will be introduced to the concepts and techniques of server-side Web programming. The student will use Python, a database to create dynamic Web applications, and Web APIs to respond to requests. In addition to direct Python programming, the student is introduced to a Python web framework.

420-440-DW	Infrastructure III	3 - 3 - 2	90	—
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Description:

The course will use Linux to reinforce student understanding of web development and distributed systems. The characteristics of a multi-user, multi-tasking, multi-threaded operating system will be examined. Topics related to networking, security, monitoring, industry best practice authentication and directory services operations will be covered. Aspects of connectivity using TCP/IP protocols, and application services such as DNS, DHCP, SSH, and web servers with HTTP will be introduced. The students will also be introduced to virtual machine concepts and creation.

General Education				
603-10x-DW	English 102 or 103	2 - 2 - 3	60	—

Choose one course from the list of options below:

- 603-102-MQ: Literary Genres
- 603-103-MQ: Literary Themes

[Click here for information about English courses.](#)

345-BXH-DW	Applied Ethics in Humanities	3 - 0 - 3	45	—
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Please see the Humanities Department's offering of courses.

109-103-MQ	Physical Activity and Autonomy	1 - 1 - 1	30	—
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Please see the Physical Education department's offering of courses.

602-BXx-03	French Block B	2 - 1 - 3	45	—
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Please see the French Department's offering of courses.

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Term 5

COURSE NUMBER	COURSE NAME	C - L - H	HRS	—
Concentration				
420-510-DW	Programming V	3 - 3 - 3	90	—
Description:		The course will focus on the use of algorithms and data structures to simulate real-life phenomena using an appropriate gaming framework. Projects are implemented using an object-oriented language.		
420-511-DW	Mobile Development	3 - 3 - 3	90	—
Description:		The course will focus on the development of applications within the Android environment. Students will learn how to analyze, design, construct, and implement an effective mobile application using the Android mobile development environment.		
420-520-DW	Web Development IV	3 - 3 - 3	90	—
Description:		The course will examine Web performance from the end-user perspective. Students are introduced to factors that impact browser loading and rendering time, tools that help in measuring performance, and patterns and tips to improve performance. Students will design and build a full-stack application using JavaScript, with an emphasis on modern best-practices for scalable Web applications, including algorithm optimization and server-side/client-side performance considerations.		

420-540-DW	Data Communications and Networking	3 - 2 - 3	75	—
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Description:

This course is designed to familiarize the student with modern data communications theory, concepts, and terminology, including the various communications media and protocols used to transmit and share information over various types of networks. Students will acquire sufficient knowledge of networks to be able to operate comfortably as programmers in a network environment. Students will define and implement applications that make use of data exchange services. The services will use TCP/IP sockets programs that the students will implement to demonstrate an understanding of the underlying protocols of the Internet.

General Education				
603-BXE-DW	Applied Themes in English	2 - 2 - 2	60	—

Please see the English Department's offering of courses.

COM-002-03	Complementary 2	2 - 1 - 3	45	—
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Term 6

COURSE NUMBER	COURSE NAME	C - L - H	HRS	—
Concentration				
420-620-DW	Web Development V	3 - 3 - 3	90	—

Description:

During this 10 week capstone course, you will develop a web-based application, as a team, from beginning to end. You will apply agile project management practices to engage in activities such as sprint planning, standups, and sprint retrospectives. For the most part, the application will use existing technologies that you've seen in other classes, and now you will have to put them all together.

420-640-DW	Infrastructure IV	3 - 2 - 2	75	—
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Description:

The course will provide an understanding on how to deploy and manage a system that is cloud based, through the use of tools to automate configuration and deployment. Management of systems includes monitoring of a live system, and software modification of an existing codebase. The course is framed from the point of view of a development team who need to fix code and deploy in a robust manner.

420-652-DW	Working in the Profession	3 - 0 - 2	45	—
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Description:

The course will cover various topics relevant to the profession: ethical dilemmas in computing, understanding the profession and work environment, intellectual property, different levels of technical communication targeting different audiences, case studies in data security and privacy. Students are expected to research and express opinions on technical topics.

420-653-DW	Internship	0 - 15 - 1	225	—
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Description:

The Internship course will provide the student with an experiential basis for learning how to apply the theoretical skills they acquired in the Computer Science Technology Program in order to be better able to successfully pursue a career as a software developer.

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