



## C-Town Tech

C-Town Tech builds a connection between high school, college, and your future career in information technology (IT). Starting in 10th grade, you will be dual enrolled at Bunker Hill Community College (BHCC) and Charlestown High School. You will earn free college credits that you can apply toward an associate's degree at BHCC or transfer to many other institutions.

### You will:

- Learn **critical IT skills** that can lead to your future high-paying career
- Earn up to **18 college credits for free**, starting in 10th grade
- Take **hands-on, project-based courses**
- Explore careers through work-based experiences like **internships and job shadows** at major Boston companies
- Connect with **professional mentors** one on one and in small groups

### Why Start College Early?

#### Early college is effective.

High school students who participate in early college programs are more likely to have higher GPAs, graduate from high school, and complete college degrees.

#### You can save time and money!

You can potentially save thousands of dollars in tuition and fees and reduce the time it takes to earn a college degree.

#### Get access to individualized support.

You will receive specialized academic and career advising to help you successfully transition to college and work experiences.

#### Get access to college resources.

When you are dual enrolled at BHCC, you will receive a real college ID and have access to all BHCC resources, including: student discounts, tutoring support, advising, college-sponsored events, and campus facilities like the gym and health center.

In partnership with JFF



# C-TOWN TECH

## BUILDING YOUR PATHWAY

C-Town Tech builds a connection between high school, college, and your future career in information technology. Take full advantage of C-Town Tech's IT Pathway by using this guide to select your courses for each grade and semester.

	Fall Semester	Spring Semester
9th Grade	Exploration Course	Exploration Course
10th Grade	<b>CIT-113:</b> Intro to IT Problem Solving	<b>CIT-131:</b> Intro to Creating Mobile Apps

By 11th Grade  Choose a Bunker Hill Community College IT Pathway Concentration

Database Programming and Administration	Cybersecurity	Computer Information Systems	Web Development	IT Transfer
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	Fall Semester	Spring Semester
11th Grade	<b>IT Concentration Course</b> or Recommended Gen Ed Course	<b>IT Concentration Course</b> or Recommended Gen Ed Course
12th Grade	<b>IT Concentration Course</b> or Recommended Gen Ed Course	<b>IT Concentration Course</b> or Recommended Gen Ed Course

### Get paid work opportunities!

C-Town Tech staff will help you find paid IT internships or summer jobs with major Boston employers like Liberty Mutual, SAP, and more! Start by taking advantage of these career-related experiences during 9th and 10th grade:

- Job shadows
- Workshops
- Career advising
- Guest speakers
- Resume support
- Interview preparation



# A Guide to Choosing the Right Courses

## FOR YOUR CONCENTRATION

### Database Programming and Administration

**CIT-118:** Principles of Internet & Information Security

**CIT-128:** Database Design with Microsoft Access

**ENG-171:** Oral Communication

**ACC-101:** Principles of Accounting

### IT Transfer

**CIT-118:** Principles of Internet & Information Security

**CIT-162:** CISCO Networking I

**CIT-236:** SQL Programming

**CIT-268:** Windows Operating System

### Web Development

**ENG-171:** Oral Communication

**VMA-105:** Digital Imaging with Photoshop

### Computer Information Systems

**CIT-120:** Introduction to Computer Science and Object Oriented Programming

**CIT-128:** Database Design with Microsoft Access

**ACC-101:** Principles of Accounting

### Cybersecurity

**CIT-118:** Principles of Internet & Information Security

**CIT-121:** Introduction to Computer Forensics

**CIT-125:** Python Programming

**CIT-162:** CISCO Networking I

**CIT-182:** PC Hardware and Software

## Unsure what concentration you want to choose?

Start by exploring some of these courses that apply to multiple concentrations:

<b>CIT-268:</b> Windows Operating System	<b>Applies to:</b> <ul style="list-style-type: none"><li>• Database Programming and Administration</li><li>• Cybersecurity</li></ul>	<ul style="list-style-type: none"><li>• Web Development</li><li>• IT Transfer</li></ul>
<b>CIT-216:</b> Visual Basic	<b>Applies to:</b> <ul style="list-style-type: none"><li>• Database Programming and Administration</li></ul>	<ul style="list-style-type: none"><li>• Computer Information Systems</li><li>• IT Transfer</li></ul>
<b>CIT-236:</b> SQL Programming	<b>Applies to:</b> <ul style="list-style-type: none"><li>• Database Programming and Administration</li></ul>	<ul style="list-style-type: none"><li>• Web Development</li><li>• IT Transfer</li></ul>
<b>CIT-162:</b> CISCO Networking I	<b>Applies to:</b> <ul style="list-style-type: none"><li>• Database Programming and Administration</li></ul>	<ul style="list-style-type: none"><li>• Cybersecurity</li><li>• IT Transfer</li></ul>



# Recommended General Education Courses

## FOR C-TOWN TECH'S IT PATHWAY

General education courses help you prepare to thrive in today's workforce and society. Once you complete any necessary prerequisites, you can start taking the recommended general education courses on this list. You can also place into a course—talk to your guidance counselor to learn about placement requirements.

