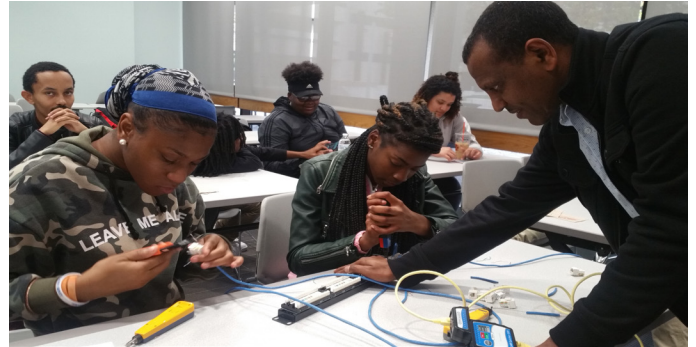


# COMPUTER SCIENCE

# UNIVERSITY OF THE DISTRICT OF COLUMBIA

SCHOOL OF ENGINEERING AND APPLIED SCIENCES



## BACHELOR OF SCIENCE in COMPUTER SCIENCE

Accredited by the Computing Accreditation Commission  
of ABET

<http://www.abet.org>

Computer Science (CS) has become increasingly essential in almost every industry. Computer Scientists are needed to create technology and systems in a wide range of industries such as science, medicine, aviation, business, entertainment, manufacturing, and communications. Computer Science research spans computing theory and practice and leads to state-of-the-art technologies that change the world, including the personal computer, Internet, cell phone, and social media. Although there have been impressive achievements in the field, we know there can be much more in collaboration with other fields, such as art, social sciences, engineering, and natural sciences.

Why study Computer Science? Computer Science is an incredible field. Computer Science graduates are in very high demand, and their salaries are very competitive from the start. While many Computer Science graduates work in the computing industry, some go on to enter careers in business, law, and other professions.

UDC's Bachelor of Science in Computer Science program prepares nationally and internationally competitive graduates to meet the needs of the current and future technology era.

Computer Science students work with the department's faculty on interesting research challenges in various areas spanning databases, algorithms, artificial intelligence, robotics, networking and security, software engineering, and cloud computing. We prepare our students to enter the computing profession or to proceed to graduate programs in computer science.

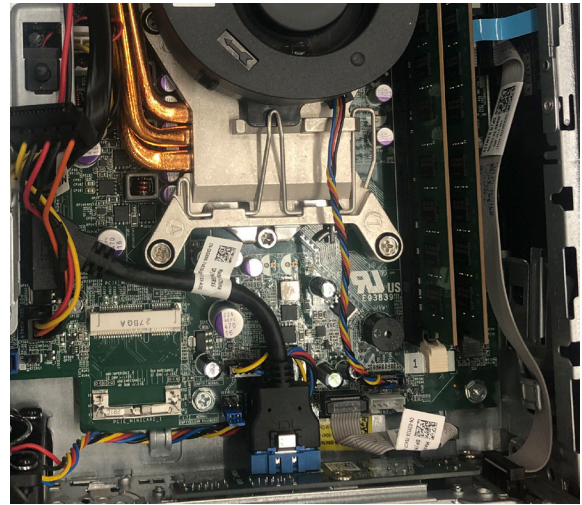
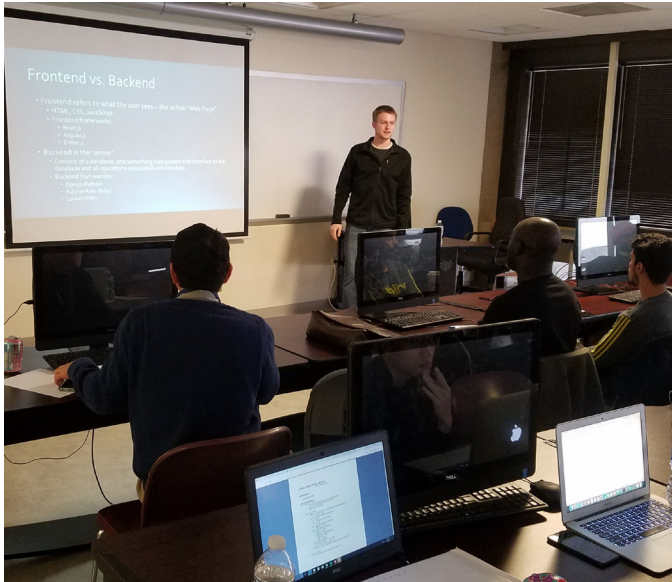
### Your total 120-credit-hour curriculum consists of:

- Basic Science and Mathematics
- General Education (with emphasis on freedom, responsibility, and the pursuit of learning)
- Computer Science Core
- Computer Science Electives

Sample of Courses offered: Web Page Development, Software Engineering, Computer Organization, Computer Networks, Databases, Computer Architecture, and Artificial Intelligence

## WHY A BS IN COMPUTER SCIENCE AT UDC?

- UDC's Computer Science program is ABET-accredited
- Student-focused • Affordable and accessible • Covers a wide range of CS topics • Average class size is around 20 • Lower tuition fees compared to other schools • Research opportunities for undergraduates • Scholarship opportunities • Convenient to Metropolitan DC Area residents



### What makes the UDC Computer Science program different?

The computer science program at UDC is designed with the success of individual students in mind. With smaller class sizes, students benefit from a personal teaching environment and individual attention.

### How will my credits transfer?

Once you are enrolled, a Computer Science faculty member will evaluate your previous courses and academic record and let you know about transfer credits.

### May I speak to a current UDC student?

Contact the undergraduate program director to be connected with a continuing or recently graduated student who will share their experience with you.

*"I couldn't have done it without the great resources and opportunities provided to me at UDC. UDC has been a great place to do undergraduate work and I hope this award is an indicator of that reality.*

*~ NATHAN KEEGAN. A recipient of the Boren Fellowship*

For more information about BS in the Computer Science visit [www.udc.edu/seas](http://www.udc.edu/seas) or contact:

Department Chair, Dr. Briana Wellman  
202-274-6695, [briana.wellman@udc.edu](mailto:briana.wellman@udc.edu)

Program Director, Dr. Dong Jeong  
202-274-6292, [djeong@udc.edu](mailto:djeong@udc.edu)

Department Office, Ms. Sandra Brooks  
202-274-6287, [sbrooks@udc.edu](mailto:sbrooks@udc.edu)

## B.S. Computer Science - Four Year Degree Completion Guide (Spring 2020 - Current)

The highlighted cells indicate General Education Courses for *B.S. Computer Science*

The minimum credits required for graduation: 120

Year 1			Credits
Fall	IGED 110	Foundation Writing I	3
	IGED 130	Foundation Oral Communication	3
	MATH 151/155	Calculus I (Lec+Lab)	4
	APCT 115	Foundations of Computing	3
	APCT 110/111	Intro to Programming (Lec+Lab)	3
	Subtotal		
Spring	IGED 111	Foundation Writing II	3
	MATH 152/156	Calculus II (Lec+Lab)	4
		Natural Science Elective (Lec+Lab)	4
	APCT 231/233	Computer Science I (Lec+Lab)	4
Subtotal			15

Year 2			Credits
Fall	IGED 140	Foundation Ethics	3
	IGED 210	Discovery Writing	3
	MATH 220	Discrete Math	3
	APCT 232/234	Computer Science II (Lec+Lab)	4
	CMOP 235/236	Intro. to WebPage Development and HTML (Lec+Lab)	3
	Subtotal		
Spring	IGED 270	Discovery Diversity	3
		Natural Science Elective (Lec+Lab)	4
	CSCI 241	Data Structures	3
	CSCI 306	Computer Ethics and Laws	3
	CSCI 308	Advanced Object-Oriented Programming	3
Subtotal			16

Security Elective+

Course number	Title	New Credits
CSCI 352	Network Security	3
CSCI 353	Information Security	3
CSCI 441	Digital Forensics	3
CSCI 453	Secure Software Engineering	3
CSCI 455	Cryptography	3

All CS students are required to take at least one security course among the security-related courses.