### **ENG-111:** College Writing I

#### **Prerequisites:**

- ENG-095
- **And** a grade of C or better in ESL-098 **or** RDG-095
- Prerequisites can be taken at the same time as this course

### **PSY-101:** Principles of Psychology

#### **Prerequisites:**

- ESL-098 **or** RDG-095

### **PSY-107:** Group Dynamics

#### **Prerequisites:**

- None

### **SOC-101:** Principles of Sociology

#### **Prerequisites:**

- ESL-098 **or** RDG-095

### **PHL-101:** Introduction to Philosophy

#### **Prerequisites:**

- Grade of C or better in ENG-095
- **And** grade of C or better in ESL-098 **or** RDG-095

### **MAT-181:** Statistics I

#### **Prerequisites:**

- Grade of C or better in MAT-097 **or** MAT-098

For the list of all BHCC general education courses, visit:

[www.bhcc.edu/programsofstudy/generaleducationrequirements](http://www.bhcc.edu/programsofstudy/generaleducationrequirements).

# Database Programming and Administration

CONCENTRATION



## What is database programming and administration?

Companies use database administration to create new or update existing databases to meet their internal data collection needs. Database administration uses specialized software that stores and organizes data, such as financial information and customer shipping records. One goal of database administration is to make sure that data are available to users and secure from unauthorized access.

## What do Database Administrators do?

- **Design, implement, and maintain databases** that contain information that is important to companies and organizations
- **Write code** that instructs a computer system to organize, access, or update a database
- **Protect** sensitive information
- **Provide technical support** such as data recovery, upgrades, data backup, and troubleshooting malfunctions

## Median Pay for Database Administrators

	<b>\$92,530</b>	
Median pay in 2017	<b>\$92,530</b> per year <b>\$44.48</b> per hour	
Typical entry-level education	Bachelor's degree	
Work experience in a related occupation	None	
On-the-job training	None	
Number of jobs in 2016	119,500	
Job outlook from 2016 to 2026	Employment will increase by 11% (faster than average)	
Employment change from 2016 to 2026	13,700	

SOURCE: U.S. BUREAU OF LABOR STATISTICS

# Database Programming and Administration

## CONCENTRATION

## Building a Database Programming and Administration Course Schedule

### Core courses:\*

**CIT-118:** Principles of Internet & Information Security

**CIT-128:** Database Design with Microsoft Access

**ENG-171:** Oral Communication

**ACC-101:** Principles of Accounting

### Prerequisites:

CIT-113

RDG-095

ESL-098

### Placement:

RDG 10/11/12/13

### What can you do with these credits?

You can fully enroll at BHCC after high school graduation and apply your credits toward an associate's degree in database programming and administration.\* Associate's degrees typically require 60 to 65 total credits—about 22 general education credits and 40 pathway concentration credits. You can also transfer your credits to many public four-year institutions in Massachusetts.

### Example schedule

9th Grade	
Fall	Exploration Course
Spring	Exploration Course
10th Grade	
Fall	CIT-113 – 3 credits
Spring	CIT-131 – 3 credits
11th Grade	
Fall	ENG-171 – 3 credits
Spring	CIT-118 – 3 credits
12th Grade	
Fall	ACC-101 – 3 credits
Spring	CIT-128 – 3 credits

**18 total college credits**

### College and career outlook

**Entry level:** You may qualify for entry-level database programming and support positions with an associate's degree in database programming and administration. In-depth knowledge of database programming languages, such as SQL, is also key to success in the field.

**Bachelor's degree:** To become eligible for most database developer positions, you will need to earn a bachelor's degree in computer science.

**Master's degree:** To work at an organization that has an extensive database infrastructure, you may need a master's degree in information systems or computer science.

\*For more information, go to [www.bhcc.edu/programsofstudy/programs/databaseprogrammingandadministrationoption](http://www.bhcc.edu/programsofstudy/programs/databaseprogrammingandadministrationoption).