Year 3			Credits
Fall	IGED 280	Discovery Civics	3
	MATH 225	Linear Algebra	3
	CSCI 325	Organization of Programming Language	3
	CSCI 351	Computer Networks	3
		Security Elective+	3
	Subtotal		
Spring	MATH 381	Probability and Statistics	3
	CSCI 341	Software Engineering	3
	CSCI 410	Theory of Computing	3
	CSCI 415	Computer Organization and Architecture	3
		CS Elective+	3
Subtotal			15

Year 4			Credits
Fall	CSCI 412	Operating Systems	3
	CSCI 434	Analysis of Algorithms	3
	CSCI 498	Senior Project I	3
		CS Elective+	3
		CS Elective+	3
	Subtotal		
Spring	CSCI 436	Parallel and Distributed Computing	3
	CSCI 452	Database Systems Design	3
	CSCI 499	Senior Project II	3
		CS Elective+	3
Subtotal			12

CS Elective+

Course number	Title	New Credits
APCT 341	Advanced Web Development	3
CSCI 251/253	Assemblers & Systems (Lec + Lab)	4
CSCI 315	Unix and System Programming	3
CSCI 345	Human Computer Interaction	3
CSCI 352	Network Security	3
CSCI 353	Information Security	3
CSCI 398	Advanced Applied Programming	3
CSCI 414	Introduction to Artificial Intelligence	3
CSCI 417	Functional Programming	3
CSCI 421	Machine Learning	3
CSCI 422	Introduction to Deep Learning	3
CSCI 424	Introduction to Compiler Design	3
CSCI 435	Digital Image Processing	3
CSCI 441	Digital Forensics	3
CSCI 453	Secure Software Engineering	3
CSCI 454	Computer Graphics	3
CSCI 455	Cryptography	3
CSCI 456	Visualization	3
CSCI 478	Big Data Analysis	3
CSCI 490	Special Topics	3
CSCI 497	Independent Study	3

## **FACULTY EXPERTISE**

### **DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY**

#### **Uzma Amir**

Area Robotics, STEM Programs

#### **Li Chen, Ph.D.**

Image Processing, Object-Oriented Programming and Design, Algorithm Design and Complexity, Discrete Geometry and Digital Geometry, Data Science: Theory and Applications

#### **Anteneh Girma, Ph.D.**

Information Security and Assurance, CyberSecurity, CyberSecurity Intelligence, CyberSecurity Governance, Risk Management, and Security Auditing, Cloud Computing and Security, Internet of Things and Security, Artificial Intelligence, Machine Learning, Cryptography, and Data Science

#### **Dong Hyun Jeong, Ph.D.**

Human-Computer Interaction, Visual Analytics, Information Visualization, Cloud Computing

#### **Thabet Kacem, Ph.D.**

Cybersecurity, Smart Transportation Systems, Software-Defined Radios/Radars, Cyber Physical Systems, Sea Level Rise

#### **Junwhan Kim, Ph.D.**

Distributed Systems, Software and Hardware Transactional Memory, Fault Tolerance, Wireless Networking, Cross-Layer Optimization

#### **Lily Liang, Ph.D.**

Digital Image Processing, Artificial Intelligence, Bioinformatics, Data Mining

#### **Timothy Oladunni, Ph.D.**

Data Analysis, Pattern Recognition, Software Engineering, Deep Learning, Business Intelligence, Data Mining

#### **Briana Wellman, Ph.D. (Department Chair)**

Multi-robot System, Educational Robotics, Autonomous Systems

#### **Byunggu Yu, Ph.D.**

Database, Cloud Computing, Big Data, Bigtable, MapReduce, Sensor-Network DB, Information Storage and Retrieval, Spatial Database, Spatio-temporal Database, High-dimensional Database, Indexing, Data Modeling, Operating Systems, Mobile Database, Informatics