# Cybersecurity

## CONCENTRATION



### What is cybersecurity?

Cybersecurity focuses on protecting computers, networks, systems, and information from digital attacks. These attacks usually aim to access, change, or destroy sensitive information, extort money from others, or interrupt regular business. Any device that connects to the internet is vulnerable to attack and needs to be protected.

### What do Cybersecurity Specialists do?

- **Find risks** and possible information or data leaks
- **Protect information** on computer networks, cloud servers, mobile devices, payment software, and more
- **Analyze** where risks are and **develop strategies to prevent breaches**
- **Fight against cyber criminals** — people who use the internet and various hacking methods to steal sensitive or private information

### Median Pay for Information Security Analysts

**\$95,510**

Median pay in 2017	<b>\$95,510</b> per year <b>\$45.92</b> per hour
Typical entry-level education	Bachelor's degree
Work experience in a related occupation	Less than 5 years
On-the-job training	None
Number of jobs in 2016	100,000
Job outlook from 2016 to 2026	Employment will increase by 28% (faster than average)
Employment change from 2016 to 2026	28,500

SOURCE: U.S. BUREAU OF LABOR STATISTICS

# Cybersecurity

## CONCENTRATION

### Building a Cybersecurity Course Schedule

#### Core courses:\*

**CIT-118:** Principles of Internet & Information Security

**CIT-121:** Intro to Computer Forensics

**CIT-125:** Python Programming

**CIT-162:** CISCO Networking I

**CIT-182:** PC & Hardware

#### Prerequisites:

CIT-113

RDG-095 or ESL-098

#### Placement:

RDG 10/11/12/13

#### What can you do with these credits?

You can fully enroll at BHCC after high school graduation and apply your credits toward an associate's degree in cybersecurity.\* Associate's degrees typically require 60 to 65 total credits—about 22 general education credits and 40 pathway concentration credits. You can also transfer your credits to many public four-year institutions in Massachusetts.

#### Example schedule

9th Grade	
Fall	Exploration Course
Spring	Exploration Course
10th Grade	
Fall	CIT-113 – 3 credits
Spring	CIT-131 – 3 credits
11th Grade	
Fall	CIT-162 – 3 credits
Spring	CIT-118 – 3 credits
12th Grade	
Fall	CIT-125 – 3 credits
Spring	CIT-121 – 3 credits

**18 total college credits**

#### College and career outlook

**Entry level:** Some entry-level cybersecurity specialist positions require a two-year associate's degree in computer science or a related field, plus work experience. You may be able to move up in the field by gaining more experience and education.

**Bachelor's degree:** Most mid-level cybersecurity positions require a bachelor's degree in computer science, information technology, engineering, or a related discipline. Many also require specialized training, industry certifications, and/or related work experience.

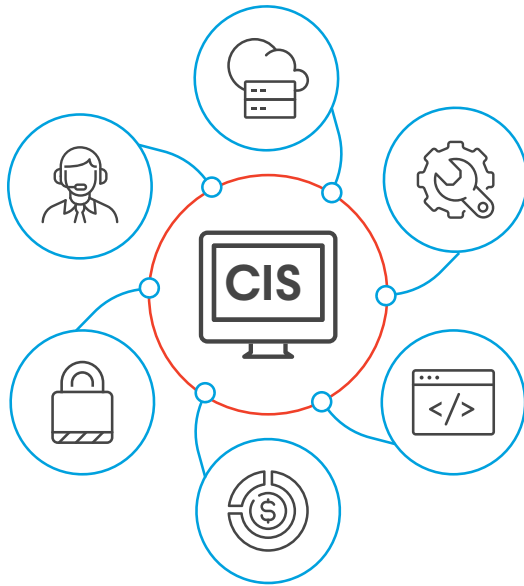
**Master's degree:** Mid-level and advanced cybersecurity specialist positions often require an advanced degree, as well as work experience.

\*For more information, go to [www.bhcc.edu/programsofstudy/programs/cybersecurityoption](http://www.bhcc.edu/programsofstudy/programs/cybersecurityoption).



# Computer Information Systems

## CONCENTRATION



### What is computer information systems?

Computer information systems involves the analysis, design, development, deployment, and administration of computer-based information systems. A main goal of computer information systems is to use technology to support and benefit a company or organization.

### What are careers in computer information systems?

- **Computer Support Specialists** provide help and advice to organizations and computer users. They either support computer networks within an organization or provide technical assistance directly to computer users.
- **Computer Systems Analysts**, also called Systems Architects, study an organization's computer systems and procedures and then design solutions to help the organization operate more efficiently and effectively.

### Median Wage for Computer Support Specialists

**\$52,810**

Median pay in 2017	<b>\$52,810</b> per year <b>\$25.39</b> per hour
Typical entry-level education	Varies
Work experience in a related occupation	None
On-the-job training	None
Number of jobs in 2016	835,300
Job outlook from 2016 to 2026	Employment will increase by 11% (faster than average)
Employment change from 2016 to 2026	88,500

SOURCE: U.S. BUREAU OF LABOR STATISTICS

# Computer Information Systems CONCENTRATION

## Building a Computer Information Systems Course Schedule

### Core courses:\*

**CIT-120:** Introduction to Computer Science and Object Oriented Programming

**CIT-128:** Database Design with Microsoft Access

**ACC-101:** Principles of Accounting

### Prerequisites:

CIT-113  
RDG-095 or ESL-098

### Placement:

RDG 10/11/12/13

### What can you do with these credits?

You can fully enroll at BHCC after high school graduation and apply your credits toward an associate's degree in computer information systems.\* Associate's degrees typically require 60 to 65 total credits—about 22 general education credits and 40 pathway concentration credits. You can also transfer your credits to many public four-year institutions in Massachusetts.

### Example schedule

9th Grade	
Fall	Exploration Course
Spring	Exploration Course
10th Grade	
Fall	CIT-113 — 3 credits
Spring	CIT-131 — 3 credits
11th Grade	
Fall	ACC-101 — 3 credits
Spring	CIT-128 — 3 credits
12th Grade	
Fall	CIT-120 — 3 credits
Spring	PSY-101 — 3 credits

**18 total college credits**

### College and career outlook

**Entry level:** With an associate's degree in computer information systems, you may qualify for positions that involve installation, maintenance, repair, analysis, networking, programming, and configuration skills, such as computer support specialist.

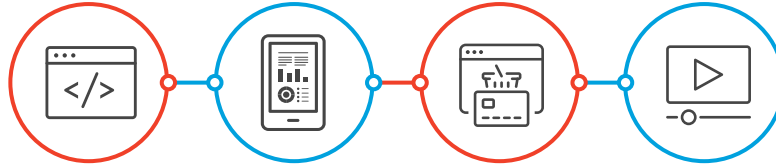
**Bachelor's degree:** With a bachelor's degree in computer information systems, you will be eligible for IT roles in various sectors, including computer programmer or computer systems analyst.

**Master's degree:** If you earn a master's degree in computer information systems, it can lead to a higher salary and more opportunities to advance in your career.

\*For more information, go to [www.bhcc.edu/programsofstudy/programs/computerinformationsystemsconcentration](http://www.bhcc.edu/programsofstudy/programs/computerinformationsystemsconcentration).

# Web Development

## CONCENTRATION



### What is web development?

Web development is the creation of websites and web applications by writing code. Companies need web developers to help with everything from content organization to online sales and video presentations. Web development incorporates a range of skills including computer programming, graphic design, and organization.

### What do Web Developers do?

- **Design, create, and maintain websites**
- **Help** businesses and organizations **create a strong web presence**
- **Analyze user needs** to implement and maintain website content, graphics, performance, and capacity
- **Convert** written, graphic, audio, and video components to compatible web formats

### Median Pay for Web Developers

**\$85,120**

Median pay in 2017	<b>\$85,120</b> per year <b>\$40.92</b> per hour
Typical entry-level education	Associate's degree
Work experience in a related occupation	None
On-the-job training	None
Number of jobs in 2016	162,900
Job outlook from 2016 to 2026	Employment will increase by 15% (faster than average)
Employment change from 2016 to 2026	24,400

SOURCE: U.S. BUREAU OF LABOR STATISTICS

# Web Development

## CONCENTRATION

### Building a Web Development Course Schedule

#### Core courses:\*

**ENG-171:** Oral Communication

**VMA-105:** Digital Imaging with Photoshop

#### Prerequisites:

CIT-113

RDG-095

ESL-098

#### Placement:

RDG 10/11/12/13

### What can you do with these credits?

You can fully enroll at BHCC after high school graduation and apply your credits toward an associate's degree in web development.\* Associate's degrees typically require 60 to 65 total credits—about 22 general education credits and 40 pathway concentration credits. You can also transfer your credits to many public four-year institutions in Massachusetts.

### Example schedule

9th Grade	
Fall	Exploration Course
Spring	Exploration Course
10th Grade	
Fall	CIT-113 – 3 credits
Spring	CIT-131 – 3 credits
11th Grade	
Fall	ENG-171 – 3 credits
Spring	CIT-268 – 3 credits
12th Grade	
Fall	CIT-236 – 3 credits
Spring	VMA-105 – 3 credits

**18 total college credits**

### College and career outlook

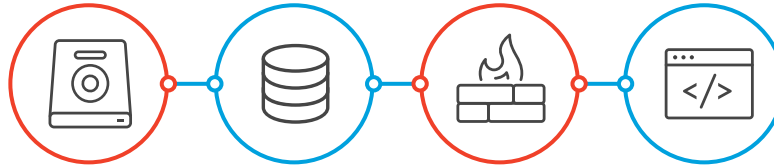
**Entry level:** Most entry-level web development positions require an associate's degree or equivalent credential. You need to have a strong understanding of HTML programming. Many employers also want developers to understand other programming languages such as JavaScript or SQL as well as multimedia publishing tools such as Flash.

**Bachelor's degree:** For more specialized positions, such as back-end web developers, you will need at least a bachelor's degree in computer science, programming, or a related field. Some employers prefer to hire web developers who have also taken coursework in graphic design, especially if the developer will be heavily involved in the website's visual appearance.

\*For more information, go to [www.bhcc.edu/programsofstudy/programs/webdevelopmentoption](http://www.bhcc.edu/programsofstudy/programs/webdevelopmentoption).

# IT Transfer

## CONCENTRATION



### What is information technology and the IT Transfer concentration?

Information technology involves the design, development, implementation, support, and management of computer-based information systems.

In BHCC's IT Transfer concentration, you will learn the foundations of IT and in-demand programming skills, while also having the flexibility to explore a range of electives that count toward credit requirements.

### What do IT Specialists do?

- **Solve problems** related to computer hardware, software, databases, and networks
- **Manage computer systems** to improve utility and advance business goals
- **Secure computer systems** from damage, unauthorized use, and exploitation
- **Design, operate, or maintain** technology products

### Median Wage

for

### IT Support Specialists

**\$95,510**

Median pay in 2017	<b>\$95,510</b> per year <b>\$45.92</b> per hour
Typical entry-level education	Bachelor's degree
Work experience in a related occupation	Less than 5 years
On-the-job training	None
Number of jobs in 2016	100,000
Job outlook from 2016 to 2026	Employment will increase by 28% (faster than average)
Employment change from 2016 to 2026	28,500

SOURCE: U.S. BUREAU OF LABOR STATISTICS

# IT Transfer

## CONCENTRATION

### Building an IT Transfer Course Schedule

#### Core courses:\*

**CIT-118:** Principles of Internet & Information Security

**CIT-162:** CISCO Networking I

**CIT-236:** SQL Programming

**CIT-268:** Windows Operating System

#### Prerequisites:

CIT-113

RDG-095 or ESL-098

#### Placement:

RDG 10/11/12/13

### What can you do with these credits?

You can fully enroll at BHCC after high school graduation and apply your credits toward the IT Transfer associate's degree.\* Associate's degrees typically require 60 to 65 total credits—about 22 general education credits and 40 pathway concentration credits. You can also transfer your credits to many public four-year institutions in Massachusetts.

### Example schedule

9th Grade	
Fall	Exploration Course
Spring	Exploration Course
10th Grade	
Fall	CIT-113 – 3 credits
Spring	CIT-131 – 3 credits
11th Grade	
Fall	CIT-162 – 3 credits
Spring	CIT-118 – 3 credits
12th Grade	
Fall	CIT-268 – 3 credits
Spring	CIT-236 – 3 credits

**18 total college credits**

### College and career outlook

**Entry level:** With an associate's degree in IT, you may qualify for a variety of entry-level IT opportunities, depending on the company and internal training programs. It may be helpful to look into tech apprenticeship programs or certification in a programming language such as SQL.

**Bachelor's degree:** A bachelor's degree in IT will further your career advancement and help you to specialize in a specific area of IT.

**Master's degree:** To work at an organization that has extensive IT infrastructure needs, you may need a master's degree.

\*For more information, go to [www.bhcc.edu/programsofstudy/programs/informationtechnologytransferoption](http://www.bhcc.edu/programsofstudy/programs/informationtechnologytransferoption).